SSPC Protective Coatings Glossary

Acronyms and Terms Related to Coating Industrial Steel and Concrete Structures as well as Failure Analysis and Regulations

SSPC: The Society for Protective Coatings
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Introduction

This glossary was compiled for a diverse audience within the protective coatings industry. It includes over 1,500 technical and general industry terms for use by facility owners and their engineering personnel; specification writers; construction contractors and subcontractors; manufacturers of raw materials, finished products for cleaning and coating, and surface preparation and application equipment; and coating industry consultants. While definitions were prepared to be easily understood, it was sometimes necessary to use technical, chemical or engineering terms to fully convey meanings.

In addition to general coating terms and terms associated with failure analysis, key terms associated with bridges, marine structures, and concrete work can also be found here. Pertinent terms from health, safety, and environmental protection regulations that affect coating operations are also included.

Each year, new loosely-defined terms enter the coatings industry. Other terms become misused to the extent that their definitions are no longer clear. This often results in a variation from the desired product, lesser work or workmanship than desired, costly delays, or even costlier disputes and litigation. Eliminating the misunderstandings associated with definitions of coating terms can be effective in producing high-quality products prepared in a timely and cost effective manner.
A number of sources of coatings terminology were consulted and drawn upon in the process of compiling this glossary, not with the aim of duplicating what has been done in other works, but rather with the goal of collecting the most significant terms commonly used in the industry today, revising and updating them where it was deemed appropriate, and maintaining the commonly accepted definitions in other cases.

Where a definition is drawn from another published source, either identically or essentially, the source is cited in the text in brackets.

In some cases, only a portion of the source’s definition was used, so more detailed information may be available by consulting the cited reference. In other cases, the source’s definition was supplemented with additional material.

Definitions not attributed to a specific source were written on a basis of either information from multiple references or the expertise of the editors and reviewers of the glossary.

This list contains the bibliographical references for published materials that are cited in the text as sources or that were consulted in the process of compiling the glossary. Where definitions have been re-printed from other sources, they have been credited and every attempt has been made to seek reprint permission. If you represent an organization whose terms are cited here and have any questions about this, please call the SSPC editorial office at 1-877-281-7772, ext. 2237.

ACI: Cement and Concrete Terminology, Publication SP-19 (90), American Concrete Institute, Detroit, MI, 1990.


Acronyms

AA
Atomic Absorption

AAQS
Ambient Air Quality Standards

AAS
Atomic Absorption Spectroscopy

AASHTO
American Association of State Highway Transportation Officials

ABC
Associated Builders and Contractors; A trade association that promotes the interest of merit shop or nonunion construction companies

ABS
American Bureau of Shipping

ACA
American Coatings Association

ACGIH
American Conference of Governmental Industrial Hygienists; A non-profit professional society for the study of industrial hygiene, known particularly for development of threshold values

ACI
American Concrete Institute; An association of persons engaged mainly in the work of designing, specifying, building, and supplying materials for concrete structures or components of structures

AGA
American Galvanizers Association; An association of persons engaged in the hot dip galvanizing of steel for corrosion protection. Formerly the American Hot Dip Galvanizers Association (AHDGA)

AIHA
American Industrial Hygiene Association; An association to study and control stresses and hazards in the workplace

AIHC
American Industrial Health Council; An association of persons in the manufacturing sector and users of manufactured products who address scientific issues related to safety and environmental regulations

AIM
Architectural and Industrial Maintenance Coatings
AISC
American Institute of Steel Construction

AISE
Association of Iron and Steel Engineers

AISI
American Iron and Steel Institute

ALAPCO
Association of Local Air Pollution Control Officials

ANSI
American National Standards Institute; A non-profit organization that has established voluntary standards for the design, testing, and use of various products. Also serves as the U.S. representative to the International Organization of Standardization (ISO)

APCA
Air Pollution Control Association; Name changed, see AWMA

APF
Assigned Protection Factor; Describes a degree of protection a given respirator will provide. To determine the maximum airborne concentration of a chemical hazard an employee using a respirator may be exposed to, multiply the assigned protection factor (APF) times the PEL of that chemical. An APF of 10 means that the respirator can be worn in atmospheres up to 10x the PEL.

API
American Petroleum Institute

AQCR
Air Quality Control Region; A geographical unit of the country, sometimes involving several states, reflecting common air pollution problems for purposes of reaching national standards. State implementation plans (SIPs) must provide for achievement of National Ambient Air Quality Standards (NAAQS) in every AQCR.

AREMA
American Railway Engineering and Maintenance of Way Association; An association of rail officials responsible for construction and maintenance of fixed structures and rights of way

ASEE
American Society for Engineering Education

ASCC
American Society of Concrete Contractors

ASDWA
Association of State Drinking Water Administrators

ASHE
American Society of Highway Engineers
**ASM International**  
Formerly American Society for Metals

**ASME**  
American Society of Mechanical Engineers

**ASNE**  
American Society of Naval Engineers

**ASNT**  
American Society for Nondestructive Testing

**ASR**  
Alkali-Silica Reaction

**ASSE**  
American Society of Safety Engineers

**AST**  
Aboveground Storage Tank; Tank built at ground level or elevated to some height above the ground for storage of water or chemical products. See also UNDERGROUND STORAGE TANK

**ASTM**  
American Society for Testing and Materials; A not-for-profit organization that develops voluntary consensus standards for materials, products, systems, and services

**ATT**  
Applicator Train-the-Trainer Program

**AWMA**  
Air & Waste Management Association; An association that collects and disseminates information about air pollution control and waste management

**AWWA**  
American Water Works Association

**BACM**  
Best Available Control Measures; Also known as best available control technology (BACT). An emission limitation based on the maximum degree of emission reduction that (considering energy, environmental, and economic impacts, and other costs) is achievable through application of production processes and available methods, systems, and techniques. In no event do BACM permit emissions in excess of those allowed under any applicable Clean Air Act provisions. Use of the BACM concept is allowable on a case-by-case basis for major new or modified emissions sources in attainment areas and applies to each regulated pollutant. [EPA]

**BCF**  
British Coatings Federation; Trade association for the decorative coatings, industrial coatings, and printing inks manufacturing industry in the UK

**BCI**  
Bridge Coatings Inspector Program (BCI)
**BMP**

Best Management Practices; Associated with Clean Water Act (CWA) and includes schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce pollution of the environment. BMPs also include treatment requirements, operating procedures, and practices to control runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. Where a BMP exists and is complied with, there is typically no subsequent requirement to file for permits or to do testing. See CWA

**BMR**

Base Metal Reading

**BSI**

British Standards Institute

**BV**

Bureau Veritas

**C-1**

Fundamentals of Protective Coatings training course

**C-2**

Planning and Specifying Industrial Coatings Projects

**C-3**

Lead Paint Removal

**C-5**

Lead Paint Removal Refresher

**C-7**

Abrasive Blasting Program

**C-10**

Floor Coating Basics

**C-12**

Airless Spray Basics

**C-13**

Water Jetting Program

**C-14**

Marine Plural Component Program (MPCAC, C14)

**CAA**

Clean Air Act; Legislation designed to protect ambient air from pollution. The Clean Air Act, as amended, provides the foundation for EPA’s efforts to improve air quality. The CAA, building on earlier legislation, was passed in 1970, and was amended in 1977 and again in 1990. [EPA] The Clean Air Act is found in 40 CFR Subchapter C, “Air Programs,” encompassing Parts 50 through 99.
**CAAA**  
Clean Air Act Amendments (of 1990)

**CAGE**  
Coating Alternatives Guide; Contains an Expert System designed to recommend low-volatile organic compound/hazardous air pollutant coatings that may serve as drop-in replacements for a user’s existing coating operation. There is also an up-to-date information base on various coating alternatives.

**CAP**  
Corrective Action Plan

**CARB**  
California Air Resources Board; Agency responsible for promulgating regulations pertaining to a variety of areas including state ambient air quality standards and area designations, emissions from motor vehicles, fuels and consumer products, and airborne toxic control measures throughout the state of California

**CAS**  
Coating Application Specialist

**CCB**  
Concrete Coating Basics

**CCI**  
Concrete Coating Inspector Program

**CDC**  
Centers for Disease Control

**CERCLA**  
Comprehensive Environmental Response, Compensation, and Liability Act; Commonly called Superfund. Federal laws addressing the clean up of hazardous waste sites. Establishes criteria for cleaning up contaminated soils and contains provisions requiring reporting of accidental releases of lead to air, soil, or water. Amended in 1986 by the Superfund Amendments and Re-Authorization Act (SARA). EPA implementing regulations are contained in 40 CFR 300-373

**CERF**  
Civil Engineering Research Foundation; An independent not-for-profit research organization established by the American Society of Civil Engineers (ASCE) to provide leadership, direction, and organizational structure to foster research for the civil engineering profession at large

**CFC**  
Chlorofluorocarbon; A family of inert, nontoxic, and easily liquefied hydrocarbons in which two or more hydrogen atoms are replaced with chlorine and fluorine atoms. Because CFCs are not destroyed in the lower atmosphere, they drift into the upper atmosphere where their halogen components destroy ozone. [EPA]

**CFO**  
Council of Facility Owners
CFM
Cubic feet per minute, a measurement of compressed air flow.

CFR
Code of Federal Regulations; A codification of the general and permanent rules published in the Federal Register by the executive departments and agencies of the U.S. federal government. The code is divided into 50 titles, each representing broad areas subject to federal regulations (e.g., labor, protection of the environment, etc.). Each title is divided into chapters, which usually bear the name of the issuing agency (e.g., OSHA, EPA, etc.). Each chapter is divided into subchapters and parts, which cover specific regulatory areas, and each part is divided into sections. There are a large number of OSHA and EPA regulations that apply to painting operations. [ILPR]

CIH
Certified Industrial Hygienist

CP
Competent Person

CPCA
Canadian Paint and Coatings Association; The national, non-profit trade association for the Canadian paint manufacturing industry. CPCA is composed of leading manufacturers of paints and coatings and suppliers of raw materials to the industry

CPSA
Consumer Product Safety Act; Legislation passed in 1977 that limits the amount of lead or lead compounds in paints or products for consumer use, consumption, or enjoyment. The regulations are found in 16 CFR 1303. [ILPR]

CPSC
Consumer Product Safety Commission; A federal agency responsible for regulating hazardous materials used in consumer goods

CPVC
Critical Pigment Volume Concentration

CPWR
Center to Protect Workers’ Rights; Focuses on safety and health in construction and related economic issues

CSB
Chemical Safety Board

CSC
Construction Safety Council; A non-profit organization dedicated to the advancement of safety and health interests in the field of construction throughout the world

CSI
Construction Specifications Institute; A technical society of architects, specification writers, engineers, and contractors concerned with advancing construction technology
CSP
Certified Safety Professional

CSR
Common Structural Rules

CTGs
Control Technique Guidelines; A series of documents prepared by EPA to assist states in defining reasonably available control technology (RACT) for major sources of volatile organic compounds (VOCs). The documents provide information on the economic and technological feasibility of available techniques, and, in some cases, suggest limits on VOC emissions. [EPA]

CWA
Clean Water Act; Legislation designed to protect the waters of the United States from pollution. The Federal Water Pollution Control Act was amended three times: the Federal Water Pollution Control Act Amendments of 1972, the Clean Water Act of 1977, and the Clean Water Act Amendments of 1987. The Clean Water Act is addressed in 40 CFR Subchapter D, Parts 100 through 149. [ILPR] Establishes the permit procedures for discharge of lead into U.S. waterways

DBA
See DESIGN BASIS ACCIDENT.

DEP, DER
Department Of Environmental Protection; Department Of Environmental Resources. Common names for state agencies charged with protection of the environment.

DFT
Dry Film Thickness

DIN
Deutsches Institute for Normung. DIN is a non-governmental organization established to promote the development of standards and related activities in Germany. There are over 12,000 DIN Standards.

DNV
Det Norske Veritas

DOD
Department of Defense

DODSSP
Department of Defense Single Stock Point. Organization created to centralize the control, distribution, and access to the extensive collection of military specifications, standards, and related standardization documents either prepared by or adopted by the DOD.

DOL
Department of Labor. A federal, cabinet-level department that regulates conditions of labor in the United States and includes OSHA.

DOT
Department of Transportation
DTM
See DIRECT TO METAL.

EPA
Environmental Protection Agency. An agency of the federal government responsible for pollution abatement and control programs, including programs in air and water pollution control, water supply and radiation protection, solid and toxic waste management, pesticides control, and noise abatement. The EPA regulations that impact the most on the paint and coatings industry are related to emissions from the volatile organic compounds (VOCs) used in paints, disposal of liquid and solid paint materials, emissions from blast cleaning operations, and disposal of hazardous blast cleaning wastes. Regulations are contained in Title 40 of the Code of Federal Regulations (40 CFR).

EPAC
Education Program Advisory Panel

EPCRA
Emergency Planning and Community Right-To-Know Act. Legislation passed as part of the Superfund Amendments and Reauthorization Act of 1986. Also referred to as SARA Title III. Regulations developed under EPCRA establish a list of extremely hazardous substances and threshold planning quantities that trigger reporting and emergency planning requirements. They are intended to facilitate the development and implementation of state and local emergency response plans.

EPRI
Electric Power Research Institute. An institute, supported by electric utilities, that conducts research on production, transmission, and use of electric power.

ESD
Electrostatic dissipative

FBE
Fusion Bonded Epoxy

FGRP
See FIBERGLASS-REINFORCED PLASTIC.

FHWA
Federal Highway Administration. An agency of the federal government, operating within the Department of Transportation, that deals with research and technology for highway construction and maintenance.

FIC
Federal Information Center. Answers questions about Federal agencies, programs, and services.

FIFRA
FEDERAL INSECTICIDE, FUNGICIDE AND RODENTICIDE ACT. Federal act regulating the use of pesticides. Requires that manufacturers register pesticides with the EPA. Labels which outline safe uses and practices are required and must be submitted as part of the registration process. EPA must weigh any health or environmental effects of a product against its benefits. It may ban or restrict use of those for which the risks outweigh the benefits.
FLBPE  
Florida Board of Professional Engineers

FRP  
See FIBER-REINFORCED PLASTIC.

FSCT  
Federation of Societies for Coatings Technology

GPO  
Government Printing Office

GSA  
See GENERAL SERVICES ADMINISTRATION.

HAPS  
See HAZARDOUS AIR POLLUTANTS.

HATE  
See HYDRAULIC ADHESION TEST EQUIPMENT.

HAZCOM  
See HAZARD COMMUNICATION STANDARD.

HEPA  
High Efficiency Particulate Air (Filter)

HUD  
Department of Housing and Urban Development.

HVLP  
High volume low pressure. See HVLP SPRAYING.

IACET  
International Association of Continuing Education and Training

IACS  
International Association of Classification Societies

IBPAT  
International Union Of Painters And Allied Trades.

ICRI  
International Concrete Repair Institute

IDLH  
Immediately Dangerous to Life or Health

ILZRO  
International Lead Zinc Research Organization
**IM**
Individual Member (SSPC)

**IMO**
International Maritime Organization. The UN agency responsible for negotiating treaties for improving maritime safety and preventing pollution from ships. IMO is involved with the development of regulations on TBT coatings.

**IR**
Infrared

**IRC**
Institute For Research In Construction. Canada’s Institute for Research in Construction provides research, building code development, and materials evaluation services.

**ISEA**
International Safety Equipment Association. Trade association in the United States for companies that manufacture safety equipment. Its member companies are world leaders in the design and manufacture of clothing and equipment used in factories, construction sites, hospitals and clinics, farms, schools, laboratories, and in the home - anywhere that people are doing work.

**ISO**
International Organization for Standardization. An international standards writing organization that attempts to unify construction standards throughout the world. The U.S. representative to ISO is the American National Standards Institute.

**ITE**
Institute For Transportation Engineers. An international individual member educational and scientific association. ITE members are traffic engineers, transportation planners and other professionals who are responsible for meeting society’s needs for safe and efficient surface transportation through planning, designing, implementing, operating and maintaining surface transportation systems worldwide.

**IUPAT**
International Union of Painters and Allied Trades. A labor union of painters, wallcovering hangers, and similar trades.

**JPCL**
Journal of Protective Coatings and Linings

**LCD**
See LIQUID CRYSTAL DISPLAY.

**LEL**
See LOWER EXPLOSIVE LIMIT.

**LEL METER**
See COMBUSTIBLE GAS METER.

**LFL**
See LOWER FLAMMABLE LIMIT.
LOCA
See LOSS OF COOLANT ACCIDENT.

MACT
See MAXIMUM AVAILABLE CONTROL TECHNOLOGY.

MBR
See MAGNETIC BASE READING.

MC
Marine Coatings

MCEM
Mixed Cellulose Ester Membrane Filters. 37-mm filters used in personal monitoring cassettes to capture particulate samples.

MCI
Master Coatings Inspector Certificate

MEK
Methyl Ethyl Ketone

MIBK
See METHYLISOBUTYL KETONE.

MIC
See MICROBIOLOGICALLY INFLUENCED CORROSION.

MICA
See ALUMINUM POTASSIUM SILICATE.

µg/cm²
Micrograms per square centimeter of surface area. Common unit for reporting concentrations of soluble salts on surfaces.

µg/dl
Micrograms per deciliter. Common units for reporting concentrations of lead in blood samples. Also reported as µg/100g (micrograms per 100 grams) of whole blood.

µg/m³
Micrograms per cubic meter. Common units for reporting airborne concentrations of lead.

MPCAC
Marine Plural Component Applicator Certification

MPI
Master Painters Institute

MSDS
Material Safety Data Sheet
MSHA
See MINE SAFETY AND HEALTH ADMINISTRATION.

MUC
See MAXIMUM USE CONCENTRATION.

MVER
Moisture Vapor Emission Rate

MVTR
Moisture Vapor Transmission Rate

NAAQS
National Ambient Air Quality Standards. Standards for national air quality developed by the EPA under the Clean Air Act for six primary pollutants including lead, ozone, particulate matter, sulfur dioxide, nitrogen dioxide and carbon monoxide. Intended to promote the public health and welfare. See also CRITERIA POLLUTANT, STATE IMPLEMENTATION PLAN.

NACE
National Association of Corrosion Engineers (NACE International). An association of corrosion engineers and related technical professionals dealing with corrosion prevention and control technology for all materials. NACE develops standards, reports, and publications, and conducts meetings, symposia, and forums.

NAVFAC
Naval Facilities Engineering Command

NAVSEA
Naval Sea Systems Command

NBPI
NAVSEA Basic Paint Inspector

NCSL
National Conference of State Legislatures. Trade association representing interest of state and local legislative bodies.

NDT
See NONDESTRUCTIVE TESTING.

NESHAP
National Emissions Standards for Hazardous Air Pollutants. Emissions standards set by EPA for an air pollutant not covered by NAAQS that may cause an increase in deaths or in serious, irreversible, or incapacitating illness. Primary standards are designed to protect human health, secondary standards to protect public welfare. [EPA]

NFPA
National Fire Protection Association. Publishers of the National Electrical Code, the Life Safety Code, the Fire Prevention Code, the National Fuel Gas Code, and the National Fire Alarm Code. The mission of NFPA is to reduce the worldwide burden of fire and other hazards on the quality of life by providing and advocating scientifically-based consensus codes and standards, research,
training, and education.

**NIBS**
National Institute of Building Sciences. Non-governmental, non-profit organization promoting a more rational regulatory environment for the building community.

**NIOSH**
National Institute for Occupational Safety and Health. A federal agency that performs studies, analyzes data, and publishes information, guidelines, and recommendations related to worker health and safety. Although these guidelines do not have the force of law, they provide guidance in engineering controls and work practices. OSHA often uses the information provided by NIOSH to establish regulations.

**NIST**
National Institute of Standards and Technology. An agency of the United States government engaged in research on broad technical issues.

**NLIC**
National Lead Information Center. Organization that provides the general public and professionals with information about lead hazards and their prevention. NLIC operates under a contract with the U.S. Environmental Protection Agency (EPA), with funding from EPA, the Centers for Disease Control and Prevention, and the Department of Housing and Urban Development.

**NPCA**

**NPDES**
National Pollutant Discharge Elimination System. The national program for issuing, modifying, and enforcing permits and other waste discharge requirements.

**NPR**
See NOTICE OF PROPOSED RULEMAKING.

**NRR**
Noise Reduction Rating. The number of decibels that an ear protection device reduces in transmission to the ear.

**NSF**
National Sanitation Foundation. An organization engaged in the certification of coatings for use in contact with potable water.

**NSPS**
New Source Performance Standards. Uniform national EPA air emission and water effluent standards that limit the amount of pollution allowed from new sources or from existing sources that have been modified. [EPA]

**NSRDC**
National Shipbuilding Research and Documentation Center. Provides access to a variety of technical and non-technical information related to ship design and production research and
applications. The center is comprised of two libraries which are continually updated with the latest research and informational materials: the Publications Library, and the AVMAST Library (audiovisual materials).

**NSRP**  
National Shipbuilding Research Program. Program that has become a nationally-recognized model for government/industry research programs; its goal is to develop more economical construction approaches to shipbuilding.

**NSTC**  
National Surface Treatment Center

**NTIS**  
National Technical Information Service. Federal agency that provides reports published by all branches of the United States government. The largest, central resource for government-funded scientific, technical, engineering, and business related information available today.

**NTPEP**  
National Transportation Product Evaluation Program

**NVM**  
See NONVOLATILE MATTER.

**OAQPS**  
Office of Air Quality Planning and Standards. Directs national efforts to meet air quality goals, particularly for smog, air toxics, carbon monoxide, lead, particulate matter (soot and dust), sulfur dioxide, and nitrogen dioxide. The office is responsible for more than half of the guidance documents, regulations, and regulatory activities required by the Clean Air Act Amendments of 1990.

**OM**  
Organizational Member (SSPC)

**OMAR**  
Alternate Representative of Organizational Membership (SSPC)

**OMIM**  
Individual Member on an Organizational Membership Roster (SSPC)

**OMOR**  
Official Representative of Organizational Membership (SSPC)

**OPPT**  
Office of Pollution Prevention and Toxics. Federal agency responsible for developing and implementing regulations on lead and other toxic substances based on the Toxic Substances Control Act.

**OSHA**  
Occupational Safety and Health Administration. An agency within the U.S. Department of Labor that is responsible for developing and enforcing regulations to support the Occupational Safety and Health Act, the federal law designed to protect people from unsafe work environments.
**OSWER**

**PA**
Paint Application

**PAPR**
See POWERED AIR PURIFYING RESPIRATOR.

**PATTI**
See PNEUMATIC ADHESION TENSILE STRENGTH TESTING INSTRUMENT.

**PCCP**
Painting Contractor Certification Program (SSPC)

**PCI**
(1) (SSPC) Protective Coatings Inspector Program. (2) Powder Coatings Institute. A trade association for manufacturers and users of materials and equipment for powder coatings.

**PCS**
(SSPC) Protective Coatings Specialist

**PDA**
Polyurea Development Association

**PDCA**
Painting and Decorating Contractors of America

**PEL**
Permissible Exposure Limit

**PIG**
Paint Inspection Gage

**PM**
Project Management for the Industrial Painting Contractor

**PMN**
See PRE-MANUFACTURE NOTICE.

**PPCP**
Preparedness, Prevention, and Contingency Plan. Large-quantity generators must have a contingency plan to use in case of an emergency. It would include preparedness to handle hazardous materials, prevention of releases to the environment, and a plan in place to respond to accidental releases.

**PPE**
Personal Protective Equipment
PPM
Parts Per Million

PQA
Protective Coatings Paperless QA and Digital Data Collection

PSD
See PREVENTION OF SIGNIFICANT DETERIORATION.

PSI
Pounds per Square Inch

PSPC
Performance Standard for Protective Coatings

PVC
(1) See PIGMENT VOLUME CONCENTRATION; (2) Abbreviation for POLYVINYL CHLORIDE.

PWC
Protective Work Clothing. Articles of clothing worn to prevent contamination of the employee and the employee’s garments. Includes coveralls, gloves, hats, shoes or disposable shoe covers, and types of protective gear that comply with 29 CFR 1910.33, “Eye and Face Protection.”

PWR
See PRESSURIZED WATER REACTOR.

QCI
Quality Control Inspector

QCS
Quality Control Supervisor (SSPC)

QP
Qualification Procedure (SSPC)

QPL
Qualified Products List

RACT
See REASONABLY AVAILABLE CONTROL TECHNOLOGY.

RCRA
Resource Conservation and Recovery Act. Federal legislation that directed the EPA to develop and implement a system of regulations for the treatment, storage, transportation, and disposal of hazardous waste. The RCRA regulations are found in 40 CFR 240 through 280. The goals of RCRA are to protect human health and the environment, to reduce waste and conserve energy and natural resources, and to reduce or eliminate the generation of hazardous waste as expeditiously as possible. [ILPR] Lead-based paint waste from paint removal operations is one of the most common paint wastes regulated under RCRA.
RCRA HAZARDOUS WASTE
All waste identified as a hazardous waste in Part 261 (commencing with section 261.1) of subchapter I or chapter 1 of Title 40 of the Code of Federal Regulations (CFR).

RINA
Registro Italiano Navale

ROV
See REMOTELY OPERATED VEHICLE.

SAE
Society of Automotive Engineers. Publications and standards for coatings in the transportation industry, including automotive and aerospace coatings. 400 Commonwealth Drive, Warrendale, PA 15096-0001. (724) 772-4841. www.sae.org

SAGBS
Shit A Gold Brick Sideways

SCC
See STRESS CORROSION CRACKING.

SCQAMD
South Coast Quality Air Management District

SI
System International, or International System; a comprehensive system of weights and measures defined in 1960 at the Eleventh General Conference of Weights and Measures in Paris. The SI currently is built on seven base units: meter (length), kilogram (mass), second (time), ampere (electric current), Kelvin (thermodynamic temperature), mole (number of atoms), and candela (light intensity). All other SI units are defined in terms of the base units.

SIP
See STATE IMPLEMENTATION PLAN.

SNAME
Society of Naval Architects and Marine Engineers. A technical society dealing with the design and construction of ships. 601 Pavonia Ave., Suite 400, Jersey City, NJ 07306. (201) 798-4800, (800) 798-2188. www.sname.org

SP
Surface Preparation

SPE
(1) Sophisticated Paint Endorsement. (2) Society of Petroleum Engineers. Covers information of interest to engineers, scientists, and managers working in the oil and gas E&P industry.

SPFA
See STEEL PLATE FABRICATORS ASSOCIATION.

SSH
Southside Holdings (Parent of TPC)
SSPC
The Society for Protective Coatings. SSPC was founded in 1950 as the Steel Structures Painting Council, a non-profit professional society concerned with the use of coatings to protect industrial steel structures. SSPC: The Society for Protective Coatings serves its members and advances the industry through standards, regulatory advocacy, education, and information exchange.

STI
See STEEL TANK INSTITUTE.

STINET
Scientific and Technical Information Network. Provides access to all unclassified, unlimited citations to scientific and technical documents added into the Defense Technical Information Center (DTIC) from late December 1974 to present. Public STINET is free of charge and only requires registration upon document ordering.

TCLP
See TOXICITY CHARACTERISTIC LEACHING PROCEDURE.

TLV
Threshold Limit Value.

TOSCA
See TOXIC SUBSTANCES CONTROL ACT.

TPC
Technology Publishing Company

TPQ
Threshold Planning Quantity.

TRB
See TRANSPORTATION RESEARCH BOARD.

TSCA
Toxic Substances Control Act

TSP
See TOTAL SUSPENDED PARTICULATE, TRISODIUM PHOSPHATE.

TU
Technology Updates

TWA
See TIME-WEIGHTED AVERAGE.

UEL
See UPPER EXPLOSIVE LIMIT.

UL
See UNDERWRITERS LABORATORIES INC.
USACE
United States Army Corps of Engineers.

UST
Underground Storage Tanks

UV
See ULTRAVIOLET.

VOC
Volatile Organic Compound

VOC-COMPLIANT
Conforming to VOC regulations. See VOLATILE ORGANIC COMPOUND.

WEF
Water Environmental Federation

WFT
Wet Film Thickness

WJTA
WATER JET TECHNOLOGY ASSOCIATION. An association representing suppliers and users of water jet technology.

WWTP
Waste Water Treatment Plant

ZPP
See ZINC PROTOPORPHYрин.
ABATEMENT
The reduction in degree or intensity of pollution.

ABLATIVE
Subject to gradual loss of material by physical forces such as heat or erosion.

ABOVEGROUND STORAGE TANK
See AST

ABRADING
(1) Erosion by mechanical or particulate impact; (2) Surface preparation of concrete that is intended to roughen the surface profile of the concrete and remove foreign materials. Methods classified as abrading include mechanical abrasion, water blast cleaning, and abrasive blast cleaning. Abrading methods for concrete are defined in ASTM D 4259.

ABRASION
The wearing away of a surface by action such as rubbing, scraping, erosion, or other frictional process or to clean it.

ABRASION RESISTANCE
The ability of a coating to resist being worn away and to maintain its original appearance and structure when subjected to rubbing, scraping and wear. [ASTM]

ABRASIVE
(1) A material used for wearing away a surface by rubbing; (2) A fine, granulated material used for blast cleaning. Abrasive particles of controlled mesh sizes are propelled by compressed air, water, or centrifugal force to clean and roughen a surface. Blast cleaning abrasives often are simply referred to as metallic or non-metallic and as shot- or grit-like. See METALLIC ABRASIVE, NON-METALLIC ABRASIVE, SHOT ABRASIVE, GRIT ABRASIVE.

ABRASIVE AIR BLAST CLEANING
See AIR ABRASIVE BLAST CLEANING.

ABRASIVE, ALUMINUM OXIDE
See ALUMINUM OXIDE ABRASIVE.

ABRASIVE BLAST CLEANING
Also called abrasive blasting, a surface preparation method that uses an abrasive propelled by air pressure, centrifugal force, or water pressure to clean and usually to profile a surface. Stand-off distance, angle of attack, and dwell time are the three most important variables under the control of an operator that can affect the quality and effectiveness of the blast cleaning. See AIR ABRASIVE BLAST CLEANING, CENTRIFUGAL BLAST CLEANING, CLOSED ABRASIVE BLAST CLEANING, OPEN ABRASIVE BLAST CLEANING, WATER BLAST CLEANING, WATER JETTING, WATER JETTING WITH ABRASIVE INJECTION, WET ABRASIVE BLAST CLEANING, ANGLE OF ATTACK, DWELL TIME, STAND-OFF DISTANCE.
ABRASIVE BLASTING
See ABRASIVE BLAST CLEANING.

ABRASIVE BREAKDOWN
A measure of particle breakdown after impact.

ABRASIVE BREAKDOWN RATE
The rate at which abrasive particles become too small to be reused after a certain number of impacts (blasting cycles). Non-metallic abrasives usually have a breakdown rate of 90 percent or more in one to five blasting cycles; metallic abrasives usually do not achieve this rate until after 100 or more blasting cycles.

ABRASIVE, CHLORIDE CONTAMINATED
See ABRASIVE, CONTAMINATED.

ABRASIVE, COAL SLAG
See COAL SLAG ABRASIVE, SLAG ABRASIVE.

ABRASIVE, CONTAMINATED
An abrasive mix that contains significant amounts of hazardous materials such as chromates, lead, and other heavy metals, or detrimental amounts of corrosion-promoting salts such as chlorides and sulfates, or significant amounts of dust or other detrimental foreign materials. The abrasive mix must be processed to remove the contamination before it can be reused in a blast-cleaning operation.

ABRASIVE, COPPER SLAG
See COPPER SLAG ABRASIVE, SLAG ABRASIVE.

ABRASIVE, CUT STEEL WIRE
See CUT STEEL WIRE ABRASIVE, METALLIC ABRASIVE.

ABRASIVE, GARNET
See GARNET ABRASIVE.

ABRASIVE, GLASS BEAD
See GLASS BEAD ABRASIVE.

ABRASIVE INJECTION
See WATER BLAST CLEANING.

ABRASIVE, IRON SLAG
See IRON SLAG ABRASIVE, SLAG ABRASIVE.

ABRASIVE, METALLIC
See METALLIC ABRASIVE.

ABRASIVE, MINERAL
See NONMETALLIC ABRASIVE.
ABRASIVE MIX
Also called work mix or operating mix; the mixture of metallic or recyclable non-metallic abrasive sizes that provide the desired results. Maintaining the appropriate abrasive mix requires periodic addition of new abrasive to the recycled abrasive during a blasting operation.

ABRASIVE, NICKEL SLAG
See NICKEL SLAG ABRASIVE, SLAG ABRASIVE.

ABRASIVE, NON-METALLIC
See NON-METALLIC ABRASIVE.

ABRASIVE, OLIVINE
See OLIVINE ABRASIVE.

ABRASIVE PAD
See NON-WOVEN ABRASIVE PAD.

ABRASIVE, SILICA SAND
See SILICA SAND ABRASIVE.

ABRASIVE SIZE
See SIEVING.

ABRASIVE, SLAG
See SLAG ABRASIVE.

ABRASIVE, STAUROLITE
See STAUROLITE ABRASIVE.

ABRASIVE, STEEL
See METALLIC ABRASIVE, STEEL ABRASIVE.

ABRASIVE WHEELS
Metallic wheels mounted on a rotary power tool, commonly used to grind welds, and remove weld spatter. They are also commonly used to remove rust and mill scale from localized areas. See POWER TOOL CLEANING.

ABSOLUTE HUMIDITY
The weight of water vapor present in a unit volume of air; for example, grains per cubic foot, or grams per cubic meter. NOTE: The amount of water vapor is also reported in terms of weight per unit weight of dry air, for example, grains per pound of dry air. This value differs from values calculated on a volume basis and should not be referred to as absolute humidity. It is designated as humidity ratio, specific humidity, or moisture content. [ASTM E 41]

ABSORPTION
Process of one substance soaking up or assimilating another substance. A sponge absorbs water. Unsealed wood absorbs a coating material. This process is different from “adsorption.” See also ADSORPTION.
**ABUTMENT**
A substructure composed of stone, concrete, brick, or timber supporting the end of a single span or the extreme end of a multispan superstructure and, in general, retaining or supporting the approach embankment. [B]

**AC POWER**
Alternating current electricity.

**ACCELERATED AGING**
Any set of conditions used in an attempt to produce in a short time the results obtained under normal conditions of aging. In accelerated aging tests, the usual factors considered are heat, light, water, and oxygen, either separately or combined. [Painting/Coatings Dictionary]

**ACCELERATED TESTING**
A set of conditions intended to simulate those encountered in practice, but which have been accentuated artificially in an attempt to provide useful performance results in shorter periods of time. Coatings do not necessarily behave under such tests exactly as they will under actual conditions, but many coatings which give good performance under these tests have possibilities which are worthy of further considerations and experimentation.

**ACCELERATED WEATHERING**
A set of conditions used to simulate those encountered in practice, but which are intensified artificially in an attempt to accelerate the destructive action of natural outdoor weathering on coating films.

**ACCELERATOR**
See CATALYST.

**ACCEPTANCE CRITERIA**
Minimum standards for the content of programs, plans, procedures, and designs required by a specification for the performance of the contract. Acceptance criteria is the basis for judging the responsiveness of a contractor’s program and is used as a basis for suspending work, if necessary.

**ACCEPTANCE TESTING**
The purchaser’s testing of received products to determine that the quality of manufactured products meets specific requirements.

**ACETONE**
Dimethyl ketone (CH3COCH3); a volatile, flammable liquid used as a fast-evaporating solvent, lacquer thinner, and paint remover. It has a boiling point of 56°C (133°F) and a closed cup flash point of –18°C (0°F). EPA has determined that acetone is not photochemically reactive, therefore, it is not classified as a VOC.

**ACID**
An organic or inorganic substance containing hydrogen that dissociates when placed into solution, producing one or more hydrogen ions. [MPDA]

**ACID ETCHING**
A method of preparing concrete floors for painting. An acid etching solution may be made of diluted hydrochloric acid (5 to 10 percent), diluted phosphoric acid (20 to 25 percent), or, often for environmental reasons, citric acid. These and other acid solutions can clean and remove dirt
and other impurities from the concrete as well as provide a surface texture to improve the adhesion of the coating. Residual acid salts formed must be rinsed from the concrete surface before coating application.

**ACID NUMBER**
A measure of the free acid in a material, expressed as the milligrams of potassium hydroxide needed to neutralize one gram of the material. Also called acid value.

**ACID RESISTANT BRICK**
A specially processed or vitrified brick suitable for use in contact with mineral acids, usually in conjunction with acid-resistant mortars.

**ACID VALUE**
See ACID NUMBER.

**ACIDITY**
The extent to which a solution is acid, normally expressed as its pH value.

**ACOUSTIC PAINT**
A coating that uses cork or similar material to absorb or deaden sound.

**ACRYLIC LACQUER**
A coating with acrylic resin dissolved in organic solvent.

**ACRYLIC LATEX**
Aqueous dispersion (latex), either thermoplastic or thermosetting, of polymers or copolymers of acrylic acid, methacrylic acid, esters of these acids, or acrylonitrile. [Painting/Coatings Dictionary]

**ACRYLIC POLYURETHANE**
A polymer produced by reacting an acrylic polyol with polyisocyanate.

**ACRYLIC RESIN**
A synthetic resin made from derivatives of acrylic acid, etc., having excellent color and clarity, and widely used in latex and solvent-thinned coatings. [MPDA]

**ACT**
A law passed by federal, state, or local government.

**ACTINIC RADIATION**
Energy having a wavelength less than 360 nanometers that is responsible for the photodegradation (chemical changes) of a coating.

**ACTION LEVEL**
A term used by OSHA and NIOSH to express the level of exposure that triggers medical surveillance and selected administrative and/or training controls. The Action Level reflects employee exposure, without regard to the use of respirators, to an airborne concentration of a contaminant in micrograms per cubic meter of air (µg/m³) calculated as an eight hour time-weighted average (TWA). For workers exposed to lead, the Action Level in the construction industry and general industry is 30 micrograms per cubic meter (µg/m³). The PEL is 50 micrograms per cubic meter (µg/m³).
ACTIVATOR
See CATALYST.

ACUTE EFFECT
Effect of exposure to hazardous material. A severe, immediate reaction, usually after a single large exposure. See CHRONIC EFFECT.

ACUTE TOXICITY
Any toxic or adverse effect that results in severe biological harm or death usually within 24 to 72 hours of exposure.

ACUTELY HAZARDOUS WASTE
Wastes considered extremely hazardous, including certain pesticides and dioxin-containing wastes. These are not commonly generated in the protective coating industry, but do require special treatment and reporting.

ADDITION POLYMERIZATION
Polymerization in which monomers are joined together without the loss of water or other simple molecule. See POLYMERIZATION.

ADDITIVE
Substance added to a coating formulation to adjust, enhance, and/or improve its emulsion, suspension, drying, application, weathering, or other properties.

ADHESION
The degree of attraction between a coating and a substrate or between two coats of paint that are held together by chemical or physical forces or both. Adhesion often is called the “bonding strength” of a coating. Adhesion should not be confused with “cohesion,” which is the force holding a single coating layer together. See BONDING STRENGTH, COHESION.

ADHESION FAILURE
A failure between two distinct coating layers or between the substrate and the first layer of coating. See ADHESION TEST, TENSILE (PULL-OFF) in main glossary.

ADHESION PROMOTER
Material built into the binder or added to paint to improve the wet and/or dry adhesion of a coating to a substrate.

ADHESION TEST, CROSSCUT (TAPE) (METHOD A)
Also called crosscut test, a method for testing adhesion of a coating to a metallic substrate using pressure-sensitive tape that is applied over an X-cut in the film and removed. Adhesion is assessed by the amount of coating that is removed in the process. This standard test method is outlined in ASTM D 3359. Adhesion measured by the crosscut test is referred to as the shear (or knife) adhesion.

ADHESION TEST, CROSSHATCH (TAPE) (METHOD B)
Also called crosshatch test, a test of coating adhesion to a metallic substrate in which a crosshatch pattern is scribed onto the coated surface, then tape is applied and pulled off. Adhesion is assessed according to surface area from which flaking has occurred (ASTM D 3359). The test may be used on other (i.e., non-metallic) substrates.
ADHESION TEST, TENSILE (PULL-OFF)
The method for testing the greatest perpendicular force which an area of coating can withstand before: (1) detaching from the surface (adhesion) or (2) fracturing within a layer of coating or substrate (cohesion). The method can also be used to determine whether a coating will remain intact at a particular applied tensile force. This standard test method is defined in ASTM D 4541.

ADJUSTABLE RATIO
Varying the mixing ratio of coating components manually or automatically using flow controllers or variable displacement cylinders.

ADJUSTABLE RATIO PUMP
See Variable Ratio Pump.

ADMINISTRATIVE CONTROL
Methods of managing employee exposures by job rotation, work assignment, time periods away from the hazard, or training in specific work practices designed to reduce the exposure. [Fundamentals of Industrial Hygiene ACGIH]

ADMIXTURE
A material other than water, aggregates, hydraulic cement, and fiber reinforcement used as an ingredient of concrete or mortar and added to the batch immediately before or during its mixing (e.g., accelerating admixture, air-entraining admixture, retarding admixture, water-reducing admixture). [ACI]

ADSORPTION
The process by which an ultrathin layer of one substance forms on the surface of another substance; this process is different from absorption.

ADULTERATION
The addition of foreign materials to a manufactured product.

ADVANCE NOTICE OF PROPOSED RULEMAKING
Used by a regulatory agency to solicit information that can be used to develop a first draft of a new regulation. Published in the Federal Register.

ADVANCES IN COATINGS TECHNOLOGY FOR STEEL
See ACTS PROGRAM.

AERATION POND
Pond supplied with oxygen to promote digestion of sewage by aerobic (oxygen utilizing) microorganisms.

AERIAL LIFT
Equipment used to raise a worker from the ground to an elevated work area. An aerial lift is portable, and can be driven, towed, or mounted onto a vehicle. See BOOM LIFT, SCISSORS LIFT.

AERIAL SUPPORTS
Rigging supported from above or attached to the steel.
AEROSOL
A system of small liquid or solid particles suspended in a gas. The aerosol particle can be a single particle or an aggregate of connected smaller particles.

AFTER-TACK
Film defect in which the coated surface, having once reached a tack-free state, subsequently develops a sticky condition. [CED]

AGAR PLATE TEST
Accelerated laboratory test for determining resistance of coatings to growth of specific mildew organisms, conducted in petri dishes containing nutrient media.

AGGREGATE
(1) A group of dry pigment particles held together by their surface forces; the spaces between the particles are filled with air. [CED]; (2) Granular material, such as sand, gravel, crushed stone, crushed hydraulic-cement concrete, or iron blast-furnace slag, used with a hydraulic cementing medium to produce either concrete or mortar. [ACI]

AGING
(1) Storage of paints, varnishes, etc., under defined conditions of temperature, relative humidity, etc., in suitable containers, or as dry films of these materials for the purpose of subsequent tests [Painting/Coatings Dictionary]; (2) Gradual changing of a coating’s chemical and/or physical properties over a period of in-service response time.

AGITATION
Continuous mixing or stirring during application of coatings with heavy pigments such as zinc.

AGITATOR
Electric or air-driven device to mix or stir.

AIR ABRASIVE BLAST CLEANING
Also called abrasive air blast cleaning. A surface preparation method in which compressed air is used to propel abrasive particles against a surface to be cleaned. “Open blast cleaning” indicates that a localized containment does not surround the blast stream. “Closed blast cleaning” means that a localized containment does surround the blast stream.

AIR-ASSISTED AIRLESS SPRAYING
A coating application method that is a modification of airless spraying. Air-assisted airless spraying applies pressurized air at the edges of the airless spray pattern. The resulting paint spray is more fully atomized and, consequently, lower airless spray pressure can be used to achieve proper paint atomization.

AIR BUBBLE
Dry bubble in coating film caused by entrapped air. [CED]

AIR CAP
The component of a conventional spray gun that directs compressed air into the fluid stream to atomize it and form the spray pattern.
**AIR COMPRESSOR**
A machine that creates high air pressure by forcing or compressing large quantities of air into a receiving tank. The volume output depends upon the compressor size. It is measured in cubic feet per minute in the U.S. or cubic meters per minute in metric units. In painting operations, compressed air is used for air abrasive blast cleaning, air-operated power tools, air spraying, air-fed hoods, etc.

**AIR CONDITIONING**
An air treatment process to change and control temperature and humidity in an enclosed space at desired levels.

**AIR CONTAMINANT**
Any substance in the ambient air, such as particulates (dust, fly ash, smoke), mists (other than water), fumes (gases), etc.

**AIR CURING (AIR DRYING)**
The curing or drying of a coating at the prevailing ambient temperature (typically between 60 and 80 degrees F [16 and 27 degrees C])

**AIR DRY**
The process of curing or drying a coating at ordinary room conditions (temperature of 60 to 80°F [16 to 27°C] with 40 to 60 percent relative humidity). [PDCA]

**AIR, DRY**
See DRY AIR.

**AIR EMISSIONS**
The release or discharge of air-borne pollutants.

**AIR ENTRAINMENT**
(1) The process of causing small air bubbles to form in paint or wet paint film; (2) Intentional incorporation of small air bubbles in concrete to improve such physical properties as freeze-thaw resistance.

**AIR ENTRAPMENT**
Inclusion of air bubbles in coating film or other solids such as concrete. [CED] See BUBBLING.

**AIR-OXIDATED AIRLESS SPRAY**
See AIR-ASSISTED AIRLESS SPRAYING.

**AIR OXIDATION**
Chemical reaction with oxygen from the air, frequently with an unsaturated organic compound, such as a drying oil.

**AIR POLLUTANT(S)**
Any substance in air that could, in high enough concentration, harm humans, animals, or vegetation. Pollutants may include almost any natural or artificial material capable of being airborne, and may be in the form of solid particles, liquid droplets, gases, or a combination of these forms. [EPA]
AIR POLLUTANT, HAZARDOUS
Any material designated as a hazardous air pollutant in the Clean Air Act Amendments of 1990, including many solvents commonly used in industrial maintenance coatings; materials discharged into the atmosphere that have a proven relationship to increased human death rates, increased serious irreversible illnesses, or increased incapacitating reversible illnesses.

AIR POLLUTION
The presence of contaminant or pollutant substances in the air that do not disperse properly and interfere with human health or welfare, or produce other harmful environmental effects. [EPA]

AIR POLLUTION REGULATIONS
Legal constraints on pollutant emissions, production processes, or control systems.

AIR-PURIFYING RESPIRATOR
A respirator that protects the wearer by preventing the entrance of airborne particulates such as dust, mist, metal fumes, and smoke. Cannot protect the wearer from materials such as poisonous gases, because these materials can pass through the filter.

AIR QUALITY CRITERIA
The level of pollution and lengths of exposure above which may cause adverse effects on health and welfare.

AIR QUALITY STANDARDS
The level of pollutants prescribed by law or regulation that cannot be exceeded during a specified time in a defined area. See NATIONAL AMBIENT AIR QUALITY STANDARDS.

AIR, SATURATED
See SATURATED AIR.

AIR SPRAYING
A coating application method using a nozzle to direct compressed air to atomize a liquid paint stream. The adjustments on air spray equipment offer the applicator a high degree of control of the application process.

AIR SUPPLY HOSE
See HOSE.

AIR-TO-CLOTH-RATIO
A size or rating of the fabric filter media that is expressed in terms of air flow capacity versus fabric media area, in units of cubic feet per minute per square feet of fabric. The ratio represents the average velocity of the gas stream through the filter media and is sometimes referred to as the filtration velocity in feet per minute (fpm).

AIR VALVE
The component of a conventional spray gun that, when opened by pulling the trigger, allows compressed air into the gun.

AIR VOID
A small hole in a coating or on a surface of a coating. [ASTM] See VOID.
AIR, WET
See WET AIR.

AIRLESS SPRAY
See AIRLESS SPRAYING.

AIRLESS SPRAYING
A coating application method that uses hydraulic pressure instead of air to atomize paint by forcing it through a spray nozzle with a small orifice at a high pressure such as 2,000 to 4,000 psi (14-28 MPa). The spray pattern and flow of paint are controlled by the size and shape of the orifice. The size of the orifice must be matched with the viscosity of the paint and the size of the material pump. This process is aided if the material is previously heated.

ALCOHOL SOLVENT
A solvent with a molecular structure containing the hydroxyl (-OH) group that has high polarity and a strong affinity for water. Alcohol solvents used in paints include ethanol (ethyl alcohol, grain alcohol), isopropanol (isopropyl alcohol), and n-butanol (n-butyl alcohol). Methanol (methyl alcohol, wood alcohol) is used mainly in paint removers.

ALIPHATIC
A class of organic hydrocarbon compounds composed of open chains. These include paraffins, olefins, etc.

ALIPHATIC POLYURETHANE
See POLYURETHANE, ALIPHATIC.

ALIPHATIC SOLVENT(S)
Solvent composed mainly of open-chain hydrocarbons derived from paraffin-based crude oil. These solvents have poor to moderate solvency for all but oil-based coatings. Among the typical aliphatic solvents are mineral spirits, naphtha, hexane, and heptane. See also AROMATIC SOLVENT, NAPHTHENIC SOLVENT.

ALKALI
A substance that neutralizes acids, such as lye, soda, lime, etc. Alkalis or strong alkaline solutions are highly destructive to oil paint films. [PDCA]

ALKALI-SILICA REACTION
Chemical reaction between alkali in Portland cement and certain silica-containing aggregates.

ALKALINE CLEANER
A cleaner that saponifies certain oils and greases and their surface-active constituents and also washes away other types of contaminants. Trisodium phosphate is a commonly used alkaline cleaner. Other alkaline cleaners include sodium hydroxide (caustic soda), potassium hydroxide, and commercial blends of these and other hydroxides.

ALKALINE PAINT STRIPPER
A paint stripper comprised of relatively diluted concentrations of an alkaline product such as sodium hydroxide (caustic soda), potassium hydroxide, and other highly alkaline materials, often combined with solvents and detergents to aid in removing paint. These strippers are effective only on oleoresinous-type coatings. It can take several hours for the alkali to attack and break down (saponify) the paint resin.
ALKALINITY
The extent to which a solution is alkaline (basic).

ALKYD, LONG OIL
See LONG OIL ALKYD RESIN.

ALKYD, MEDIUM OIL
See MEDIUM OIL ALKYD RESIN.

ALKYD RESIN
Synthetic resin formed by the condensation of polyhydric alcohols with polybasic acids. They may be regarded as complex esters. The most commonly used polybasic acid material is phthalic anhydride. Modified alkyds are those in which the polybasic acid is substituted in part by a mono-basic acid, of which the vegetable oil fatty acids are typical. See LONG OIL ALKYD RESIN, MEDIUM OIL ALKYD RESIN, SHORT OIL ALKYD RESIN, OIL LENGTH.

ALKYD, SHORT OIL
See SHORT OIL ALKYD RESIN.

ALLERGIC RESPONSE
A severe asthmatic response or skin eruption that results from a repeated exposure.

ALLIGATORING
(1) A type of crazing or surface cracking of a definite pattern, as indicated by its name. The effect is often caused during weather aging; (2) the cracking of the surface bitumen on a built-up roof, producing a pattern of cracks similar to an alligator’s hide; the cracks may not extend through the surface bitumen. [CED]; surface cracking of a paint film having the appearance similar to alligator hide. [ASTM]; alligator cracking is the vertical cracking of a coating with a pattern of closed cells or islands of unbroken coating. See also CRACKING.

ALLOY
A substance having metallic properties and being composed of two or more chemical elements of which at least one is metal. [ASTM]

ALTERNATE IMMERSION (WATER)
An exposure in which a surface is in frequent, perhaps fairly long, immersion in either fresh or salt water alternated with exposure to the atmosphere above the water.

ALTERNATING CURRENT (AC)
A flow of electricity that reverses direction in a periodic manner.

ALTERNATING IMMERSION EXPOSURE
An environment in which a coated surface alternately is immersed in fresh or salt water and then exposed to the atmosphere above the water.

ALUMINUM FLAKE
Flat aluminum pigment particles that tend to overlap in plates in cured coating films to make penetration by electrolyte more difficult.

ALUMINUM LEAF
Very thin sheets or flakes of aluminum. See ALUMINUM PASTE.
ALUMINUM OXIDE ABRASIVE
A blast cleaning abrasive manufactured by fusing the mineral bauxite at high temperature. The fused aluminum oxide is crushed, dried, and screened (sieved). See NON-METALLIC ABRASIVE.

ALUMINUM PAINT
Coating consisting of a mixture of metallic aluminum pigment in powder or paste form dispersed in a suitable vehicle. See ALUMINUM PASTE.

ALUMINUM PASTE
Metallic aluminum flake pigment in paste form, consisting of aluminum, solvent, and various additives. The metallic aluminum pigment can be in the form of very small, coated leaves or amorphous powder, known by the respective designations of “leafing” and “nonleafing.” [Painting/Coatings Dictionary]

ALUMINUM POTASSIUM SILICATE
Generically known as mica, a complex hydrous aluminum silicate, based on several mineralogically related groups. $3\text{Al}_2\text{O}_3\cdot\text{K}_2\text{O} \cdot 6\text{SiO}_2 \cdot 2\text{H}_2\text{O}$. Synonyms: ground muscovite, graphitic mica, sericite. Mica is a laminar pigment which can increase the barrier properties of a coating. [CED]

AMBIENT AIR QUALITY
Average atmospheric purity, as distinguished from discharge measurements taken at the source of pollution. The general amount of pollution present in a broad area.

AMBIENT AIR QUALITY STANDARDS
See NATIONAL AMBIENT AIR QUALITY STANDARDS.

AMBIENT CONDITIONS
The weather conditions including air temperature, relative humidity, dew point, wind velocity, and air temperature at a specific place and time or time period. These conditions are generally monitored on the job site.

AMBIENT TEMPERATURE
The temperature of the surrounding area or environment.

AMERICAN PROCESS ZINC OXIDE
See ZINC OXIDE.

AMIDE
Compound containing an atom of oxygen and the amino ($\text{NH}_2$) group attached to the same carbon atom. Polyamides are used as curing agents for epoxy resins.

AMIDOAMINE
The reaction product of a polyamine with a monofunctional fatty acid; a curing agent for epoxy resins.

AMINE
An organic compound derived from ammonia by replacement of one or more hydrogen atoms with hydrocarbon radicals. It is used as a curing agent for epoxy and polyurea resins.
AMINE ADDUCT
A curing agent formed by the partial reaction of a multi-functional aliphatic amine with an epoxy resin.

AMINE ADDUCT EPOXY
A generic coating type formed by the reaction of an amine adduct with an epoxy resin.

AMINE-CURE EPOXY
A generic coating type formed by the reaction of a polyfunctional amine (either aliphatic or aromatic) curing agent with an epoxy resin.

AMINE BLUSH
Surface opalescence (blush) on epoxy films caused by reaction of amine co-reactant with carbon dioxide and water to form an amine carbamate. This can affect adhesion of any subsequent coat if not properly removed.

AMPHOTERIC
Having both alkaline and acidic chemical characteristics and thus subject to attack by acid or alkali.

ANAEROBIC
Free of oxygen and/or air. [CED]

ANAEROBIC DIGESTER
The vessel for digesting the organic matter in the waste treatment process. Digestion is accomplished by organisms that do not use oxygen in their metabolism.

ANCHORAGE
(1) A secure point of attachment for lifelines, lanyards, or deceleration devices in fall protection systems; (2) A mooring for a ship; (3) The portion of the abutment where the main cable stays of a suspension bridge are anchored into the abutment. [B]

ANCHORING SYSTEM
The method of securing a gunited (see GUNITE) material to a steel substrate. The two major methods are wire mesh attached to anchoring posts and T-type anchors.

ANCHOR PATTERN
See SURFACE PROFILE.

ANCHOR PROFILE
See SURFACE PROFILE.

ANGLE BLASTING
Blast cleaning with the angle between the blast stream and the surface being significantly less than 90 degrees.

ANGLE IRON
A steel product in the form of two intersecting planes. The length of the planes may either be equal or unequal.
ANGLE OF ATTACK
The angle of an abrasive (or water) blast stream to the surface. The angle will vary with surface condition and type of abrasive.

ANGULAR PROFILE
See PROFILE, ANGULAR.

ANHYDROUS
Moisture-free; a compound without water of crystallization.

ANION
A negatively charged ion.

ANNUAL COST
The cost of ownership in current dollars, considering interest, taxes and depreciation, factored over the life of the system.

ANODE
The electrode of an electrolytic cell at which oxidation occurs. Electrons flow away from the anode in the external circuit. It is usually at the anode that corrosion occurs and metal ions enter solution. Contrast with CATHODE. [ASM]

ANODE BED
An array of electrodes intentionally placed in an electrolyte (soil or water) to complete an electrolytic cell being used to mitigate corrosion through cathodic protection.

ANODE OUTPUT CURRENT
The flow of electricity through a cathodic protection circuit.

ANODIC
Relating to an anode.

ANODIC ELECTRODEPOSITION
A method of corrosion protection in which the part being painted is wired to serve as the anode or electron donor. This was the first type of electrodeposition developed, but it has been largely replaced by cathodic electrodeposition, which gives better corrosion protection. [EPA]

ANODIZED
Provided electrochemically with a protective or decorative oxide film.

ANSI/ASC Z9.4

ANTI-CORROSION PAINT
Coating used for preventing the corrosion of metals and, more particularly, specially formulated to prevent the rusting of iron and steel.

ANTI-FOAMING AGENT
Additive used to control or prevent foam formation during the manufacture or application of coatings.
ANTI-FOULING PAINT
A paint formulated to release noxious or poisonous substances at a controlled rate to prevent the growth of barnacles, algae, and other organisms on the underwater part of a ship hull. Applied only to ferrous alloys. [ASM]

ANTI-LIVERING AGENT
Additive used to prevent the livering of a coating. See LIVERING.

ANTI-SAG AGENT
Additive used to control sagging of a coating.

ANTI-SETTLING AGENT
Substance incorporated into a pigmented paint to retard settling and to maintain uniform consistency during storage or painting operations. These additives normally function by altering the rheological properties of the paint.

ANTI-SKINNING AGENT
Any material added to a coating to prevent or retard the processes of oxidation or polymerization that result in the formation of an insoluble skin on the surface of the coating in a container. [Painting/Coatings Dictionary]

ANTI-WRINKLING AGENT
Material added to surface coating compositions to prevent the formation of wrinkles in films during curing.

ANTIMONY
Metallic element. Antimony oxide was once commonly used as a white hiding pigment for coatings. Experimental data indicate that antimony is a suspected carcinogen.

APPLICATION
Any process by which a coating is applied to a surface. Traditional application techniques include brushing, spraying, dipping, rolling, and spreading with a pad or mitt. Nontraditional methods include electrodeposition, fusion coating, and extrusion. See also ELECTRODEPOSITION, FUSION COATING, and EXTRUSION.

APPLICATOR
(1) Person or contractor who applies a coating; (2) A tool for applying coatings.

APPRENTICE PAINTER
One engaged in learning the painting trade who is covered by a written agreement with an employer, association of employers, or other responsible agency. Such an agreement provides for a certain number of years of reasonably continuous employment and for participation in an approved program of training in related technical and general subjects. [PDCA]

APPURTENANCE
A secondary attachment or appendage to a stationary structure.

AQUEOUS
A water-borne or water-containing material.
ARC STRIKE
A welding feature formed when starting a weld. The welding electrode is touched to the structure momentarily, then drawn away to form the normal electrode to structure distance used during deposition of the weld.

ARCH
A structure with a curved undersurface that supports a highway over an opening. Structurally, an arch carries vertical loads by the resistance of the abutments to horizontal thrusts.

ARCHITECTURAL AND INDUSTRIAL MAINTENANCE (AIM) COATINGS
Architectural coatings are commonly applied by consumers and contractors, and include products such as exterior and interior paint, industrial maintenance coatings, wood and roof coatings, primers and traffic paint.

ARCHITECTURAL COATING
Protective and decorative coatings designed for application to the inside or outside of new and existing residential, commercial, institutional, and other structures. They are supplied as stock-type or off-the-shelf coatings, and purchased by the general public, painters, building contractors, and others. Also referred to as trade sales paint.

ARCING
Spraying a coating with the gun moving in an arch, rather than at a constant distance from the substrate surface, so that a film of varying thickness results. Arcing may also occur with abrasive blasting to produce a variable level of surface cleaning.

ARC SPRAY
Metal spraying in which an electric arc is used to melt the metal.

AREA RATIO EFFECT
The phenomenon in galvanic corrosion where the relative exposed areas of the anode and cathode affect the intensity of attack on the anode.

AROMATIC
Hydrocarbon containing an unsaturated ring of carbon atoms, typified by the benzene ring structure. Xylene (xylol), toluene (toluol), and high-flash naphtha are aromatic solvents used in coatings. Binders may also be aromatic.

AROMATIC POLYURETHANE
See POLYURETHANE, AROMATIC.

AROMATIC SOLVENT(S)
Hydrocarbon solvent made of a compound that contains an unsaturated ring of carbon atoms, typified by the benzene ring structure. These solvents have greater solvency than aliphatic solvents. Xylene (xylol), toluene (toluol), and high-flash naphtha are aromatic solvents used in coatings. See also ALIPHATIC SOLVENT, NAPHTHENIC SOLVENT.

ARSENIC
An element that occurs free and combined in many minerals. Arsenic is a well-known poison whose compounds were formerly used in anti-fouling paints.
ARTIFICIAL WEATHERING
See ACCELERATED WEATHERING.

ASBESTOS
A group of fibrous minerals that occur as small veins in the massive body of natural hydrous silicates of serpentine or amphibole and have heat-, fire-, and solvent-resistant properties. [CED]
It was once used to reinforce coatings.

ASBESTOS-CEMENT PRODUCTS
Products manufactured from rigid material composed essentially of asbestos fiber and Portland cement. [ACI]

ASPHALT
Solid or semisolid resinous material, black to dark brown in color, that gradually liquefies when heated. A type of bitumen, it is either mined from natural deposits or obtained as a residue from the distillation of crude petroleum. See BITUMEN.

ASPHALT CUTBACK
See BITUMINOUS CUTBACK.

ASPHALT EMULSION
See BITUMINOUS EMULSION.

ASPHALT MASTIC
A dense mixture of sand, crushed limestone, and fiber bound with asphalt that produces a thick film coating.

ASPHALT VARNISH
Varnishes that are usually composed of asphalt or pitch, heat-treated with gilsonite and thinned with mineral spirits or naphtha. Also called bituminous varnish. [MPDA] Varying degrees of flexibility and toughness are obtained by varying the ratio of pitch to gilsonite.

ASPHALTIC
Containing a brown to black bituminous substance found in natural beds.

Assigned Protection Factor
See APF.

ASTM STANDARD
A document (specification, test method, guide, practice, etc.) developed and established by the consensus principles of ASTM, a not-for-profit organization that develops standards for products, materials, systems, and services.

ATLAS CELL
Laboratory equipment for accelerated testing of coated specimens for resistance to different chemicals

ATMOSPHERE
The air surrounding the earth, consisting mostly of nitrogen and oxygen. Also called troposphere.
ATMOSPHERIC PRESSURE
A standard unit of pressure representing the pressure exerted by a 29.92-inch (760 mm) column of mercury at sea level at 45’ latitude and equal to 1000 grams per square centimeter. [EPA]

ATOMIC ABSORPTION SPECTROSCOPY (AAS)
Laboratory method for analyzing for the presence of lead and other elements. Specific procedures for preparation of laboratory samples are required prior to analysis. Procedures for analyzing lead are found in ASTM D 3335 and in EPA Manual SW-848, Method 7000. [ILPR]

ATOMIZATION
Production of a fine spray of liquid particles.

ATOMIZE
The process of breaking a stream of liquid into a mist, such as a spray nozzle does to apply paint, either by forcing the stream through a small orifice or by imposing air under pressure.

ATTAINMENT AREA
An area considered to have air quality as good as or better than the national ambient air quality standards as defined in the Clean Air Act. An area may be an attainment area for one pollutant and a nonattainment area for others. [EPA]

AUDITING AGENCY
An agency with the technical competence to review applicant submittals, conduct on-site audits of applicants, and report results to a qualifying agency in compliance with standard requirements.

AUGER
(1) The screw-like part of a predampening machine (e.g., for guniting) that feeds material into the conveyor mechanism; (2) A tool used for boring holes in wood.

BACKER ROD
Compressible item placed in concrete joint to support sealant.

BACKGROUND LEVEL
The amount of pollutants present in the ambient air, water, and soil at a work site before the start of a job that has the potential to pollute the environment. With respect to pollution, the amounts of pollutants present in the ambient air due to natural sources.

BACKSCATTER
Diffuse reflection (scattering) of radiation in a direction opposite to that of the incident radiation.

BACK-TO-BACK ANGLES
The structural feature where two members are bolted or welded together with a space between them. [ASM]

BACTERIAL CLEANING
Removal of scale and rust by spraying or dipping steel into a solution containing a bacterium, an inorganic salt, and glucose.
BAFFLE PLATE
The component of a conventional spray gun, situated behind the air cap that distributes compressed air evenly into the air cap through a series of holes.

BAG HOUSE
The final portion of a dust collection system, which removes the smallest particles from the air. A cyclone or other separator, which is ahead of the bag house, removes the larger particles. This type of equipment is used in blasting and painting operations to purify the exhaust air.

BAKING
Heating a coating with hot air at a temperature above 150 degrees F (65 degrees C) to convert it from a liquid coating to a solid film.

BAKING COATING
A coating or lining for metal surfaces that is designed to be cured by baking at elevated temperatures. The item that is coated must be able to be heated to the required temperature and to withstand this temperature for the required baking period.

BAKING FINISH
A paint or varnish that requires baking at temperatures above 150°F (65°C) for the development of desired properties.

BAKING SODA BLASTING
See SODIUM BICARBONATE BLAST CLEANING.

BAKING TEMPERATURE
The temperature, usually above 150°F (65°C), required to properly cure a baking coating.

BALD SPOT
Area or patch, usually in a wrinkle finish film, which has failed to wrinkle or give the desired optical effect. [CED]

BALLAST
Water stored in tanks aboard ships to contribute to the trim and stability of the vessel. Ballast is pumped in and out from the sea to adjust the draft and distribute weight to control sag, hog, center of gravity, etc. This ballast can cause sweating on the exterior surface, which can contribute to coating failure.

BANANA GAGE
An elongated type of magnetic dry film thickness gage with a handle at one end and a probe at the other end. Between the handle and the probe is a positioning base and a thickness display dial. See MAGNETIC GAGE.

BARCOL HARDNESS
Hardness value obtained by measuring the resistance to penetration of a sharp steel point under a spring load. The instrument, called the Barcol Impressor, gives a direct reading on a 0-100 scale. The hardness value is often used as a measure of the degree of cure of plastics and some thermosetting coatings. This standard test method is defined in ASTM D 2583. [CED]
BARCOL IMPRESSOR
See BARCOL HARDNESS.

BARIUM
A toxic heavy metal. Barium pigments are used for corrosion and mildew control. In general, the barium compounds used in paint have extremely low solubility and reactivity.

BARIUM METABORATE
An inhibitive, anti-corrosive pigment used in protective coatings.

BARNACLES
Any of certain crustaceans of the group cirripedia, such as goose barnacles, the stalked species which cling to ship bottoms and floating timber; and rock barnacles, the species which attach themselves to marine rocks. See BIOFOULING. [CED]

BAROMETRIC PRESSURE
Atmospheric pressure, referenced in the US Weather Bureau Psychrometric Tables. Used to aid in the determination of relative humidity and dew point, based on the dry and wet bulb readings from the sling psychrometer.

BARRIER COAT/COATING
(1) A coating or coating system that protects an underlying substrate by minimizing or eliminating the penetration of moisture or vapors; (2) A coating used to separate a layer of paint from a surface to prevent chemical or physical interaction.

BARRIER PIGMENT
A pigment that improves the ability of a coating to provide a good barrier between the environment and the substrate it protects. All inorganic pigments can provide some additional barrier protection when properly formulated into a coating. However, lamellar or plate-like pigments, such as aluminum flake and micaceous iron oxide, provide superior barrier protection because the layers of plates greatly increase the permeating path of moisture. That is, the plate-like pigments tend to overlap and cause moisture to follow a long, roundabout path before it can reach the coated substrate.

BARRIER PROTECTION
See BARRIER COAT, BARRIER PIGMENT.

BASCULE BRIDGE
A bridge having a superstructure designed to swing vertically about a fixed or a moving horizontal axis. The axis may be the center of a hinge pin or trunnion, or it may be only a line fixing the center of a circular rotation combined with translation (rolling lift bridge). [B]

BASE
(1) A chemical species which when dissolved in water generates hydroxide (OH-) ions or is capable of reacting with an acid to form a salt. Bases exhibit pH in the range of 7 to 14; (2) The major component of a multi-component coating system. In two-component systems, the other component is usually called an “accelerator,” an “activator,” a “hardener,” or a “curing agent;” (3) A subfloor slab or “working mat,” either previously placed and hardened or freshly placed, on which floor topping is placed in a later operation; also the underlying stratum on which a concrete slab, such as a pavement, is placed. [ACI]
BASIC LEAD SILICO CHROMATE
Pigment commonly used in the past to provide corrosion inhibitor properties to primers applied to steel.

BATCH
The total quantity of paint or other material that is produced in a single processing, mixing, and/or filling operation.

BEARING
A general term applied to a device or assemblage designed to transmit a reaction from one member or part of a structure to another and to permit the longitudinal movements resulting from temperature changes and superimposed loads without transmitting a horizontal force to the substructure. Bearings can be further described as rocker, roller, or shoe types. Most bridges have bearings that have very specific coating, lubrication, and protection requirements.

BENCHMARK
Reference on permanent object to indicate elevation or location

BEND TEST
See FLEXIBILITY TEST.

BENZENE
Aromatic hydrocarbon solvent once used extensively in coatings but no longer used because of its toxicity.

BEST AVAILABLE CONTROL MEASURES
See BACM

BEST AVAILABLE CONTROL TECHNOLOGY
See BEST AVAILABLE CONTROL MEASURES.

BEST MANAGEMENT PRACTICES
See BMP

BIAS
A systematic (not random) distortion of a statistic as a result of sampling or measuring procedure.

BICARBONATE OF SODA ABRASIVE
See SODIUM BICARBONATE ABRASIVE.

BINDER
Nonvolatile portion of the liquid vehicle of a coating. When paint dries, the binder becomes part of the solid film. It binds the pigment particles together and cements the paint film to the material to which it is applied. [Painting/Coatings Dictionary] The amount of binder needed to completely wet a pigment is determined primarily by the particle size, shape, chemical composition, and density of the pigment and the particle size, degree of polymerization, and wetting properties of the binder. See also VEHICLE.

BIOCIDE
A chemical agent capable of killing organisms such as those responsible for microbiological degradation.
BIODETERIORATION
Any undesirable change in material properties brought about by the activities of microorganisms. [CED]

BIOFOULING
Biological encrustation of surfaces in sea water by flora and fauna, e.g., barnacles. See FOULING.

BIOLOGICAL DEFACEMENT
Disfiguring of surfaces by growth of microorganisms.

BIOSPHERE
The portion of Earth and its atmosphere that can support life.

BISPHENOL A
Dihydroxydiphenyldimethylmethane, mol. wt. 224.1. Insoluble in water. Used in the manufacture of phenolic and epoxy resins. Condensation product formed by reaction of two (bis) molecules of phenol with acetone. This polyhydric phenol is a standard resin intermediate, along with epichlorohydrin, in the production of epoxy resins. [CED]

BISPHENOL A EPICHLOROHYDRIN
Chemical name of epoxy resin that is reacted with amines and other curing agents to form epoxy based coatings.

BISPHENOL F
Dihydroxydiphenylmethane. Used in the manufacture of phenolic and epoxy resins. Condensation product of the reaction of two molecules of phenol with formaldehyde.

BITUMASTIC
An asphalt or coal tar mastic (thick-film) protective coating used primarily for waterproofing.

BITUMEN
Solid or semisolid resinous material, black to dark brown in color, that gradually liquefies when heated and is soluble in carbon disulfide. Asphalts are bitumens that either are mined from natural deposits or obtained as a residue from the distillation of crude petroleum. Coal tars are bitumens obtained from the coking of coal.

BITUMINOUS
Resembling, containing, or impregnated with dark tar (usually asphalt or coal tar).

BITUMINOUS COATING
A protective asphalt- or tar-based coating applied as a hot melt, solvent cutback, or water emulsion.

BITUMINOUS CUTBACK
Asphalt or coal tar that is dissolved in a suitable aliphatic or aromatic hydrocarbon solvent to lower its viscosity for application at ambient temperatures.

BITUMINOUS EMULSION
A suspension or emulsion of asphalt or coal tar, emulsifying agents, and inert filling materials in water. These emulsions, unlike straight bitumens, do not need to be heated to be applied.
BLACK LIGHT
Popular term for ultraviolet (UV) radiation without any visible radiation. [CED]

BLANKING
The closing of a pipe, line, or duct by fastening a solid plate that completely covers the bore and can withstand the maximum pressure of the pipe, line, or duct without leakage. Sometimes called binding.

BLAST ANGLE
Angle of blasting nozzle to the surface being blasted with abrasive or water; also, angle of particle propelled from centrifugal blasting wheels to surface. See also ANGLE OF ATTACK.

BLAST CLEANING
Cleaning and roughening of a surface (particularly steel) by the use of metallic or nonmetallic grit or metal shot (usually steel), which is projected against a surface by compressed air, centrifugal force, or water. See also ABRASIVE BLAST CLEANING.

BLAST CLEANING ABRASIVE
See ABRASIVE, BLAST CLEANING.

BLAST-FURNACE SLAG
The nonmetallic product, consisting essentially of silicates and aluminosilicates of calcium and other bases, that is developed in a molten condition simultaneously with iron in a blast furnace.

BLAST HOSE
See HOSE.

BLAST NOZZLE
Device through which abrasive is propelled onto a surface during blast cleaning. The two primary types of blast nozzles are (1) the straight bore nozzle, which has a small opening and a concentration of power in the center of the blast pattern; and (2) the Venturi nozzle, which has a large mouth, tapered mid section, and a flared opening. It can propel abrasive twice as fast and with a more uniform blast pattern than the straight bore nozzle. The orifice of a blast nozzle is measured in 1/16-inch increments. A No. 3 nozzle has a 3/16-inch orifice; a No. 4 nozzle has a 1/4-inch orifice.

BLAST POT
A container that holds abrasive material until it is mixed with compressed air in air abrasive blast cleaning systems.

BLASTING CAGE
A movable enclosure around the blaster that contains dust and paint.

BLASTING ENCLOSURE
An enclosure used to contain the blasting operation. It usually is equipped with a vacuum to remove the spent abrasive, dust, and paint simultaneously with the blasting operation.
**BLASTING PRESSURE**
The pressure, usually expressed in pounds per square inch (psi) or kiloPascals (kPa) of air and abrasive mixture as it passes through the nozzle of an abrasive blasting system. It is measured in the hose immediately behind the nozzle.

**BLEACH ROOM**
In pulp and papermaking, the area or building where the pulp is exposed to different oxidizing chemicals to change the pulp color from the brown of wet cardboard to the bright white common for printing. This is accomplished in a series of successive stages, with each stage having a given chemical and pulp color associated.

**BLEACH SOLUTION**
(1) A water solution of sodium hypochlorite, often called household bleach. It is a disinfectant and mildewcide used as a surface treatment for killing and removing mildew and bacteria before painting; (2) Various oxidizing chemicals used in paper and other plants.

**BLEACHING**
(1) Bleaching is a uniform loss of color of a paint or varnish. This may be due to internal chemical or physical action in the paint itself, to influences from the surface on which it is applied or to weathering or contamination from the atmosphere; (2) Intentional lightening of the color of a material such as wood, vegetable oils, varnishes, etc. [CED]; (3) Removing color. [AM]

**BLEACHMAKING AREA**
In pulp and papermaking, a chemical manufacturing facility typically within the pulp mill area where raw chemical materials are converted to bleaches and oxidizing chemicals for the bleach room. This area often includes a generator to produce chlorine dioxide from the reaction of commercially available raw materials.

**BLEED**
Coating discoloration by the diffusion of coloring matter from a previously painted or unpainted surface (e.g. asphalt) by the action of the coating solvent.

**BLEED-THROUGH**
Appearance of color on a newly painted surface by migration of a previously painted substrate beneath it.

**BLEED WATER**
Water within or emerging from newly placed concrete or mortar.

**BLEEDING**
The diffusion of colored matter from a substrate (including a previously applied paint film) into a newly applied finish, resulting in a discoloration of the finish. The solvent carrier of the newly applied finish normally transfers the coloring matter. Examples are bituminous surfaces, wood knots, organic pigments, and contaminants.

**BLEEDING KNOT**
Usually circular-shaped discoloration in stained or painted siding. [CED]

**BLENDING**
Combining or mixing two or more materials together. See MIXING.
**BLISTER**
An undesirable rounded elevation of the coating resulting from the local loss of adhesion. See also BLISTERING.

**BLISTERING**
(1) Formation of dome-shaped projections (blisters) in paints or varnish films resulting from local loss of adhesion and lifting of the film from an underlying paint film (intercoat blistering) or the base substrate. The standard test method for evaluating the degree of blistering of paints is described in ASTM D 714; (2) The irregular raising of a thin layer at the surface of placed mortar or concrete during or soon after completion of the finishing operation, or in the case of pipe after spinning; also bulging of the finish plaster coat as it separates and draws away from the base coat [ACI]; (3) Formation of blisters in films of paint or varnish. Blistering may be caused by solvent entrapment, moisture diffusion through the coating, or excessive moisture in the substrate.

**BLISTERING RESISTANCE**
A coating’s ability to resist the formation of blisters.

**BLOCK COAT**
A barrier coat or transition primer/tie coat that prevents incompatible paints from touching. See also BARRIER COAT, TIE COAT in main glossary.

**BLOCK FILLER**
An emulsion that is heavily pigmented, usually with a finely divided silica flour. Block filler is sprayed or rolled onto a surface with a medium- to long-nap roller to work it into the pores of cinder or concrete block.

**BLOCKED KETIMINE**
Aliphatic amine reacted with a ketone to temporarily render it unreactive and thus increase its shelf life.

**BLOCKING**
(1) The undesirable sticking together of two painted surfaces when pressed together under normal conditions or under specified conditions of temperature, pressure, and relative humidity; (2) Undesired adhesion between touching layers of material, such as occurs under moderate pressure and sometimes pressure and heat, during storage or fabrication. [CED]

**BLOCKING RESISTANCE**
The ability of two coated surfaces to resist sticking together during normal handling and storage.

**BLOOD LEAD LEVEL (PbB) TESTS**
Medical testing to determine the level of lead in blood, reported in micrograms of lead per 100 grams of whole blood (µg/100g). According to 29 CFR 1926.62, a construction worker must be removed from lead exposure above the action level when a blood lead level of 50 µg/100g or greater is obtained in single tests within two weeks of each other. The level should be maintained at or below 40 µg/100g.

**BLOOMING**
The reduction of a coating gloss caused by materials exuding in or from an applied film. Unlike bleeding, the solvent-caused movement of material is from the coating itself and not the substrate.
BLOTTER PAPER
Soft, spongy, absorbent paper.

BLOTTER TEST
The test for checking the cleanliness of compressed air supply as it reaches the blasting nozzle (described in ASTM D 4285).

BLOW HOLE
See BUG HOLES.

BLUSHING
(1) Film defect that appears as a milky opalescence as the film dries; can be a temporary or permanent condition. It is generally caused by rapid evaporation, moisture, or incompatibility; (2) Milky opalescence which sometimes develops as a film of lacquer dries, and is due to the deposition of moisture from the air and/or precipitation of one or more of the solid constituents of the lacquer; usually confined to lacquers which dry solely by evaporation of solvent. [CED] See AMINE BLUSH.

BODY
Apparent consistency or viscosity of a paint as assessed subjectively. A practical term widely used to give a qualitative picture of consistency. For Newtonian liquids, body is the same as viscosity. [Painting/Coatings Dictionary]

BODY BURDEN OF LEAD
The amount of lead stored in the body. Most absorbed lead is found in bone, but lead also accumulates in the brain, the blood forming system, and the kidneys. Although the body does rid itself of some absorbed lead, the body burden of lead for an exposed worker can continue to increase over long periods, even decades.

BODY HARNESS
A full-body safety harness is a device worn around the entire torso, including the shoulders, waist, upper legs, and buttocks, when working at elevations. It attaches to a lanyard and lifeline, which is secured to a structure in order to arrest the fall of a worker.

BODYING
(1) Thickening of an oil through thermal processing; (2) An increase in the viscosity or thixotropy of a paint, varnish, or lacquer that occurs during storage. [MPDA]

BOLTED CONNECTION
A mechanical fastening (connection) consisting of a threaded metal rod or pin (bolt) joined to a metal nut.

BOLTED SEAM
Seam in a metal structure that is joined together with threaded fasteners rather than being riveted or welded.

BOND-BREAKER
(1) Tape or other material used over joints or cracks to prevent bonding between concrete slab and coating/flooring system and thus allow movement between them without damaging the coating/flooring system (2) material used to prevent adhesion of newly placed concrete to the substrate. See also form oil and release agent.
BOND COAT
A coating designed to help bond one coating film to another. See also TIE COAT.

BONDERIZING
A proprietary process for phosphatizing.

BONDING
(1) Interconnecting of two objects by means of a clamp and a bare wire to equalize the electrical charge on each object; (2) adhesion of a coating to a substrate.

BONDING STRENGTH
The adhesion between a new coating film and a substrate or a previous coating film. The amount of stress needed to separate a coating from the surface to which it is applied.

BOOM LIFT
A boom lift or “cherry picker” has a single-section or articulated arm that can maneuver a work platform and worker(s) to a work area, which can be above or below the area where the boom lift is located.

BOOTH, SPRAY
See SPRAY BOOTH.

BOOTTOP
The area on the exterior hull of a ship between the light load line and the deep load line. The boottop will be fully immersed when the cargo is fully loaded and above water when the vessel is lightly loaded. This area is exposed to sun, wind, and water when light and to immersion when fully loaded.

BOSUN’S CHAIR
A rigging device suspended from a single cable or rope and designed for use by a single individual, who is limited to working in a sitting position. It allows access to high work areas and provides good maneuverability and accessibility to areas not easily reached by larger scaffolding systems. See also WORK CAGE.

BOTTOM DRYING
Drying of a coating that begins at the bottom and proceeds slowly toward the surface.

BOUNCE BACK
(1) The rebound of atomized paint particles during spray application. This effect is most pronounced when paint is being applied into corners or boxed areas. The resultant return flow of atomized air carries some of the paint particles away from the surface. See also DRY SPRAY, OVERSPRAY; (2) Rebound of abrasive particles during abrasive blasting.

BOXING
Pouring paint from one container into another several times to assure that no unmixed material remains on the bottom and that the paint is uniformly mixed.

BRACKISH
(1) Contaminated with salt water; (2) Partly fresh and partly salt water.
BREATHING AIR
See GRADE D BREATHING AIR.

BREATHING GRADE COMPRESSED AIR
Air that meets at least Grade D quality as specified by Compressed Gas Association Pamphlet G 7.1. Grade D specifications are: oxygen between 19.5 and 23.5% by volume; no pronounced odors; no more than 5 mg/m$^3$ of condensed hydrocarbons; no more than 10 ppm of carbon monoxide; and no more than 1,000 ppm of carbon dioxide.

BREATHING-TYPE COATING
A coating that is sufficiently permeable to permit transmission of water vapor without detrimental effect to itself. [CED]

BRESLE METHOD
One method used for collecting water-soluble contaminants on a surface for analysis prior to coating.

BRESLE SAMPLER
A latex rubber cell which adheres to a surface, used to aid in the extraction of water-soluble surface contaminants.

BRIDGE
A structure providing a means of transit for pedestrians and/or vehicles above the land and/or water. In general, the essential parts of a bridge are: 1) the substructure consisting of its abutments and pier or piers supporting the superstructure, 2) the superstructure slab, girder, truss, arch or other span or spans supporting the roadway loads and transferring them to the substructure, and 3) the roadway and its incidental parts functioning to receive and transmit traffic loads. [B]

BRIDGE DECK
The portion of a bridge that provides direct support for vehicular and pedestrian traffic. The deck may be either a reinforced concrete slab, timber flooring, a steel plate or grating, or the top surface of abutting concrete members or units. While normally distributing load to a system of beams and stringers, a deck may also be the main supporting element of a bridge, as with a reinforced concrete slab structure or a laminated timber bridge. [B]

BRIDGING
Covering a crack or other small gap in a surface. The ability to bridge is a result of a coating’s surface tension, viscosity, and plasticity.

BRIGHT BLAST
See WHITE METAL BLAST CLEANING.

BRISTLES
See PAINT BRUSH BRISTLES.

BRITTLE
Susceptible and being easily broken, fragile.

BRITTLENESS
Degree of susceptibility to cracking or breaking by bending. [AM]
**BROADCAST**
To spread solid particles, such as sand or grit, onto a wet coating surface.

**BROADCAST FLOORING**
Unfilled resins (commonly) or aggregate-filled slurries into which aggregate is scattered by a seeder or manually into the wet uncured resin or slurry which then cures with the aggregate embedded in it.

**BROADCAST TO SATURATION**
Scatter aggregate into a wet matrix (see Broadcast) until no matrix wetness is observed (until no more aggregate can be embedded into the wet matrix).

**BRONZING**
A subjective, descriptive, appearance term applied to metal-like reflectance that sometimes appears at the surface of nonmetallic colored materials. It is perceived at the specular angle, by observing the image of a white light source, for example, and is characterized by a distinct hue of different predominant wavelength than the hue of the paint itself. The origin of the selective specular reflectance is generally considered to be reflectance from very small particle size pigments partially separated from the surrounding vehicle at or near the surface. [CED]

**BROOKFIELD VISCOMETER**
A viscometer in which a cylinder or disk is rotated in a test liquid, and the torque necessary to overcome viscous resistance is measured. ASTM D 2196 covers the determination of the apparent viscosity and the shear thinning and thixotropic properties of non-Newtonian materials in the shear range of 0.1 to 50 s\(^{-1}\). [CED]

**BRUSH**
See PAINT BRUSH, WIRE BRUSH.

**BRUSH BLASTING**
See BRUSH-OFF BLAST CLEANING.

**BRUSH DOWN**
To remove dust from a surface by using a clean, soft brush.

**BRUSH MARKS**
(1) Marks produced in a coating by the bristles of a brush during application. Depending on the leveling characteristics of the paint, brush marks may or may not remain in the dried coating; (2) Small ridges or valleys produced in a paint film by the combing action of the bristle of a brush. [CED]

**BRUSH-OFF BLAST CLEANING**
Blast cleaning standard with the lowest quality requirements. According to SSPC-SP 7/NACE No. 4, “Brush-Off Blast Cleaning,” a brush-off blast cleaned surface is free of all visible oil, grease, dirt, dust, loose mill scale, loose rust, and loose paint. Tightly adherent mill scale, rust, and paint may remain on the surface.

**BRUSHABILITY**
The capability of a coating to be applied by brush.
BRUSHING
Application of a coating by means of a brush.

BRUSHOUT
The application of paint on a small surface for testing. [DAC, CED]

BUBBLE BUSTER
Compound used to control the formation of bubbles in a coating.

BUBBLE CONCEPT
Method of implementing air pollution regulations where a giant bubble is imagined to be placed over a manufacturing plant. At the top of this bubble is a single opening through which all the plant’s pollutants escape. Under this approach, the only pollution measurement would be taken at the top of this bubble. Therefore manufacturers can control pollution from individual sources within their plants as they see fit, provided the air escaping from the top of the imaginary bubble meets the standards. See OFFSETS.

BUBBLING
Air bubbles or solvent vapor bubbles found temporarily in the wet film of a coating or permanently in the dry film.

BUFFER COAT
See BARRIER COAT.

BUG HOLES
Small regular or irregular cavities, usually not exceeding 15 mm in diameter, resulting from entrapment of air bubbles in the surface of formed concrete during placement and compaction.

BUILD
Thickness of a coating film.

BULK ELECTROLYTE
A large volume of ionic conductor.

BULK HEAD
(1) An upright partition or wall separating compartments, as in a ship’s hold; (2) Wall retaining soil along waterfront.

BULKING VALUE
The gallons per pound or liters per kilogram of a powdered or granular solid.

BURNISH
To polish or rub to a smoother or glossier surface. [CED]

BUTT WELD
A joint formed between two structural elements where the face of both elements is in the same place, by the deposition of molten metal.
CABLE-STAYED BRIDGE
A bridge type for medium spans in which the decking is suspended by diagonal cables attached directly to the supporting tower.

CABLE-SUPPORTED SCAFFOLD
See SCAFFOLD, SUSPENDED.

CADMIUM
Toxic heavy metal. Cadmium compounds have been used as color pigments (e.g., orange, red, yellow) often mixed with other heavy metal compounds. Their use in coatings is restricted by some governmental agencies because of toxicity concerns.

CADWELLING
See THERMIT REACTION.

CAKING
Hard setting of pigment from a liquid paint during storage.

CALCAREOUS DEPOSITS
Deposits containing calcium compounds, especially on cathodically protected structures immersed in sea water.

CALCIUM CARBONATE
A white crystalline substance used as an extender pigment. Also known as calcite, marble dust, carbonate of lime, English whiting, limestone, and cliffstone whiting. [PDCA]

CALCIUM HYPOCHLORITE
A white powder used especially as a bleaching agent and disinfectant; also called bleaching powder.

CALCIUM OXIDE
CaO. Chemical name for lime or quicklime.

CALIBRATE
To check, adjust, or determine by comparison with a standard. [CED]

CALIBRATION PLATES
Precision plates used for calibrating magnetic dry film thickness gages. Most commonly used standard plates are sold by NIST.

CALIBRATION SHIMS
Small color coded shims, usually of plastic of various thicknesses, that are used for calibrating Type II (fixed probe) magnetic dry film thickness gages.

CAN STABILITY
Resistance to deterioration of liquid paint in original container.
CAN VELOCITY
Also known as “Approach Velocity.” In dust collectors, the velocity of dust laden air as it passes upward between the filter media, calculated by taking the square area of the filter area, minus the area occupied by the filters (sum of the areas of the number of the bags) divided into the volume of air (CFM).

CANAL
An artificial channel or waterway constructed to contain and/or transport water for the purposes of navigation, irrigation, etc.

CANAL CUP
Flexible headband with plugs used for hearing protection.

CANT
Slanting with respect to a particular line.

CANTILEVER BRIDGE
A general term applying to a bridge having a superstructure of the cantilever type, which has a girder or truss having its members or parts so arranged that one or both of its end portions extend beyond the point or points of support. [B]

CAPILLARY SPACE
Microscopic channels on cured concrete that permits the movement of liquid water.

CAPITAL EXPENDITURE
Money outlays for the purchase of equipment used for production of goods or materials.

CAPITAL EXPENSE
Money spent for initial construction or replacement of a facility or piece of equipment.

CAPITAL RECOVERY FACTOR
A factor used to calculate the uniform annual cost of a capital investment. The annual cost is the present worth, times the interest rate (before or after taxes), times the capital recovery factor.

CARBAMATE
A white, “milky” formation caused by the reaction of the amine component of an epoxy system to the presence of moisture or humidity during the curing process. The degree of whitening is proportionate to the degree of water exposure.

CARBON BLACK
Finely divided carbon formed by any one of several processes. Synonym: gas black. These carbon blacks vary in particle size and some of them may be surface treated. [CED]

CARBON TETRACHLORIDE
A strong, colorless, non-flammable solvent. Due to its toxicity and potential as a carcinogen, carbon tetrachloride is restricted in use for coatings. [MPDA]
CARBONATION
Reaction between carbon dioxide and a hydroxide or oxide to form a carbonate, especially in cement paste, mortar, or concrete. The reaction with calcium compounds to produce calcium carbonate.

CARCINOGEN
A material that either causes cancer in humans, or, because it causes cancer in animals, is considered capable of causing cancer in humans. [CED]

CASE HARDENING
Surface hardening without thorough drying of film. [CED] See SURFACE DRYING, TOP DRYING in main glossary.

CAST-IN-PLACE
Referring to a cementitious mixture that is deposited in the place where it is required to harden as part of a structure, as opposed to precast concrete. [ACI]

CAST IRON ABRASIVE
See METALLIC ABRASIVE.

CAST STEEL ABRASIVE
See STEEL ABRASIVE, METALLIC ABRASIVE.

CAT EYE(S)
Hole or holiday shaped like a cat’s eye; cratering. [AM] See CRATERING.

CATALYST
A reaction promoter that is unchanged by the chemical reaction that it promotes. A substance that induces, alters, or accelerates a chemical reaction. True catalysts (also called activators, accelerators, and promoters) are used to speed the curing or crosslinking of certain coatings. A negative catalyst (inhibitor, retarder) slows down a chemical reaction. Curing agents and hardeners (which enter into chemical reactions) are also sometimes (incorrectly) referred to as catalysts.

CATALYTIC CURING
Mechanism by which a coating is crosslinked by the action of a catalyst as opposed to oxidation, etc. Examples of such a system are two-part epoxies and polyurethanes. [Painting/Coatings Dictionary]

CATALYZED EPOXY COATING
A chemically curing epoxy.

CATASTROPHIC COATING FAILURE
A coating failure that is sudden, very dramatic, and serious.

CATASTROPHIC CORROSION
Metallic degradation resulting in substantial loss of metal.
CATHODE
The electrode of an electrolytic cell at which reduction is the principal reaction. (Electrons flow toward the cathode in the external circuit.) Typical cathodic processes are cations taking up electrons and being discharged, oxygen being reduced, and the reduction of an element or group of elements from a higher to a lower valence state. Contrast with ANODE. [ASM]

CATHODIC DISBONDING
Mechanical lifting of a coating caused by hydrogen bubbles formed when cathodic protection is excessive.

CATHODIC ELECTRODEPOSITION
An electrodeposition paint application technique where the part being painted is the cathode. Cathodic electrodeposition provides superior corrosion-resistant coatings. It has largely replaced the older, anodic processes. [EPA]

CATHODIC PROTECTION
(1) Reduction of corrosion rate by shifting the corrosion potential of the electrode toward a less oxidizing potential by applying an external electromotive force; (2) Partial or complete protection of a metal from corrosion by making it a cathode, using either a galvanic or an impressed current. [ASM] See GALVANIC PROTECTION.

CATION
A positively charged ion.

CATWALK
A narrow walkway for access to some part of a structure. [B]

CAULKING COMPOUND
A soft, resilient, putty-like material used for filling cracks and holes or for sealing around flashing, frames and piping. The binder type used dictates the use and resistance properties. Examples are: latex acrylic, epoxy/urethane, silicone, and butyl. Available in single component tubes (guns) or single and multi-component materials for application by knife or spreader. [MPDA]

CAUSTIC
A strong chemical base. [CED] Examples include caustic soda (sodium hydroxide) and caustic potash (potassium hydroxide).

CAUSTICIZING AREA
A chemical manufacturing and reprocessing area within a pulp and papermaking facility where the green liquor from the recovery boiler smelt dissolving tanks and classifier is converted back to the white cooking liquor.

CAVITATION
The formation and instantaneous collapse of innumerable tiny voids or cavities within a liquid subjected to rapid and intense pressure changes. Cavitation produced by ultrasonic radiation is sometimes used to effect violent localized agitation. Cavitation caused by severe turbulent flow often leads to cavitation damage. [ASM]

CAVITATION CORROSION
A process involving conjoint corrosion and cavitation. [ASM]
CAVITATION EROSION
Progressive loss of original material from a solid surface due to continuing exposure to cavitation.

CELLOSOLVE
See GLYCOL ETHER SOLVENT.

CELLOSOLVE ACETATE
See GLYCOL ETHER SOLVENT.

CELSIUS
A temperature scale, formerly called “centigrade,” with 0 degrees as the freezing point and 100 degrees as the boiling point of water. The abbreviation for Celsius is C. To convert to Fahrenheit, multiply the Celsius temperature by 9/5, then add 32. To convert Fahrenheit to Celsius, subtract 32, then multiply by 5/9.

CEMENT
See PORTLAND CEMENT.

CEMENT-BASED PAINT
See CEMENT PAINT

CEMENT PAINT
Paint supplied in dry powder form, based essentially on Portland cement, to which pigments are sometimes added for decorative purposes. This dry powder paint is mixed with water immediately before use.

CEMENTITIOUS
Having the properties of cement; construction material with cement binder.

CEMENTITIOUS COATING
A coating that contains Portland cement

CENTIGRADE
See CELSIUS.

CENTIPOISE
The metric unit of viscosity.

CENTRAL NERVOUS SYSTEM EFFECTS
Symptoms involving the brain and spinal cord that affect sensory impulses, thought, and motor control.

CENTRIFUGAL BLAST CLEANING
A blast cleaning process (usually enclosed) that uses rotating, motor-driven, bladed wheels to hurl abrasive (usually steel shot, steel grit, or a shot/grit mixture) at the surface being cleaned. The abrasive material is fed to the center of the wheel and then onto blades that radiate from the hub. Centrifugal force produced by the turning wheel accelerates the abrasive to the ends of the blades from which it is thrown against the surface.
CENTRIFUGAL WHEELS
Finned wheels on abrasive blasting equipment that pick up and hurl abrasive at high speeds onto the steel plates or shapes in a centrifugal blasting machine. See ABRASIVE BLAST CLEANING.

CERAMIC
Fired clay and porcelain articles, their glazes, pigments, and modifiers. [CED] Relating to a product of clay fired at high temperatures.

CERTIFICATION
Written confirmation by a certifying person or agency that a person, organization, or material is qualified according to a specific standard.

CHAIN DRAG TEST
Method of determining concrete soundness.

CHAIN OF CUSTODY FORM
A form used for tracking samples to be tested for hazardous materials from the time the samples are taken, through transportation, receipt at the laboratory, and testing. [ILPR] Also used in forensic work.

CHALKING
The formation of loose powder on the surface of a coating, usually caused by degradation of the organic binder by the sun’s ultraviolet light. ASTM D 4214 is the Standard Test Method for Evaluating the Degree of Chalking of Exterior Paint Films.

CHALKING RESISTANCE
The ability of a pigmented coating to resist chalking. See also CHALKING.

CHAMFER
To cut a furrow.

CHAMPAGNE FINISH (EFFERVESCENCE)
The slight surface roughening caused by small bubbles of escaping solvent vapor.

CHARACTERISTIC WASTE
A waste that does not appear on the four lists of wastes specifically designated as hazardous in 40 CFR 260, but which is considered hazardous because it has one or more of the following characteristics: corrosivity, ignitability, reactivity, toxicity.

CHECK(S)
Fine, shallow cracks in a coating resulting from surface weathering.

CHECKING
(1) The fine cracking that develops in paint films during prolonged curing and/or weathering that does not penetrate to the underlying surface. ASTM D 660 is a Standard Test Method for Evaluating Degree of Checking of Exterior Paints; (2) Development of shallow cracks at closely spaced but irregular intervals on the surface of plaster, cement paste, or concrete [ACI].

CHECKING RESISTANCE
The ability of a coating to resist checking. See also CHECKING, CRACKING RESISTANCE.
CHEMICAL CONVERSION COATING
A treatment, either chemical or electrochemical, of the metal surface to convert it to another chemical form which provides an insulating barrier of exceedingly low solubility between the metal and its environment, but which is an integral part of the metallic substrate. It provides greater corrosion resistance to the metal and increased adhesion of coatings applied to the metal. Examples are phosphate coatings on steel.

CHEMICAL ENERGY CONTENT
The ability of a system to do work that is a direct consequence of the ability of the components of the system to undergo chemical reactions.

CHEMICAL ENVIRONMENT
An exposure in which strong concentrations of highly corrosive gases, fumes, or chemicals — either in solution or as solids or liquids — contact the surface. The severity may vary tremendously from mild concentrations in yard areas of a process plant or factory to direct immersion in the chemical.

CHEMICAL INHIBITOR
A chemical that interferes with and thus controls the corrosion reaction.

CHEMICAL REACTION
Transformation or change in which the products differ chemically from the reactants.

CHEMICAL RESISTANCE
The ability of a material to resist degradation by reaction with, dissolution by, or reduction of physical continuity from contact with a chemical agent or agents, thereby retaining its capacity to perform as a structural or aesthetic entity. The standard test method for chemical resistance of coatings is described in ASTM D 3912.

CHEMICAL STRIPPING
Use of solvents or caustics to soften existing coatings for removal by scraping and/or flushing.

CHEMICAL TREATMENT TANKS
Tanks used for the storage of the various chemicals in either the water treatment or waste water treatment process.

CHEMICALLY CURING COATING
A coating in which a crosslinking polymeric film is developed from a chemical reaction between two coating components, often referred to as the base and curing agent.

CHILLED IRON ABRASIVE
A metallic abrasive prepared by channeling molten metal into streams, which then drop onto jets of water under pressure, atomizing the molten metal into random sizes of shot that fall into a water-filled quenching pit. See METALLIC ABRASIVE.

CHINA WOOD OIL
See TUNG OIL.
**CHIPPING**
Total or partial removal of a dried paint film in flakes by accidental damage or wear during service; in traffic paints, this failure is usually characterized by sharp edges and definite demarcation of the base area. [CED]. ASTM D 913 is the Standard Test Method for Evaluating Degree of Resistance of Wear to Traffic Paint. ASTM D 3170 is the Standard Test Method for Chipping Resistance of Coatings.

**CHIPPING HAMMER**
A hand tool used to remove layers of loose rust, loose paint, and loose mill scale from steel surfaces. The heads of chipping hammers come in various configurations.

**CHIPPING RESISTANCE**
The ability of a coating or layers of coatings to resist total or partial removal, usually in small pieces, resulting from impact by hard objects or from wear during service.

**CHLORIDE ION**
Negatively charged ion (Cl-) derived from the element chlorine.

**CHLORINATED HYDROCARBONS**
Powerful solvents containing the element chlorine that include such members as chloroform, carbon tetrachloride, ethylene dichloride, methylene chloride, tetrachlorethane, trichlorethylene, etc. Generally, they are toxic and their use is now restricted in some countries. Their main applications include nonflammable paint removers, cleaning solutions, and special finishes where the presence of residual solvent in the film is a disadvantage.

**CHLORINATED RUBBER**
Resin formed by the reaction of rubber with chlorine. Unlike rubber, the resulting product is soluble in organic solvents and yields solutions of low viscosity. It is sold as white powder, fibers, or as blocks. The use of chlorinated rubber coatings is currently greatly restricted because of their high VOC content.

**CHLORINATED RUBBER RESIN**
Synthetic resin made by chlorinating rubber or other polymers under specified conditions. Unlike rubber, it is readily soluble in organic solvents and has low viscosity. These resins are soluble in aromatic and aliphatic hydrocarbons and turpentine, and are insoluble in lacquer solvents and alcohol.

**CHLORINATED SOLVENT**
Organic solvents, such as chloroform, carbon tetrachloride, ethylene dichloride, methylene chloride, tetrachlorethane, and trichlorethylene, that contain chlorine atoms. They are used as nonflammable paint removers and cleaning solutions. See CHLORINATED HYDROCARBONS.

**CHLORINATION**
In wastewater treatment plants, chlorination is used as a pretreatment to keep wastewater fresh or from turning “septic” before it gets to the treatment plant. Chlorination is then used in the post treatment for disinfecting the water and for oxidation, which enhances the sedimentation process. In water treatment facilities and swimming pools, chlorination is used primarily for disinfecting the water.
**CHORD**
In a truss, the upper and lower longitudinal members, extending the full length of the bridge. [B]

**CHROMATE**
A pigment used in paint and coatings to provide color or inhibit corrosion. Fine insoluble, solid particles made up of compounds containing hexavalent chromium. It is a suspected carcinogen and thus its use is restricted.

**CHROMATOGRAPHY**
Method of separating different chemical species based upon selective surface adsorption

**CHRONIC**
A condition that is long-lasting, continuous, or recurring often.

**CHRONIC EFFECT**
Effects of exposure to hazardous material. A latency period means that symptoms may not appear for days, months, or even years. Lead poisoning is a chronic effect. See ACUTE EFFECT.

**CHRONIC TOXICITY**
The property of a substance or mixture of substances that causes adverse effects in an organism upon repeated or continuous exposure over a period of years.

**CHUTE**
(1) In pulp and papermaking, a bulk solids transfer device for moving material from one location to another. For example, a chute may transfer woodchips from the discharge of a belt into a vessel or storage bin; (2) A sloping trough or tube for conducting concrete, cement, aggregate, or other free flowing materials from a higher to a lower point. [ACI]

**CIGARETTE WRAP**
A coating application technique in which a rectangular sheet is applied to a pipe so that the edges are parallel and at right angles to the pipe axis, much like rolling a homemade cigarette. The edges that are parallel to the pipe axis form a longitudinal seam with a specific amount of overlap. If additional sheets are applied to cover more area, they are overlapped at circumferential joints.

**CISSING**
A mild form of crawling.

**CITATION**
A written notice to a firm that OSHA believes violated health and safety standards. It includes a deadline for abatement and possibly a proposed penalty. Also applicable to other regulatory agencies.

**CLARIFIER**
In pulp and papermaking, the clarifier is an active process tank that allows solids to settle out of solution while clean or clarified liquid is tapped off the top at an overflow weir. The solids or underflow is pumped from the bottom and returned further back in the process flow. The clarified liquid is pumped to the next processing step. Clarifiers resemble atmospheric storage tanks but have an active process step occurring within the vessel. In water and wastewater treatment, there are several clarifiers. In the primary clarifier, floating solids are removed from the top of influent water, and the heavy sediment is removed from the bottom of the clarifier. In the secondary clarifier, sometimes referred to as the flocculation basin, flocculation takes place.
CLEAN AIR ACT
See CAA

CLEAN AIR STANDARDS
The set of enforceable rules, regulations, standards, limitations, orders, controls, prohibitions, etc., contained in, issued under, or adopted pursuant to the Clean Air Act and amendments.

CLEAN WATER ACT
See CWA

CLEAR COAT
A transparent coating, without pigments that impart color or opacity, normally used to protect or intensify the effect of a color coat beneath.

CLEVELAND CONDENSING HUMIDITY CABINET
An accelerated weathering apparatus that operates on a condensation type of water exposure at elevated temperature.

CLIMATE CABINET
Any enclosure used to simulate selected climatic conditions.

CLOSED ABRASIVE BLAST CLEANING
Compressed air or centrifugal blast cleaning done within a localized containment or enclosure that surrounds the abrasive stream. The enclosure is held to the surface to create a seal, and is equipped with a vacuum to remove spent abrasive and debris simultaneously with the blasting operation. When compressed air is used to propel the abrasive, the technique often is called “vacuum blasting.” When wheels are used to propel the abrasive, the technique often is called “wheel blasting.” [ILPR]

CLOUDINESS
The lack of clarity or transparency in a paint or varnish film. [CED]

CLOSED BLAST CLEANING
See AIR ABRASIVE BLAST CLEANING.

CLOTH RAG AND WIPER
Material used either dry or with water, detergent, or solvent before any other method of surface preparation to remove dust, dirt, debris, grease, oil, mud, markings, and other contaminants from all types of surfaces.

CLOUDINESS
The lack of clarity or transparency in a paint or varnish film. [CED]

CO₂ BLASTING
Blast cleaning of steel or other surfaces with particles of dry ice propelled by compressed air.

CO-REACTANT
One of two or more chemical materials formulated to react with each other to produce a desired end product.
COAGULATE
The process of a liquid becoming thickened and semisolid.

COAL SLAG ABRASIVE
A byproduct abrasive, used widely for blast cleaning, created from the slag produced when coal is burned in a power plant or boiler. The slag is mainly aluminum silicate.

COAL TAR
A solid or semisolid resinous material, black or dark brown in color, that gradually liquefies when heated. It is obtained as a distillate from the coking of coal.

COAL TAR CUTBACK
See BITUMINOUS CUTBACK.

COAL TAR EMULSION
See BITUMINOUS EMULSION.

COAL TAR EPOXY COATING
A high performance, corrosion-resistant coating with both coal tar and epoxy resin in the binder or vehicle.

COAL TAR URETHANE COATING
A high performance, corrosion-resistant coating with both coal tar and polyurethane resin in the binder or vehicle.

COALESCENCE
The formation of a film of resinous or polymeric material when water evaporates from an emulsion or latex system, permitting contact and fusion of adjacent latex particles. [DAC]

COALESCING SOLVENT (OR AGENT)
A solvent with a high boiling point, which, when added to a coating, aids in film formation by temporarily softening the vehicle. [Painting/Coatings Dictionary] The coalescing solvent softens and melds the individual pigmented resin particles during the final stages of drying, enabling a relatively continuous coating film to be formed.

COAT
Paint, varnish, or lacquer applied to a surface in a single application (one layer) to form an evenly distributed film when dry.

COAT OF PAINT
A layer of wet paint that is allowed to dry and harden before use or before application of a subsequent layer.

COATED ABRASIVE
Abrasive material bonded to a backing. It comes in various forms, including sheets, rolls, discs, belts, and flaps. See NON-WOVEN ABRASIVE PAD.

COATING
(1) A liquid, liquefiable, or mastic composition that is converted to a solid protective, decorative, or functional adherent film after application as a thin layer [ASTM D 16]; (2) Generic term for paint, lacquer, enamel, etc. [Paint/Coatings Dictionary]
**COATING APPLICATOR**
A painter; a company that engages in the business of coating application.

**COATING CONDITION SURVEY**
See SURVEY.

**COATING FAILURE**
Loss of a coating’s function or purpose, i.e., when it no longer protects the substrate, provides an attractive appearance, or serves some other function such as providing a non-slip surface. The time of failure is considered to occur when some action is needed to restore its properties to the level necessary to again provide its intended purpose.

**COATING NONVOLATILE MATTER**
The part of a coating that remains after it is dried or cured.

**COATING SOLIDS**
The part of the coating, which remains after the coating, is dried or cured. [CED]

**COATING SURVEY**
See SURVEY.

**COATING SYSTEM**
A protective film consisting of one or more coats, applied in a predetermined order by prescribed methods. A coating system description in a specification may include surface preparation and quality control requirements.

**COATING WORK**
In protective coatings, an all-inclusive term to define all operations required to accomplish a complete coating job; construed to include materials, equipment, labor, preparation of surfaces, control of ambient conditions, application of coating systems, and inspection. [ASTM D 4538] [Painting/Coatings Dictionary]

**COBWEBBING**
The rapid drying of a coating (often a lacquer) during application to form fine strings instead of normal atomization.

**CODE OF FEDERAL REGULATIONS**
See CFR

**COEFFICIENT OF HAZE**
A measurement of visibility interference in the atmosphere.

**COEFFICIENT OF FRICTION**
The coefficient of friction (µ is the ratio of the frictional force (f) to the normal force (N) such that f= µN.

**COEFFICIENT OF THERMAL EXPANSION**
Change in unit of length (or volume) accompanying a unit change of temperature, at a specified temperature. [ASTM]
COFFERDAM
Watertight enclosure from which water is pumped to expose a normally unexposed surface.

CO-GENERATOR
One of two or more parties who meet the definition, and incur the responsibilities, of a hazardous waste generator. See GENERATOR (HAZARDOUS WASTE).

COHESION
The propensity of a substance to adhere to itself. The force holding a substance together. [Painting/Coatings Dictionary] The ability of a single coating layer to resist internal partitioning or fracturing.

COHESIVE FAILURE
A failure or break within a given coat or material (the coating breaks within itself).

COIL COATING
Process in which a coil of metal is continuously cleaned, coated, heat-cured, cooled, and rewound.

COIN RUB TEST
A method of testing the cure of inorganic zinc-rich coatings.

COKE
The carbonaceous residue formed when volatile materials are distilled from coal at elevated temperatures.

COKE BREEZE
Finely divided coke.

COKE OVEN TARS
Tars distilled from coal during the production of coke.

COLD CHECKING
The formation of hairline cracks in lacquers exposed to low temperatures.

COLD CRACKING
Crazing and cracking of a coating subjected to low temperatures or cold/ambient cycling. [CED]

COLD JOINT
Discontinuity resulting from a delay in placement of sufficient duration to preclude intermingling and bonding of the material in two successive lifts of concrete, mortar, or the like

COLD-ROLLED STEEL
Low-carbon steel formed into sheets by processing in a rolling mill without heat.

COLD ROOM
A room or area where perishables are stored, usually between 32 and 45°F (0 and 7°C).

COLD WALL EFFECT
In tank linings, a driving, permeating force assisting ionic passage through a coating to a metal in the direction from a hot liquid to a cold wall.
COLLOID
A material composed of ultramicroscopic particles of a solid, liquid, or gas dispersed in a different medium, which also can be a solid, liquid or gas. A latex is a colloid composed of a dispersion of ultramicroscopic resin particles in a water medium. This is contrasted with a solution, where the resin particles are soluble in the liquid and dissolved when combined with it. [MPDA]

COLLOIDAL STATE
Particular state in which any substance may exist under the proper conditions, determined by fineness of particle subdivision. The colloidal state is defined by a more or less well-marked ultramicroscopic zone in the scale of subdivision, the lower extreme of the zone approaching molecular dimensions, and the upper end gradually passing over into molecular aggregates (suspensions) visible under the ordinary microscope. [Painting/Coatings Dictionary]

COLOR PIGMENTS
Inorganic and organic pigments that provide colors to paints. Inorganic pigments are more resistant to deterioration from exposure to heat and sunlight, provide better hiding, and are less prone to bleed than organic pigments; however, organic pigments provide brighter colors.

COLOR RETENTION
Property of a material relating to its ability to maintain constant color during surface exposure, especially to sunlight. Color retention requirements usually are described in terms of color difference defined according to a standard test procedure.

COLORFASTNESS
The ability of a film of paint or varnish to show little change in original color after being exposed to a specific environment, generally light and weathering.

COMBUSTIBLE
Capable of burning. Combustible liquids are those having a flash point at or above 140°F (60°C).

COMBUSTIBLE GAS METER
A device used to measure the concentration of combustible vapors in an air sample and determine whether or not it is explosive.

COMBUSTIBLE LIQUID
Any liquid having a flashpoint of 100°F (37.8°C) or higher, but below 200°F (93.3°C).

COMMERCIAL BLAST CLEANING
Moderate grade of blast cleaning. According to SSPC-SP 6/NACE No. 3, Commercial Blast Cleaning, a commercial blast cleaned surface is free of all visible oil, grease, dirt, dust, mill scale, rust, paint, oxides, corrosion products, and other foreign matter; staining is limited to no more than 33 percent of each unit area of surface.

COMPARATOR
See SURFACE PROFILE COMPARATOR.

COMPATIBILITY
The ability of two adjacent materials to come into intimate contact with each other without adverse effects.
COMPETENT PERSON
An employee designated by a construction employer who is capable of recognizing existing and predictable hazards and who has the authority to take corrective action. The presence of a competent person is required in many OSHA standards.

COMPLEX STRUCTURES
Industrial structures containing a variety of structural shapes and configurations, including heavy manufacturing facilities such as metal producing and rolling mills; steel bridges; processing facilities; chemical and petrochemical plants; pulp and paper mills; power plants; and food and beverage plants.

COMPLIANCE
Compliance with the clean air or water standards. Also, compliance with a schedule or plan ordered or approved by a court, the Environmental Protection Agency, or an air or water pollution control agency.

COMPLIANCE COATING
A coating whose volatile organic compound content does not exceed that allowed by regulation. Compliance coatings may be water-borne, low solvent (high solids), or powder. [EPA]

COMPLIANCE DATE
The date upon which a source is required to meet applicable pollution control requirements.

COMPLIANCE PROGRAM
A written program required of an employer by federal law to identify the methods that will be implemented to reduce employee exposure to a hazardous material to a level at or below the PEL (permissible exposure limit). The first methods to be used to reduce the exposure are engineering controls, followed by work practice and administrative controls.

COMPONENT A
Base of a two-component coating that usually containing the basic resins that give the coating most of its desired properties.

COMPONENT B
Second part of a two-component coating that contains ingredients that react chemically with the resin in Component A to form the desired protective film; also called co-reactant, activator, catalyst, or kicker.

COMPOSITE
Combination of two or more materials differing in form on a macroscale. Each material still retains its individual identity, and exhibits an interface with the others.

COMPOUND
A chemical product composed on more than one kind of element.

COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT
See CERCLA
COMPRESSIVE STRENGTH
(1) Maximum compressive stress which a material is capable of developing [CED]; (2) The measured maximum resistance of a concrete or mortar specimen to axial compressive loading; expressed as force per unit cross-sectional area; or the specified resistance used in design calculations. [ACI]

CONCENTRATION CELL CORROSION
A form of electrochemical attack of a metal driven by differences in chemical environment.

CONCRETE
A composite material that consists essentially of a binding medium within which are embedded particles or fragments of aggregate, usually a combination of fine aggregate and coarse aggregate; in Portland cement concrete, the binder is a mixture of Portland cement and water. [ACI]

CONCRETE MIX
A mixture of cement, aggregate, water, and possibly admixtures in specific quantities.

CONCRETE, PRECAST
Concrete cast elsewhere than its final position [ACI]

CONCRETE SPATTER
Solid particle of concrete formed on a surface by curing of liquid concrete mix splashed onto it.

CONDENSATION POLYMERIZATION
See POLYMERIZATION.

CONDENSATION EXPOSURE
An exposure where the surface is almost continuously exposed to saturated air, accompanied by very frequent or continuous condensation.

CONDITION ASSESSMENT
See SURVEY.

CONDUCTIMETRIC ANALYSIS
Chemical analysis made by determining the electrical conductivity of a solution.

CONDUCTIVITY (IN COATINGS)
(1) A property formulated into coatings used for electrostatic spraying, so that charged spray particles will be attracted to the grounded object being coated; (2) Conductive coatings used to dissipate build-up of static electricity. See ELECTRICAL CONDUCTIVITY.

CONDUCTIVITY METER
Field or laboratory instrument for measuring total electrical conductivity of an aqueous solution.

CONFINED SPACE
The legal definition of confined space (29 CFR 1910.146) is a space that is large enough and so configured that an employee can bodily enter and perform assigned work; has limited or restricted means for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits); and is not designed for continuous employee occupancy.
CONFINED SPACE, PERMIT-REQUIRED
A confined space with one or more of the following characteristics as defined in the OSHA confined space regulation, 29 CFR 1910.146, Permit-Required Confined Spaces: (1) contains or has the potential to contain a hazardous atmosphere (i.e., one that is flammable, oxygen-deficient, oxygen-enriched, or toxic), (2) contains a material such as grain, sawdust, or sand that potentially could engulf a worker, (3) has an internal configuration such that an entrant could be trapped (or asphyxiated if the space contains stored solids such as grain) by inwardly converging walls or by a floor that slopes downward and tapers to a small cross sectional area, such as a round bottom water tower, and (4) contains any other serious, recognized safety health hazards.

CONSENSUS STANDARD
A standard developed according to a consensus agreement or general opinion among representatives of various interested or affected organizations and individuals.

CONSISTENCY
The viscosity or thickness of a liquid material. [MPDA] See also THIXOTROPIC, VISCOSITY.

CONSTANT PRESSURE PROBE GAGE
See MAGNETIC FIXED PROBE GAGE, TYPE 2.

CONSTRUCTION CRITERIA BASE
Database of construction standards, specifications, etc., available on compact disk (CD) from the National Institute of Building Sciences (NIBS).

CONSTRUCTION INDUSTRY STANDARDS
The general term used to identify the OSHA standards developed for worker protection in the construction industry, including coating work in the field, as defined in 29 CFR 1926, “Safety and Health Regulations for Construction.” [ILPR]

CONSTRUCTION JOINT
Joint in a concrete slab at the end of an individual placement.

CONSUMER PRODUCT SAFETY ACT
See CPSA

CONTACT THERMOMETER
A magnetic thermometer, which is placed directly onto the steel surface to determine surface temperature. See NON-CONTACT THERMOMETER.

CONTAINMENT
(1) A method to limit dust, debris, paint chips, paint dust, spent abrasives, and overspray from contaminating the environment. The type, concentration, and toxicity of the contamination determine the extent of containment required. Typical containment systems include free-hanging enclosures, partial structure enclosures, and total structure enclosures with or without negative pressure; (2) Hermetically sealed portion within the reactor building of a nuclear power plant, which contains the nuclear reactor.

CONTAINMENT SYSTEM
A system that includes the containment structure (i.e., containment walls, floor, supporting structure, and entryways); ventilation system (forced or natural air input ports, and natural or mechanical exhaust); and, in some cases, dust collection equipment. [ILPR]
CONTAMINATION
Condition causing a surface, material, or process to become dirty or impure; also, the material that causes a surface to be in this state.

CONTINGENCY PLAN
A document setting out an organized, planned, and coordinated course of action to be followed in case of a fire, explosion, or release of hazardous waste or hazardous waste constituents, which could threaten human health or the environment.

CONTINUITY
Uninterrupted connection.

CONTINUOUS PHASE
The medium or continuum in which the dispersed phase is contained. See also DISPERSED PHASE. [Painting/Coatings Dictionary]

CONTRACTION JOINT
Joint sawed or tooled in concrete slab that creates a weakened plane to permit dimensional changes to occur without damage to the concrete.

CONTRACTOR
The person or corporate body that is party to the contract and bound to execute the work in accordance with the contract.

CONTROL GATE
On a lock, a gate that moves in either a vertical or horizontal direction (depending on its type) and controls the passage of water, thereby maintaining a desired water level either upstream or downstream. If valves are used for this purpose, they are referred to as control valves. Relatively small control gates in a lock are referred to as wickets.

CONTROLLED CAVITATION WATER JETTING
A technique of cleaning based upon the principle of cavitation.

CONTROL STRATEGY
A combination of measures designed to achieve the aggregate reduction of emissions necessary for attainment and maintenance of a national standard. This is a necessary part of approvable state and district implementation plans.

CONTROL OF SUBSTANCES HAZARDOUS TO HEALTH (COSHH)
British law, established in 1988 as an addition to the Health and Safety at Work Act, 1974.

CONVENTIONAL ABRASIVE BLAST CLEANING
See AIR ABRASIVE BLAST CLEANING.

CONVENTIONAL SPRAYING
See AIR SPRAYING.
CONVERSION COATING
A treatment, either chemical or electrochemical, of a metal surface to convert a thin surface layer to another chemical form to provide improved corrosion resistance and adhesion. [Painting/Coatings Dictionary]

Convertible Coating
Irreversible transformation of a coating after its film formation to a film insoluble in the solvent from which it was deposited. This should not be confused with chemical conversion coating. See THERMOSETTING. [CED]

CONVEYOR EQUIPMENT
In pulp and papermaking, conveyor equipment typically includes the belts, rollers, bearings, motors, chutes, and bridge structure for moving solid materials around the mill.

COPOLYMER
See POLYMER.

COPPER SLAG ABRASIVE
A byproduct abrasive for blast cleaning created from the processing of slag that is produced from copper smelting. The slag is mainly iron silicate.

COPPER SULFATE TEST
A test in which 5-10% solution of copper sulfate is swabbed onto steel. The appearance of copper indicates that no mill scale is present. [MPDA]

CO-REACTANT
One of two or more chemical materials formulated to react with each other to produce a desired end product.

CORNICE HOOK
A steel device shaped like the rounded, top part of a large question mark that hooks to a roof, parapet, or other structural support. Cornice hooks are used for rigging scaffolding.

CORROSION
The chemical or electrochemical reaction between a metal and its environment that results in the loss of material and its properties. Metals corrode because they exist in chemically unstable states.

CORROSION FATIGUE
The process in which a metal fractures prematurely under conditions of simultaneous corrosion and repeated cyclic loading at lower stress levels or fewer cycles than would be required in the absence of the corrosive environment.

CORROSION-INHIBITIVE PIGMENT
A pigment which, when formulated into a paint, has the property of minimizing corrosion of the metal substrate to which it is applied. [Painting/Coatings Dictionary]

CORROSION INHIBITOR
A chemical substance or combination of substances, that, when present in the environment, prevents or reduces corrosion without significant reaction with the components of the environment. [ASM]
CORROSION-RESISTANT MATERIAL
A material that is relatively unaffected by electrochemical attack in a specific environment.

CORROSION SYSTEM
System consisting of one or more metals and all parts of the environment that influence corrosion. [ASM]

CORROSIVITY
Tendency of an environment to cause corrosion in a given corrosion system.

CO-SOLVENT
A solvent, sometimes called a coupling agent, which allows the mixing of two immiscible liquids.

COUPLANT
A substance used between the probe and test surface to permit or improve transmission of ultrasonic energy of an ultrasonic thickness gage.

COUPLING AGENT
See COUPLANT.

COUPLING, AIR HOSE
Device used to join hoses used in abrasive blasting and conventional air spraying. External couplings require no tools to connect the hoses. They have universal joints and rubber gaskets to form a tight seal. Couplings should be wired together to prevent them from disconnecting accidentally.

COVERAGE
Ambiguous term. More commonly used to mean “spreading rate,” but sometimes used to mean “hiding power.” See also SPREADING RATE, HIDING POWER.

COVING (COVE)
Part of finished flooring system that terminates at floor edges by turning up abutments such as walls or columns to permit easier cleaning.

CRACK BRIDGING
See BRIDGING.

CRACKING
(1) The splitting of a dry paint film. Different types of cracking include hair-cracking or hairlines, checking, cracking, crazing, crocodiling or alligatoring, and mud cracking. The standard test method for evaluating degree of cracking is described in ASTM D 661; (2) To break up into simpler chemical components, as with cracking of petroleum.

CRACKING RESISTANCE
The ability to resist formation of cracks that extend through at least one coat of paint. See CRACKING, CHECKING RESISTANCE.

CRACKLE
Topcoat cracking caused by application of topcoat before the previously applied coat has sufficiently cured.
CRATER
(1) A small, rounded depression in a coating film that does not expose the previous coat or the substrate. (2) A small hole in the surface of a metal or other material whose maximum depth is less than its maximum diameter.

CRATERING
The formation of small, shallow depressions in a coating generally resulting from foreign matter in or deposited on the wet film.

CRAWLING
The drawing back of a liquid film from a uniformly thick layer to form areas of little, if any, thickness. It occurs when the surface tension of the coating is greater than the surface tension of the substrate. [WJP]

CRAZING
A network of intersecting checks or cracks appearing on a coated surface. See CRACKING.

CREEPAGE
See CRAWLING, UNDERCUTTING.

CREVICE
A narrow opening; fissure.

CREEVICE CORROSION
Corrosion that occurs within or adjacent to a fissure formed by contact with two pieces of the same metal or another metal or with a nonmetallic material. In these locations, the intensity of attack is usually more severe than on surrounding areas of the same metal surface. [Painting/Coatings Dictionary]

CRINKLING
See WRINKLING.

CRITERIA
As used in the Clean Air Act, information on adverse effects of air pollutants on human health or the environment at various concentrations.

CRITERIA POLLUTANT
A pollutant for which a criteria document has been issued, as described by Section 108 of the Clean Air Act. Criteria pollutants are nitrogen oxide, sulfur dioxide, ozone, total suspended particulates, carbon monoxide, and lead. A National Ambient Air Quality Standard (NAAQS) exists for each criteria pollutant. [EPA]

CRITICAL PIGMENT VOLUME CONCENTRATION (CPVC)
The level of pigment volume concentration (PVC) in dry paint, where just sufficient binder is present to fill the voids between the pigment particles. At this level, a sharp break occurs in film properties such as corrosion resistance, etc. Different requirements for each product would dictate different PVC and CPVC ratios. [Painting/Coatings Dictionary]
CROCKING
Removal of color upon abrasion or rubbing. Staining of a white cloth by rubbing lightly over a colored surface. [Painting/Coatings Dictionary]

CROCKING RESISTANCE
The ability of a coating to resist color transfer when rubbed or abraded.

CROCODILING
See ALLIGATORING.

CROSSCUT ADHESION TEST
See ADHESION TEST, CROSSCUT.

CROSSHATCH ADHESION
See ADHESION TEST, CROSSHATCH.

CROSSLINKING
Method of polymer film formation. Chemical links are set up between molecular chains to form a three-dimensional or network polymer. When crosslinking is extensive, as in most thermosetting resins, it makes one infusible, larger molecule of all the linked chains. Crosslinking generally toughens and stiffens coatings. [Painting/Coatings Dictionary]

CROSSLINKING AGENT
A low-molecular component in multi-component coatings that reacts with two or more polymer chains, forming bonds between them. Crosslinking generally improves the chemical resistance of a polymer but makes it more brittle.

CROSS-SPRAY APPLICATION
A two-pass spray operation where an area first is covered by a series of parallel spray passes in one direction; then, while the coating is still wet, the area is covered again by a second series of parallel spray passes made perpendicular to the first.

CROWS FOOTING
A coating film defect in which a pattern of wrinkles resembling a crow’s foot is formed. See WRINKLING.

CRYOGENIC COATING REMOVAL
A technique using liquid nitrogen at -196°C (-385°F) to remove organic coatings. A stream of liquid nitrogen embrittles the coating, which then can be removed by abrasive blasting with recyclable plastic pellets or by a similar force.

CUPROUS OXIDE
A reddish fine pigment formed by the oxidation of copper at high temperatures. Commonly used in marine anti-fouling paints. Also known as copper oxide. [MPDA]

CURE TIME
The time after application required for a coating or other material to be converted to its intended form. Curing may actually continue for the lifetime of the coating.
CURING
(1) The process by which a coating changes from a liquid state into a dry, stable, solid protective film. Curing of a coating may involve chemical reaction with oxygen, moisture, or chemical additives, or the application of heat or radiation; (2) The maintenance of a satisfactory moisture content and temperature in concrete during its early stages so that desired properties may develop. [ACI]

CURING AGENT
An additive component, sometimes called a hardener or (incorrectly) a catalyst, which helps a coating film or concrete cure by chemical reaction. Compare CATALYST.

CURING COMPOUND
A liquid that can be applied as a coating to the surface of newly placed concrete to retard the loss of water and, in the case of pigmented compounds, to reflect heat so as to provide an opportunity for the concrete to develop its properties in a favorable temperature and moisture environment. [ACI]

CURRENT
The net transfer of electric charge per unit time. Also called electric current. [ASM]

CURTAIN COATING
A coating that is applied and allowed to drain off. The excess is collected in a sump and recirculated.

CURTAINING
See SAGGING.

CURTAINS
Sags with a draped appearance.

CUT STEEL WIRE ABRASIVE
A blast cleaning abrasive manufactured by cutting steel wire into small cylindrical particles. See also CYLINDRICAL ABRASIVE, METALLIC ABRASIVE.

CUTBACK
A solution of a coating binder material (e.g., coal tar or asphalt) in an organic solvent to provide easy application of a film.

CUTTING IN
A brushing technique used to create a sharp edge such as at the intersection of a wall and trim, or the brush application of a coating to areas that cannot be reduced by a roller. [MPDA]

CYCLIC TEST
Exposure test for paint or other materials in which one or more stress factors (e.g., temperature, relative humidity, ultraviolet exposure, etc.) are varied in a prescribed cycle throughout the duration of the test.

CYLINDRICAL ABRASIVE
A blast cleaning abrasive made with cut steel wire. See also CUT STEEL WIRE ABRASIVE.
D

D008 WASTE
The Environmental Protection Agency hazardous waste number for wastes containing lead.

DAILY DISCHARGE (PER CLEAN WATER ACT)
The discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the daily discharge is calculated as the average measurement of the pollutant over the day. [ILPR]

DATA SHEET
Printed sheet from a coating manufacturer providing technical information concerning the application and use of the product, normally including description, recommended uses, physical and performance data, and application parameters.

dB
See DECIBEL.

DC POWER
Direct current electricity.

DEADMAN’S CONTROL
Safety cut-out device at blast nozzle connected to pressure relief valve on blast-pot. May be air operated or electrical. Pressure of blasting operator’s hand maintains pressure and allows blast equipment to operate.

DEADMAN VALVE
See DEADMAN’S CONTROL.

DEAERATION
The removal of oxygen from an environment.

DEALLOYING
The selective corrosion of one or more components of a solid solution alloy. Also called parting or selective leaching. [ASM]

DECELERATION DEVICE
Any mechanism (a rope grab, rip-stitch lanyard, specially woven lanyard, tearing or deforming lanyard, automatic self-retracting lifeline/lanyard, etc.) in a fall protection system that will dissipate a substantial amount of energy during a fall arrest or otherwise limit the energy imposed on a worker during a fall arrest.
DECHLORINATION
In wastewater treatment plants, treatment to reduce the chlorine level of the effluent water before it is discharged. This can be done by injecting the effluent with sulfur dioxide gas (at a 1:1 ratio to the amount of chlorine injected previously) as it leaves the chlorine contact basins. Dechlorination is then completed by aerating the water either through a cascade system or air injection.

DECIBEL
Unit of measurement for sound intensity, abbreviated dB.

DECK
On a ship, the main deck is the horizontal surface exposed to the weather. There are other exterior decks, such as forecastle decks, poop decks, boat decks, bridge decks, and other levels of decks, depending on the type of vessel. Interior decks are the floors to the inside spaces, which are exposed to different environments, such as engine rooms, store rooms, workshop rooms, laundry, kitchen, etc.

DECORATIVE PAINTING
Painting done for appearance rather than for protection, frequently called architectural painting.

DEFECT
A surface or film imperfection (flaw), deficiency, or incompleteness that deviates from a specification or industry-accepted condition.

DEFLOCCULANT
An additive that prevents pigments in suspension from coalescing to form flocs.

DEFOAMER(S)
Additives used to reduce or eliminate foam formed in a coating or coating constituent. See ANTI-FOAMING AGENT.

DEGRADATION
A gradual loss of coating materials and/or properties resulting from their service conditions and weathering.

DEGREASING
Removing grease or oil from a surface by means described in SSPC-SP 1. See SOLVENT CLEANING.

DEHUMIDIFICATION
Removal of water vapor from the atmosphere.

DE-ICING SALTS
Salts added to roads or other surfaces to melt ice by lowering its freezing point; they are very corrosive to steel in bridge structures.

DEIONIZED WATER
Water purified by passing it through ion exchange resins to remove the mineral salts.

DELAMINATION
(1) The separation of a coat or coats of paint from the previous coat or from the substrate. Failure of a coating to adhere to the previous coating; (2) In the case of a concrete slab, a horizontal
splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface; found most frequently in bridge decks and caused by the corrosion of reinforcing steel or freezing and thawing; similar to spalling, scaling, or peeling except that the delamination affects large areas and can often be detected by tapping. [ACI]

DEMONSTRATION
The initial exhibition of a new technological process or practice or a significantly new combination or use of technologies, processes or practices, subsequent to the development stage, for the purpose of proving technological feasibility and cost effectiveness.

DENSITY
A measure of mass per unit volume. In the U.S. the density of paint usually is expressed as pounds per gallon.

DEPOSIT CORROSION
Localized corrosion under or around a deposit or collection of material on a metal surface. See also CREVICE CORROSION.

DEPRECIATION
The scheduled reduction in the book value of property. It is a method of accounting for the reduction in value of a system due to wear, deterioration or obsolescence. Several methods of depreciation can be used depending on the industry, equipment and tax laws.

DEPRECIATION ALLOWANCES
Reduction in taxes due to the reduction of the value of a system due to wear, deterioration or obsolescence. Specifically, the reduction in the book value of the system that is used to calculate the taxes owed.

DEPTH GAGE
Instrument for measuring the depth of a pit or crevice.

DEPTH MICROMETER
See DEPTH GAGE, SURFACE PROFILE DEPTH GAGE.

DESCALING
Removal of mill scale or caked rust from steel by chemical or mechanical means.

DESCENT CONTROL
A mechanical device that connects a lanyard to a lifeline. It works like a rope grab and limits the distance that a worker wearing a properly connected body harness can fall from an elevated work area. However, a descent control also has a mechanism that allows a worker who is hanging from a lifeline to unlock the grabbing device and slowly descend to the ground or the surface below.

DESIGN
The art of developing configurations, selecting materials, and selecting methods for fabricating equipment or structures.

DESIGN BASIS ACCIDENT (DBA)
In nuclear power plants, the worst potential accident that could occur in a given system or component. The design basis accident for the containment, since it is a pressure vessel, is the circumstance that creates the worst pressure, the Loss of Coolant Accident (LOCA).
DESSICANT
A material commonly used to absorb moisture from the air. See SILICA GEL.

DESTRUCTIVE DRY FILM THICKNESS GAGE
See DRY FILM THICKNESS GAGE, DESTRUCTIVE.

DETACHMENT
See DISBONDMENT.

DETECTOR TUBE
Glass tube (e.g., Draeger tube) with indicator chemicals, set to react at specific levels of gaseous content when air is drawn through it. There are a number of detector tubes available for carbon monoxide, acetone, methylene chloride, oxygen, and methylethyl ketone.

DETERGENT
A synthetic, organic cleaning agent that is liquid- or water-soluble, and has wetting and emulsifying properties.

DETERGENT CLEANING
Removing contamination from a surface using an aqueous solution of a surface-active agent.

DETERIORATION
See DEGRADATION.

DEVIATION
Variation from the specified action. Deviations from specification requirements occur when these requirements are not fully met.

DE-WATERING
(1) Term describing a type of accident in a nuclear power plant in which water spills from the system to the extent that the fuel in the reactor is no longer immersed; (2) The removal of water from drydocks, locks, or other containments.

DEW POINT
The temperature at which air becomes saturated with water, that is, when the air is at 100 percent relative humidity. Below this temperature, moisture will condense and produce dew or fog. As air is cooled, the amount of water vapor it can hold decreases. Expressed another way, the point where the actual water vapor pressure becomes equal to the saturation water vapor pressure; any further cooling beyond this point normally results in the condensation of moisture.

DEZINCIFICATION
Selective loss of zinc metal from a brass alloy.

DIAGONAL
A structural member of the bridge transversing from one side of the structure to the other at an angle near 45 degrees. Angular cross braces (struts) are often smaller angular or rod structural members, often in an “X” or cross pattern, used to provide structural strength between parallel girders. [B]

DIAPHRAGM
Transverse structural members that furnish lateral support to beams. [B]
DIGESTER
In pulp and papermaking, the digester is a large, cylindrical, vertical pressure vessel where the wood chips are steamed with the caustic cooking solutions to remove the lignin. In wastewater treatment, the digester is where organic matter in the sludge is decomposed by anaerobic bacteria, releasing a mixture of burnable gases.

DILATANCY
Stiffening and loss of fluidity of paint upon agitation. The opposite of thixotropy.

DILUENT
Volatile liquid, which, while not a solvent for the nonvolatile constituents of a coating, may yet be used in conjunction with the true solvent, without causing precipitation.

DIP COATING
Application method in which an object is dipped into a container of coating and then withdrawn. Excess coating that drains off can be collected and recycled. This method is used in factories to coat small, difficult to paint, or fabricated assemblies.

DIP ROLLER
See PAINT ROLLER TYPES.

DIRECT COSTS
Such costs as labor, taxes, insurance, materials, scaffolding, equipment and inspection applied directly to a specific job.

DIRECT CURRENT
A flow of electricity that continues in one direction.

DIRECT CURRENT CIRCUIT
A complete electrical path that carries a charge flow in one direction.

DIRECT FOOD CONTACT SURFACE
Any surface which is designed to be in direct contact with food for human consumption during any part of processing.

DIRECT READING GAS DETECTOR
An instrument that directly records information about its surroundings, as opposed to one that does so inferentially.

DIRECT TO METAL (DTM)
A coating suitable for direct application to metal without a primer. See SELF PRIMING.

DIRT ACCUMULATION
The collection of air-borne dirt, soot, or other foreign material on the exterior surfaces of coatings or other substrates. ASTM D 3274 is the standard Test Method for Evaluating Degree of Surface Disfigurement of Paint Films by Microbial (Fungal or Algal) Growth or Soil and Dirt Accumulation.

DIRT PICK-UP
See DIRT ACCUMULATION.
DIRT RESISTANCE
The ability of a coating to resist soiling.

DISBONDING
The separation resulting from insufficient adhesion of a coating to an undercoating or other substrate.

DISCHARGE
Accidental or intentional spilling, leaking, pumping, pouring, emitting, emptying, or dumping of hazardous material or waste into or on any land, water or airspace.

DISCHARGE PERMIT
Authorization, license, or equivalent control document issued by the EPA or approved state agency to implement the requirements of water quality regulations.

DISCOLORATION
Change in the color of a coating after application (usually an undesired darkening), normally caused by exposure to sunlight or chemical atmospheres.

DISCONTINUITIES
See HOLIDAY.

DISCOUNTING FACTOR
A factor used in economic analysis to allow for the time value of money.

DISC SANDER
A power tool that uses a revolving, flat, circular, abrasive disc to remove heavy coatings and other contaminants from a surface. Disc sanders work well on metal or concrete surfaces, but because they can gouge easily, they may be too rough for wood or plaster.

DISPERSANT
Additive that increases the stability of a suspension of powders (pigments) in a liquid medium. See DISPERSION AGENT.

DISPERSED PHASE
That phase in an emulsion or suspension which is broken down into droplets or discrete particles and dispersed throughout the continuous phase. Also called the discontinuous phase. See also CONTINUOUS PHASE. [Painting/Coatings Dictionary]

DISPERSION
(1) Process of dispersing a dry powder (or pigment) in a liquid medium in such a way that the individual particles become separated and reasonably evenly distributed throughout the liquid. This usually is accomplished by rapid, high shear mixing or agitation; (2) Two-phase system in which the dispersed phase (usually solid or liquid), is permanently distributed as small particles through the continuous phase (usually liquid). [Painting/Coatings Dictionary]

DISPERSING AGENT
Additive that increases the stability of a suspension of powders or pigments in a liquid medium. Also called a dispersant. [Painting/Coatings Dictionary]
DISPOSAL
The discharge, deposit, injection, dumping, spilling, leaking, or placing of any hazardous waste into or on any land or water so that such hazardous waste or any constituent thereof may not enter the environment or be emitted into the air or discharged into any waters, including ground waters.

DISPOSAL FACILITY
A facility or part of a facility at which hazardous waste is intentionally placed into or on any land or water, and at which the waste will remain after closure.

DISSIMILARIAR METAL CORROSION
See GALVANIC CORROSION.

DOCTOR BLADE
A blade used to spread a thin coating evenly on a flat substrate. See also DRAWDOWN BAR.

DODISS
Department of Defense Index of Specifications and Standards. See DEPARTMENT OF DEFENSE SINGLE STOCK POINT (DODSSP).

DOLLY
See PULL STUB.

DOME TEST
See MOISTURE VAPOR EMISSION RATE.

DOUBLE-DIP GALVANIZING
(1) Immersing half of a structure at a time into a molten zinc bath when it is too large to be immersed in one dipping; (2) Passing an article through a molten zinc bath twice in order to acquire a thicker coat of zinc.

DOUBLE RUB
The act of rubbing a solvent saturated cloth in one complete forward and backward motion over the coated surface. [CED] ASTM D 4752 describes a test for curing using this technique.

DRAG
Resistance of paint to being spread by a brush. A paint with a lot of drag is hard to work with a brush.

DRAWBRIDGE
See MOVABLE BRIDGE.

DRAWDOWN
A thin coating film of uniform thickness cast on a base material by means of a drawdown bar. [Painting/Coatings Dictionary]

DRAWDOWN BAR
A rectangular metal bar designed to deposit a specified thickness of wet coating film on test panels or other substrates. [Painting/Coatings Dictionary] Sometimes called a DOCTOR BLADE.

DRIERS
Organo-metallic compounds containing certain metals used to improve drying speed of alkyd and oil type coatings and varnishes. [MPDA]
**DRIFT**  
See OVERSPRAY.

**DRIP**  
A drop of wet coating that forms on or falls from the edge of the coated substrate.

**DROP**  
The surface area that can be coated during one vertical descent of a scaffold or of other access equipment.

**DROP CLOTH**  
A large piece of fabric or plastic used to protect machinery and other articles from damage during surface preparation and paint application.

**DROP-IN LINER**  
A liner fabricated in the shop from sheets of lining material and then shipped to the site for field installation. It is sometimes called a bag liner. These liners are generally not attached to tank walls and floors.

**DROSSING**  
Removal of refuse and impurities from a galvanizing bath.

**DRY AIR**  
Air containing a level of water vapor that is significantly less than its maximum concentration for the prevailing temperature and pressure. See also SATURATED AIR, WET AIR.

**DRY BULB TEMPERATURE**  
The temperature recorded by the dry bulb thermometer of a sling or other psychrometer. See also PSYCHROMETER, WET BULB TEMPERATURE.

**DRY BULB THERMOMETER**  
The thermometer on a sling or other psychrometer whose bulb is directly exposed to the air (i.e., not covered with a wet sock). See PSYCHROMETER.

**DRY CELL BATTERY**  
A device in which electrochemical reactions are used as a source of direct current electricity. In the dry cell battery, the electrolyte is absorbed on solid material within the cell.

**DRY DOCK**  
A containment in which ships are lifted above water or from which water is removed to permit construction or repair of areas normally immersed. A graving dock is a particular type of dry dock that is enclosed by means of gates or caissons.

**DRY FALL/FOG COATING**  
A coating specially formulated with a solvent system that will evaporate after spray application in the time required for overspray to freely fall 9 to 13 feet. These coatings are designed for application to interior or exterior surfaces where overspray or contamination from paint fallout can become a problem.
DRY FILM THICKNESS (DFT)
Depth of cured film usually expressed in mils (0.001 inch) or micrometers (millionths of a meter).
Standard methods for measuring dry film thickness are defined in SSPC-PA 2, ASTM D 1005, ASTM D 1186, and ASTM D 1400.

DRY FILM THICKNESS GAGE
An instrument used to measure the dry film thickness of a coating.

DRY FILM THICKNESS GAGE, DESTRUCTIVE
An instrument used to measure the thickness of a dry coating film over metallic and nonmetallic substrates. The measurement is made by cutting through the coating at a specific angle to its surface and then observing the thickness of the coating layers through a microscope with a calibrated lens as described in ASTM D 4138. Commonly called a Tooke gage or a paint inspection gage (PIG).

DRY FILM THICKNESS GAGE, EDDY CURRENT
A type of dry film thickness gage that can be used to measure the thickness of non-conductive coatings on non-ferrous metal substrates.

DRY FILM THICKNESS GAGE, MAGNETIC
One of the different types of gages designed to determine the dry film thickness of coatings on a ferrous metal substrate. See BANANA GAGE; MAGNETIC FIXED PROBE GAGE, TYPE 2; MAGNETIC PULL-OFF GAGE, TYPE 1; and PENCIL-TYPE PULL-OFF GAGE.

DRY INTERIOR ENVIRONMENT
Dry, relatively noncorrosive interior of a building, plant, or other enclosed space.

DRY SPRAY
(1) A rough, powdery, noncoherent film produced when an atomized coating partially dries before reaching the intended surface; (2) Overspray or bounce back falling dry on unintended surfaces and producing an adherent, sand-like covering. See also BOUNCE BACK, OVERSPRAY.

DRY-THROUGH
A film is considered to be dry-through when no loosening, detachment, wrinkling, or other distortion of the film occurs when the thumb is borne downward while simultaneously turning the thumb through an angle of 90° in the plane of the film. The arm of the operator is kept in a straight line from the wrist to the shoulder and maximum pressure is exerted by the arm.

DRY-TO-HANDLE TIME
The drying time needed for paint or varnish to harden before handling without damaging the coating.

DRY-TO-RECOAT TIME
The drying time required between the applications of successive coats of paint or varnish.

DRY-TO-TOUCH TIME
The drying time needed for a coating of paint or varnish to harden so that it is tack-free to the touch.
**DRYING**  
Process by which coatings change from a liquid to solid state due to evaporation of the solvent, physicochemical reactions of the binding medium, or a combination of these causes.  
[Painting/Coatings Dictionary]

**DRYING OIL**  
An oil that possesses to a marked degree the property of readily taking up oxygen from the air and changing to a relatively hard, tough, elastic substance when exposed in a thin film to the air.  
[Painting/Coatings Dictionary] Vegetable oils that are used in paints as drying oils include linseed, tung, soybean, dehydrated castor, and oiticica oils.

**DRYING TIME**  
Time required for an applied film of coating to reach the desired stage of cure, hardness, or non-tackiness.  

**DRYWALL**  
Prefabricated construction material, generally of compressed gypsum, for walls of buildings or housing.

**DUCTILITY**  
Tendency of a material to undergo deformation and extension without cracking or splitting.  
[CED]

**DULL PUTTY KNIFE (for use as an inspection tool):**  
A commercially manufactured metal blade with these characteristics: width – 1-1/2 to 3”; length – 3 to 5”; thickness – 30 to 50 mils. The putty knife is acceptable for use if the thickness at end of the blade is not less than 25 mils or 75% of its original thickness, whichever is greater. It shall not be used if the edge is nicked or gouged, or if dry paint or other material is present along the edge that would prevent the blade from making intimate contact with the surface. When used to test paint, mill scale, or rust remaining on the surface after cleaning, the blade shall be held flat against the surface and at a maximum of 45 degrees to the surface. The corners of the blade shall not be used to dig at the residues.

**DULLING**  
Loss of gloss or sheen.  
[AM]

**DURABILITY**  
Degree to which paints and paint materials withstand the destructive effect of the conditions to which they are subjected.

**DUROMETER**  
Instrument for measuring the surface hardness of rubber, plastic, or protective coatings. See DUROMETER HARDNESS.  
[CED]

**DUROMETER HARDNESS**  
An arbitrary numerical value that measures the resistance to indentation of the blunt indenter point of the durometer. The value may be taken immediately or after a very short specified time.  
[ASTM]

**DUST**  
Particles small enough to be suspended in air but large enough to be visible.
**DUST COLLECTION SYSTEM**
Mechanical ventilation system designed specifically for the containment, capture, and removal of airborne particulate from the containment. Dust collection systems include duct work, plenums and/or hoppers, and dust collector(s) for the removal of hazardous materials from the airstream prior to discharging to the atmosphere.

**DUST COLLECTOR**
An air cleaning device used to remove heavy particulate loadings from exhaust systems before discharge. Dust collectors normally include air filters that are cleaned on a regular recurring basis as well as collection receptacles for the filtered particulate and come in a wide range of designs to meet various industrial applications.

**DUST-FREE**
The point in time when dust will no longer adhere to drying paint or varnish.

**DUST LOAD**
The quantity of dust in the air stream. Technically expressed as grains of dust per cubic foot of air (grains/ft³).

**DUSTING**
The development of a powdered material at the surface of hardened concrete. [ACI]

**Dwell Time**
The time that a blasting nozzle remains pointed at any spot on the surface being cleaned. Loose contaminants and paint require a shorter dwell time to remove than tightly adherent materials.

**Dynamic Crack**
Crack in concrete surface that changes in width as the concrete moves.

**Eddy Current Gage**
See DRY FILM THICKNESS GAGE, EDDY CURRENT.

**Eddy Current Testing**
Determine a coating dry film thickness on certain metals by measuring opposing electrical (eddy) currents produced by the gage.

**Edge Failure**
A type of coating adhesion failure in which undercutting (penetration of corrosion beneath the coating) occurs at an unprotected or incompletely protected edge.

**Edge Retention**
The percent of coating after application that remains on a edge compared to that remaining on an adjacent flat area.
EFFLORESCENCE
A white crystalline or powdery deposit on the surface of concrete. Efflorescence results from leaching of lime or calcium hydroxide out of a permeable concrete mass over time by water, followed by reaction with carbon dioxide and acidic pollutants.

EFFLUENT
Any spent liquors or other waste material that are emitted by a source (waste from planting shops, pickling tanks, sewage treatment plants, chemical manufacturing plants, etc.). [IUPAC, CED]

EFFLUENT GUIDELINES
Any limit established as part of a permit issued by state or the EPA, or any pretreatment required before discharging wastewater to a public wastewater treatment facility.

EGGSHELL
A coating finish that resembles the appearance of an egg shell. The luster is between a semigloss and flat, usually 20 to 35 on the 60-degree gloss meter. See also GLOSS, GLOSS METER. [Painting/Coatings Dictionary]

ELASTICITY
Property of a film that permits it to stretch or change in size and shape, and return to normal conditions without breaking during the distortion. Elasticity should not be confused with toughness, tensile strength, or elongation. [PDCA]

ELASTOMER
A polymer with elastic properties, such as rubber.

ELASTOMERIC
Rubberlike; relating to or having the properties of elastomers. [CED]

ELECTRIC ARC GUN
A type of thermal spraying equipment in which a metal wire is melted continuously by an electric arc and then atomized by an air jet. An electric arc gun is less maneuverable than an oxy-fuel gas gun, but the deposit rate of the metal is two to three times greater.

ELECTRICAL CONDUCTIVITY
The property of a fluid or solid that permits the passage of an electrical current. It is measured by the quantity of electricity transferred across unit area per unit potential gradient per unit time. (In sampling and analysis, changes in this property are utilized to measure the presence of certain ions and compounds such as sulfur dioxide.) [ASTM]

ELECTRICAL CIRCUIT
A path for flow of electrical current.

ELECTRICAL ISOLATION
The condition of being electrically separated from other metallic structures or the environment. [ASM]

ELECTRICAL RESISTANCE
The property of circuit elements that inhibits current flow.
**ELECTROCHEMICAL CELL**
An electrochemical system consisting of an anode and a cathode in metallic contact and immersed in an electrolyte. (The anode and cathode may be different metals or dissimilar areas on the same metal surface.) [ASM]

**ELECTROCHEMICAL DEPOSITION**
The formation of a reaction product on a surface due to the flow of charge to or from the surface of an electrolyte.

**ELECTRODEPOSITION**
Method of paint application in which an electrically conductive article to be coated is made one of the electrodes in a tank of water-thinned paint. The other electrode is generally a metal. The two electrodes are connected to a source of electrical power, the polarity of the article to be coated being of the opposite sign to that of the particles in the liquid paint in the tank. The charged particles move towards the articles under the influence of the electric field, and when they give up their charge at the electrode (article), they are deposited and ultimately form a continuous film of paint.

**ELECTROENDOSMOSIS**
Penetration of water through a coating film caused by excessive cathodic protection potentials. Often results in blistering of coatings.

**ELECTROGALVANIZING**
Steel wire or strip fed continuously through a series of washes and rinses and a plating bath. Electrogalvanized steel has good working properties; zinc applied in this manner has excellent adhesion.

**ELECTROLYTE**
(1) A chemical substance or mixture, usually liquid, containing ions that migrate in an electric field; (2) A chemical compound or mixture of compounds which when molten or in solution will conduct an electric current. [ASM]

**ELECTRON**
A stable subatomic particle in the lepton family having a rest mass of $9.1066 \times 10^{-28}$ gram and a unit negative electric charge of approximately $1.602 \times 10^{-19}$ coulomb. [CED]

**ELECTRONIC GAGE**
SSPC-PA 2 Type 2 coating dry film thickness gage.

**ELECTROPLATING**
Electrodeposition of a metal or alloy in an adherent form on an object serving as a cathode. [ASM]

**ELECTROSTATIC DETEARING**
Removal of tear drops that form on dipped objects.

**ELECTROSTATIC DISSIPATIVE FLOORING**
Coating/surfacing material that drains away electrostatic charges as they are developed.
ELECTROSTATIC SPRAY COATING
A solvent-borne, water-borne, or powder coating that is applied by electrostatic spraying. See ELECTROSTATIC SPRAYING.

ELECTROSTATIC SPRAYING
A method of applying a spray coating in which the substrate and the coating receive opposite electrical charges. The charged particles of paint are attracted to the article being painted and are deposited there. The mist travels around corners of the substrate with the result that the article is coated more uniformly on all sides and edges with very little overspray and bounce back.

ELEMENT
A fundamental substance that cannot be further divided or broken down without losing its identity.

ELONGATION
A method of measuring coating flexibility; the increase in specimen length from the point of initial load application to the point of film rupture in a tension test. ASTM D 2370 covers the measurement of elongation as well as tensile strength and stiffness (modulus of elasticity) of organic coatings when tested as free films. [ASTM, CED]

EMBEDMENT
The adherence of particles of blast cleaning abrasive on a substrate. The particles cannot be removed by brushing or blowing down with compressed air.

EMBRITTLEMENT
The process of becoming brittle; also, becoming hard and rigid but with little tensile strength and breaking with a comparatively smooth fracture.

EMERGENCY TEMPORARY STANDARDS
In cases of grave danger to workers, OSHA is authorized to publish emergency standards that take effect immediately and remain in effect until replaced by a permanent standard.

EMERY CLOTH
A cloth with abrasive on one side used much like sandpaper.

EMISSIONS (FROM COATINGS)
The volatile materials released by a coating into the surrounding air during its film formation

EMISSION LIMITATIONS
Requirements established by EPA or state or local government which limit the quantity, rate or concentration of emissions of air pollutants on a continuous basis, including any requirements which limit the level of opacity, prescribe equipment, set fuel specifications or prescribe operation or maintenance procedures for a source to assume continuous emission reduction.

EMISSION STANDARD
The maximum amount of air polluting discharge legally allowed from a single source, mobile or stationary. [EPA]

EMPLOYEE LEAD EXPOSURE
Exposure, which would occur if the employee were not using a respirator.
EMULSIFICATION
The process of dispersing one liquid in another (the liquids being mutually insoluble or sparingly soluble in each other). When water and oil are the liquids, two types of emulsions are possible: oil in water (water is the continuous state), and water in oil. [Painting/Coatings Dictionary]

EMULSIFIER
See EMULSIFYING AGENT.

EMULSIFYING AGENT
A substance, called a surfactant, which intimately mixes, modifies the surface tension of colloidal droplets, and disperses dissimilar materials that are ordinarily immiscible, such as oil and water, to produce a stable emulsion. The emulsifier has the double task of promoting the emulsification and stabilizing the finished product. [Painting/Coatings Dictionary] To accomplish this, surfactants for water-borne coatings have a hydrophilic (water-loving) group and a hydrophobic (water-hating) group.

EMULSION
Two-phase liquid system in which small droplets of one liquid (the internal phase) are immiscible in and uniformly dispersed throughout a second continuous liquid phase (the external phase). [Painting/Coatings Dictionary] An emulsion in which the dispersed particles are a solid is called a suspension; thus, a latex cannot be called an emulsion in the strictest sense. It should be noted that the dispersed particles or globules are not soluble in the liquid, but remain discrete entities dispersed throughout the liquid.

EMULSION AID
See EMULSIFYING AGENT.

EMULSION PAINT
A paint with an emulsion of binder in water for the vehicle. The binder may be oil, oleoresinous varnish, resin, or other emulsifiable material. [Painting/Coatings Dictionary] Although in the strictest sense a latex is not an emulsion, the terms emulsion and latex commonly are used synonymously. See also LATEX PAINT.

ENAMEL
A finish coat of paint that dries to a smooth, glossy surface.

ENCAPSULATION
The process of enclosing a surface, especially one containing hazardous materials, on all sides. Encapsulants include drywall, fiber-filled coatings, wood, or other materials.

END-USER
(1) A facility (e.g. chemical plant) owner that uses paint; (2) A person or organization that conducts coating work, such as a painter or painting contractor. See also USER.

ENERGIZED
A state of being connected to an energy source or containing residual or stored energy.

ENERGY ISOLATING DEVICE
A mechanical device that physically prevents the transmission or release of energy (e.g., a manually operated electrical circuit breaker; a disconnect; etc.)
ENERGY STATE
The level of capacity of a system to perform work.

ENGINEER
The designated employee who is responsible for the project, and who has the authority to accept or reject work on behalf of the owner.

ENGINEERING CONTROL (OSHA)
A device or system designed and implemented to restrict or abate occupational health and safety hazards at their source (e.g., ventilation to remove air contaminants, acoustical enclosure of noisy equipment).

ENGINEERING CONTROL METHODS
Methods of preventing worker exposure to air contaminants without the use of personal protective equipment, including enclosure, confinement, general and local ventilation, and substitution of less toxic materials.

ENGINEERING CONTROLS
The use of technologically feasible controls in the work areas for the purpose of reducing and maintaining employee exposure to health and safety hazards in the workplace to or below the PEL, and for controlling emissions from the work area. Examples of engineering controls are ventilation to remove air contaminants, acoustical enclosure of noisy equipment, or methods that capture the dust at the point of generation such as vacuum blast cleaning.

ENGINEERING STANDARD
A type of document that provides options for construction work such as coating different types of structures.

ENGULFMENT
In a confined space, the surrounding and effective capture of a person by a liquid or finely divided, flowable, solid substance that can be aspirated to cause death by filling or plugging the respiratory system or that can exert enough force on the body to cause death by strangulation, constriction, or crushing.

ENTRY/EXIT AIRLOCK
An isolated enclosure located at the entrance of a containment in which workers remove contaminated dust and debris from their work clothes.

ENVIRONMENT
Water, air, land, and all plants, animals, and humans living therein, and the interrelations, which exist among them.

ENVIRONMENT (PER CERCLA)
All waters of the United States, including surface water, ground water, and drinking water supply; the surface of the land or subsurface strata; and the ambient air within or under the jurisdiction of the United States. [ILPR]

ENVIROSENSE
EnviroSense, part of the U.S. EPA’s web site, provides a single repository for pollution prevention, compliance assurance, and enforcement information and data bases. http://es.epa.gov
EP TOXICITY TESTING (EP TOX)
A test for determining whether or not debris is hazardous based on an analysis of leachable material by either atomic absorption spectroscopy or inductively coupled plasma atomic emission spectroscopy. Procedures for conducting the test are found in Appendix II of 40 CFR 261, “Identification and Listing of Hazardous Waste.” Prior to 1991, the EP Toxicity Test was used. Presently, the toxicity characteristic leaching procedure (TCLP) test is used. [ILPR]

EPA IDENTIFICATION NUMBER
A number assigned by the Environmental Protection Agency to generators, transporters and treatment, storage, and disposal facilities handling hazardous waste.

EPICHLORHYDRIN
A chemical used in the production of epoxy resins.

EPOXY
Group having the oxirane structure. [CED]

EPOXY AMINE ADDUCT
A curing agent formed by partial reaction of a multi-functional amine with an epoxy resin. The amine adduct is packaged in a separate container and then mixed with the remaining epoxy resin prior to application.

EPOXY COATING, OIL-MODIFIED
A one-component coating containing a binder in which an epoxy resin has been pre-reacted with an alkyd resin or a drying oil. The resin contains no significant amount of free epoxy groups and cures by reaction with oxygen in the air. This coating is also called an epoxy ester. See EPOXY ESTER COATING.

EPOXY ESTER COATING
A single-package, air-drying coating based on epoxy modification of unsaturated fatty acids. They cure by oxygen in the air reacting with the unsaturated bonds in the fatty acids. Compared with alkyd coatings, epoxy ester coatings have better adhesion, and moisture and chemical resistance.

EPOXY MASTIC
A high-solids, high-build (at least 5 mils dry film thickness) formulation, often aluminum-filled, usually surface tolerant and compatible with most other coatings.

EPOXY PHENOLIC RESIN
Resin formed by reacting phenol-formaldehyde with glycidyl chloride. It is used in two-component coatings, and is reacted with an epoxy curing agent. Cured epoxy phenolic resin has excellent heat and weather resistance, but usually is not used in finish coats because of its light brown color.

EPOXY POLYAMIDE
An epoxy resin crosslinked with a polyamide resin; also called amide-cured epoxy.

EPOXY RESIN
Cross-linking resins based on the reactivity of the epoxide group. One common type is the resin made from epichlorohydrin and bisphenol A. Aliphatic polyols such as glycerol may be used instead of the aromatic bisphenol A or bisphenol F.
**EQUIVALENT METHOD**
Any method of sampling and analyzing for an air pollutant that has been demonstrated to the EPA to have a consistent and quantitatively known relationship to the reference method.

**EROSION**
The gradual loss of coating by wear or weathering. ASTM D 662 is the Standard Test Method for Evaluating Degree of Erosion of Exterior Paints.

**EROSION-CORROSION**
A joint action involving corrosion and erosion.

**ESTER**
The reaction product of an organic acid and an alcohol, e.g. the condensation of glycerol with a fatty acid.

**ESTER SOLVENT**
An organic solvent formed from an alcohol and an organic acid by eliminating water. Most of the ester solvents used in paint contain acetate functionality. These solvents have solvency power between aromatic hydrocarbons and ketones, and they exhibit strong hydrogen bonding and relatively high polarity. Ester solvents used in paints include ethyl acetate, isobutyl acetate, ethylene glycol, and monoethyl ether acetate. See also GLYCOL ETHER SOLVENT.

**ETCHING**
Making a physical impression on a surface; usually roughening, with a chemical agent such as acid; often done to increase coating adhesion to concrete substrates. See ACID ETCHING.

**ETCH PRIMER**
Acid-modified polyvinyl butyral zinc chromate paint used for metal treatment; also called wash primer.

**EVALUATING AGENCY**
An independent, third-party agency with the technical competence to review submittals, conduct on-site evaluations of contractors and report results to a qualifying agency (e.g., in compliance with the requirements of SSPC-QP 1, 2, 3 or 4).

**EVAPORATION RATE**
The rate at which a solvent or other volatile material is converted from a liquid to a gas under specified conditions. A solvent that has a low boiling point evaporates faster (is released from a wet coating faster) than one with a higher boiling point.

**EXEMPT SOLVENT**
Specific organic compounds that are not subject to requirements of regulation because they have been deemed by EPA to be of negligible photochemical reactivity. [EPA]

**EXFOLIATE**
To separate in flakes, scales, or layers.

**EXOTHERM**
Heat from a chemical reaction. Examples are the reactions of two-component epoxies and of two-component polyurethane thermosetting coatings.
EXOTHERMIC REACTION
Chemical reaction that produces heat.

EXPANSION DAM
The part of an expansion joint serving as an end form for the placing of concrete at a joint. Also applied to the expansion joint device itself. [B]

EXPANSION JOINT
(1) The separation provided between adjoining parts of a structure to allow movement where expansion is likely to exceed contraction; (2) A separation between pavement slabs on grade, filled with a compressible filler material; (3) An isolation joint intended to allow independent movement between adjoining parts. [ACI]

EXPENDABLE ABRASIVE
An abrasive that usually is discarded after one use.

EXPLOSIVE LIMITS
The upper and lower ends of the explosive range; the proportions of combustible gas or vapor and air necessary to produce an explosion. See also LOWER EXPLOSIVE LIMIT, UPPER EXPLOSIVE LIMIT.

EXPOSURE
A coating’s exposure is its prevailing natural or artificial, chemical and/or physical environment that causes it to deteriorate.

EXPOSURE MONITORING
Monitoring of employee exposure by means of sampling instruments in order to assess hazards in a workplace. The requirements for such monitoring in a lead environment in the construction industry are found in 29 CFR 1926.62 (d). Personal pumps are attached to representative employees to determine the exposure that could occur over a full shift if the employee were not using a respirator.

EXPOSURE RACK
Term given to a frame on which test panels are exposed for durability tests.

EXPOSURE TEST
A test in which coatings are subjected to stresses such as ultraviolet light and variations in moisture, temperature, etc., to determine their durability on a comparative basis. Test exposures can be natural or artificial.

EXTENDER PIGMENT
Colorless pigment incorporated into a vehicle system to reduce cost, achieve durability, alter appearance (e.g. decrease in gloss), control rheology, and influence other coating properties. [Painting/Coatings Dictionary] They have relatively low hiding power. Extender pigments include mica, alumina, carbonates, sulfates, and silicates.
EXTENDERS
A specific group of achromatic pigments of low refractive index (between 1.45 and 1.70) incorporated into a vehicle system whose refractive index is in a range of 1.5 to 1.6. They are used to reduce cost, achieve durability, alter appearance, control rheology, and influence other properties.

EXTRACTION PROCEDURE TOXICITY TEST
See EP TOXICITY TESTING.

EXTREMELY HAZARDOUS SUBSTANCE
Any substance listed in the appendices to 40 CFR 355, regulations developed under the requirements of Emergency Planning and Community Right-to-Know regulations.

EXTRUSION (COATING)
The process of forcing a material such as a coating (extruding) through a die; also the finished product itself. See RING EXTRUSION PROCESS, SIDE EXTRUSION PROCESS.

EXUDATION
The migration of a substance to the surface, such as resin from wood, or plasticizer from films. (CED)

F

FABRICATED STRUCTURAL STEEL
Steel members made by fastening steel shapes, such as plates and angles, together by riveting, bolting, or welding. [B]

FACE VELOCITY
The velocity of air through a paint spray booth. Where people are working, health regulations often require this velocity to be at least 100 feet per minute. When electrostatic spraying is used, a face velocity of 60 feet per minute is permitted. [EPA]

FADEOMETER
An apparatus for determining the resistance of coatings and other materials to fading. It accelerates the fading by subjecting coated panels to high-intensity ultraviolet wavelengths similar to those found in sunlight.

FADING
A cosmetic coating defect consisting of reduction in color intensity.

FAILURE
See PAINT FAILURE, COATING FAILURE.

FAILURE ANALYSIS
An investigation conducted to determine the causes and responsibilities of coating defects, loss of coating function, and/or corrosion, if present.
**FALL PROTECTION**
Means taken to prevent workers from falling where there is a change in elevation. Fall protection may include guard rails, floor hole covers, safety nets, controlled access zones, and fall arrest systems, consisting of an anchorage point, full-body harness and lifeline.

**FALLOUT (SPRAY)**
See OVERSPRAY.

**FAN SPRAY**
See SPRAY PATTERN.

**FASCIA GIRDER**
An exposed outermost girder of a span sometimes treated architecturally or otherwise to provide an attractive appearance. [B]

**FAST DRYING**
A coating that dries in 24 hours or less under ambient conditions.

**FAST SOLVENT**
Solvent that evaporates rapidly under atmospheric conditions.

**FATHOMETER**
Sonic instrument for determining depth under water; depth finder.

**FATTY ACID**
Long straight-chained, unsaturated organic compound with a terminal carboxyl group; components of drying oils

**FAYING SURFACE**
Contacting surfaces where joints in steel structures are formed by riveting or by the use of high strength bolts.

**FEATHER EDGING**
See FEATHERING.

**FEATHERING**
(1) Reducing the thickness of the edge of a dry paint film, such as the edge of a damaged area, by sanding or rubbing down prior to repainting; (2) Tapering the edges of a coat of wet paint by laying off with a comparatively dry brush. [MPDA]

**FEDERAL REGISTER**
The daily publication in which proposed and final rules and regulations established by executive departments and agencies of the federal government are published.

**FERROUS**
(1) A chemical compound that contains iron in the bivalent (2+) state; (2) Any metal alloy based primarily on iron.

**FIBERGLASS**
Glass in fibrous form used to provide reinforcement or other desirable properties to a variety of products such as coatings and linings.
FIBER-REINFORCED PLASTIC (FRP)
General term for a composite that is reinforced with cloth, mat or strands of any fiber type.

FIBERGLASS-REINFORCED PLASTIC (FGRP)
Resin linings, usually polyester, vinyl ester, or epoxy, into which layers of fiberglass are incorporated to optimize the lining’s performance.

FIELD COAT
The coat or coats applied at the site of erection or fabrication.

FIELD PAINTING
Coating work, including surface preparation, paint application, and inspection, at the site of construction or maintenance rather than in a shop.

FIELD STANDARD
A quality control reference product (e.g., surface) used for comparison to construction work at the job site.

FILIFORM CORROSION
Corrosion exhibiting a thread-like structure and directional growth under coatings on metal surfaces such as steel or aluminum. [Painting/Coatings Dictionary]

FILLER (CONCRETE)
(1) Finely divided inert material such as pulverized limestone, silica, or colloidal substances sometimes added to portland cement paint or other materials to reduce shrinkage, improve workability, or act as an extender; (2) Material used to fill an opening in a form. [ACI]

FILIFORM CORROSION
Corrosion exhibiting a thread-like structure and directional growth under coatings on metal surfaces such as steel or aluminum. [Painting/Coatings Dictionary]

FILLER (PAINT)
(1) A thick, pigmented material used to fill holes, defects, or pores in a surface before coating; (2) Thick materials applied by roller, spray, squeegee, or trowel to fill voids or porosities on a concrete or masonry substrate. See also BLOCK FILLER.

FILLER PIGMENT
Extender (non-opaque) pigment used to control coating rheology.

FILLET WELD
A weld, approximately triangular in cross section, joining two surfaces essentially at right angles to each other in a lap, tee, or corner joint. [ASM]

FILM
A layer of coating material, either wet or dry, measured on a surface in mils or micrometers.

FILM BUILD
The rheological property which coatings possess of providing thickness in applied films. [CED]
**FILM FORMATION MECHANISM**
The method of drying or curing of a coating. The most common mechanisms for film formation of coatings are oxidation, solvent evaporation, and polymerization.

**FILM FORMER**
(1) A material capable of being applied to form a continuous dry film. [Painting/Coatings Dictionary]; (2) The part of a coating that remains on the substrate after drying (curing); (3) The coating binder.

**FILM INTEGRITY**
Continuity of a coating free of defects.

**FILM THICKNESS**
The wet or dry thickness of a coating on a substrate. Film thickness often is measured in thousandths of an inch, called mils; the metric measure is micrometers, which are millionths of a meter. See also DRY FILM THICKNESS, WET FILM THICKNESS.

**FILM THICKNESS GAGE**
A tool used to measure the wet or dry film thickness of a coating. See DRY FILM THICKNESS GAGE, WET FILM THICKNESS GAGE.

**FIN**
(1) A narrow linear projection on a formed concrete surface, resulting from mortar flowing into spaces in the formwork; (2) A type of blade in a concrete mixer drum. [ACI]

**FINENESS OF DISPERSION**
See FINENESS OF GRIND.

**FINENESS OF GRIND**
A numerical assessment of the degree of dispersion of pigment in the vehicle of a coating, or of the presence of coarse particles in pigmented coatings as determined by the protrusion of particles or agglomerates through the wet film at a given thickness. [CED]

**FINES**
Finely crushed or powdered material, such as blasting abrasive residues.

**FINGERPRINT TECHNIQUE**
Using analytic techniques, such as infrared spectroscopy, to determine the composition of a coating.

**FINGERNAIL TEST**
Gouging a dried film with a fingernail to make a subjective, qualitative estimate of the relative hardness and toughness.

**FINISH**
(1) Final coat in a paint system; (2) Sometimes refers to the entire coating system: the texture, color, and smoothness of a surface, and other properties affecting appearance [CED]; (3) The texture of a concrete surface after compaction and finishing operations have been performed.
FINISH COAT
The last coat applied in a painting operation. A finish coat is formulated specifically for environmental resistance and appearance. Referred to as TOPCOAT.

FINISHING
Leveling, smoothing, consolidating, and otherwise treating surfaces of fresh or recently placed concrete or mortar to produce desired appearance and service. [ACI]

FIRE-RETARDANT
A descriptive term which implies that the described product, under accepted methods of test, will significantly: (1) reduce the rate of flame spread on the surface of a material to which it has been applied, or (2) resist ignition when exposed to high temperatures, or (3) insulate a substrate to which it has been applied and prolong the time required to reach its ignition, melting, or structural-weakening temperature. [ASTM D 16]

FIRST COAT
First coat applied in any painting schedule; in some cases, it could be the sealing coat; in others, the priming coat.

FISH EYEING
See FISH EYES.

FISH EYES
Coating film defects related to cratering in which small dimples or holidays resembling fish eyes form in the wet coating. See CRATERING.

FIT TEST, QUALITATIVE
An assessment of the adequacy of respirator fit by determining whether or not a person wearing the respirator can detect the odor, taste or irritation of a contaminant introduced into the vicinity of the respirator.

FIT TEST, QUANTITATIVE
An assessment of the adequacy of respirator fit by numerically measuring a test agent inside and outside the facepiece. The ratio of the two measurements is an index of the leakage of the seal between the respirator facepiece and the wearer’s face.

FIXED PROBE GAGE
See MAGNETIC FIXED PROBE GAGE, TYPE 2.

FIXED RATIO PUMP
In a plural-component coating application system that delivers a specific volume of a component.

FIXED SPAN
A superstructure span having its position practically immovable, as compared to a movable span. [B]

FLAKE-FILLED
Filled with flake-like materials such as a coating filled with micaceous iron oxide pigment to increase its barrier protection properties.
FLAKING
The detachment of pieces of the paint film itself either from its substrate or from paint previously applied. Flaking is generally preceded by cracking, checking or blistering and is the result of loss of adhesion usually due to stress-strain factors. ASTM D 722 is the standard test method for evaluating degree of flaking of exterior paints. Also referred to as scaling.

FLAKING RESISTANCE
The ability of a coating to resist the actual detachment of film fragments either from the previously applied coating or the substrate. Flaking is generally preceded by cracking, checking, or blistering, and is the result of loss of adhesion. Also known as scaling resistance. [ASTM D-16]

FLAME CLEANING
Impingement of an intensely hot flame to the surface of structural steel resulting in the removal of mill scale and the dehydration of any remaining rust, leaving the surface in a condition suitable for wire brushing followed by the immediate application of paint. This method has now fallen into disuse. The procedure is defined in SSPC-SP 4, “Flame Cleaning of New Steel”, which has been discontinued.

FLAME SPRAYING
The spray application of a coating whereby metal wire, metallic powder, or thermoplastic powder is melted using a spray gun with a torch-like flame and then sprayed with compressed air. See also METALLIZING, THERMAL SPRAYING, PLASMA SPRAYING.

FLAMMABILITY
Ability to catch fire. A flammable material burns quickly and easily. This word is preferred to the word “inflammability,” which sometimes is interpreted as meaning not flammable.

FLAMMABLE
The properties of an aerosol, gas, liquid, or solid material to ignite and burn. See below:

Aerosol, flammable
An aerosol that, when tested by the method described in 16 CFR 1500.45, Method for Determining Extremely Flammable and Flammable Contents of Self-Pressurized Containers, yields a flame projection exceeding 18 inches (45 cm) at full valve opening, or a flashback (a flame extending back to the valve) at any degree of valve opening.

Gas, flammable
A gas that, at ambient temperature and pressure, forms a flammable mixture with air at a concentration of 13 percent by volume or less, or forms a range of flammable mixtures with air wider than 12 percent by volume, regardless of the lower limit.

Liquid, flammable
A liquid having a flashpoint below 100°F (37.8°C), except any mixture having components with flashpoints of 100°F (37.8°C) or higher, the total of which make up 99 percent or more of the total volume of the mixture.

Solid, flammable
A solid material, other than a blasting agent or explosive, that is liable to cause fire through friction, absorption of moisture, spontaneous chemical change, or retained heat from manufacturing or processing, or that can be ignited readily and when ignited burns so vigorously and persistently as to create a serious hazard.

FLANGE
The projecting portion of a beam, channel, or column. [B]
FLASH POINT
The lowest temperature at which a liquid gives off sufficient vapor to form an ignitable mixture with the air near the surface of the liquid or within a container. [Painting/Coatings Dictionary] Material with flash points below 100°F (38°C), such as most solvents and solvent-borne coatings, are considered dangerous. The standard method for flash point is defined in ASTM D 3941.

FLASH RUST
(1) An oxidation product that forms as a wetted carbon steel substrate dries. This is different than RUST-BACK (2) Appearance of rust spots on the surface of newly-applied water-borne film during the drying phase.

FLASHING
The occurrence on the surface of a coating film of patches glossier than the surrounding coating. See HOT SPOTS.

FLAT
A coating without visible gloss even when viewed from oblique angles (usually less than 15 on the 85-degree gloss meter). See also GLOSS, GLOSS METER. [Painting/Coatings Dictionary]

FLAT APPLICATOR
A rectangular pad with an attached handle used to paint flat surfaces.

FLATTING AGENT
Material added to a coating to reduce the gloss of the dried film.

FLEX-CRACKING
The development of cracks in coating when subjected to repeated bending.

FLEXIBILITY
Degree to which a coating after drying is able to conform to movement or deformation of its supporting surface, without cracking or flaking. [CED]

FLEXIBILITY TEST
Test applied to films to determine if they are able to elongate without fracture or disbondment. Syn: Bend test. [CED] See ELONGATION.

FLINT ABRASIVE
Not flint at all, but actually a natural quartz (silicon dioxide) that fractures into sharp-edged grains and is used on common sandpaper for wood. [CED]

FLOATING
The segregation of individual pigments in a coating system during curing related to differential movement in surface tension currents caused by solvent evaporation. Produces a variegated paint surface.

FLOCCULATION
Formation of clusters of pigment particles in a fluid medium that may occur after dispersion. The condition usually is reversible, and the particle clusters can be broken up by applying relatively weak mechanical forces or by a change in the physical forces at the interface between the liquid and the solid dispersed particles. Flocculation is often visible as a “Jack Frost” pattern in a flowout of a dispersion; microscopically, it appears as a lacework or reticulum of loosely
clustered particles. It results in more rapid settling although it is usually soft, shows loss of color strength and poor dispersion. Surface-active agents are often useful in reducing the extent of flocculation and hence the yield value.

FLOOD PLAIN
A flat, low-lying portion of a stream valley subject to periodic (once every 50 to 100 years) inundation during a flood.

FLOODING
The segregation of pigments in a coating system caused by different rates of settling in the wet film to form a uniform appearance different from that expected. Compare to FLOATING.

FLOORBEAM
A beam or girder located transversely to the general alignment of the bridge. A floor beam at the extreme end of a girder or truss span is commonly termed an end floor beam. [B]

FLOOR TOPPING
A thick film coating applied to a concrete floor to protect it from harsh chemicals, abrasive and mechanical wear, and other detrimental conditions.

FLOW
See FLOW-OUT.

FLOW AGENT
Compound added to a paint to improve its flow properties after application.

FLOW COATING
Process of applying paint in which the paint is poured or allowed to flow over the object to be painted. This procedure is used to coat the interiors of pipes and small vessels and the exteriors of surfaces inaccessible by other application methods. Any excess paint drains off and may be reusable.

FLOW-OUT
The degree to which a wet paint film can flow out (level) after application so as to eliminate brush marks and produce a uniform surface on drying. [MPDA] This also applies to a coating’s ability to level out to eliminate roller marks, orange peel from spraying, or other film irregularities.

FLUE GAS DESULFURIZATION (FGD)
Removal of sulfur-containing products from a chimney or other channel (flue) used to convey combustion gases to the outside of a structure.

FLUID NEEDLE PACKING
A fibrous material that prevents the fluid in a conventional spray gun from leaking back through the hole in the packing nut through which the fluid needle passes. To function correctly, fluid needle packing must be lubricated daily after use.
FLUID TIP
The removable end of an air spray gun from which the atomized paint is sprayed and in which the needle is seated. The fluid tip works in conjunction with the needle to regulate the flow of fluids before they are atomized.

FLUIDIZED BED COATING
Coating application method in which a heated or electrostatically charged article is immersed or passed over a fluidized bed of powdered coating, which adheres to the hot metal, and then is heated in an oven to provide a smooth, continuous film. The bed of powdered resin may be fluidized by vibration or compressed air. [Painting/Coatings Dictionary]

FLUORESCENCE
Optical phenomenon characterized by the reemission of absorbed radiant energy by certain chemicals or materials. [CED]

FLUOROPOLYMER
A polymer containing fluorine. It is valued for gloss retention and resistance to weather and chemicals, but may be expensive and difficult to overcoat.

FLY ASH
Fine particles remaining after burning of combustible materials.

FOAMING
The development of small air bubbles into liquid coatings during mixing. Latex coatings are especially susceptible to this phenomenon because of their surface active agents used to stabilize the dispersion.

FOG COAT
See MIST COAT.

FOGGING
Misting. [AM]

FOOT CANDLE
Unit of illumination equal to one lumen per square foot. [ASTM] The preferred unit of illumination is the SI unit lux (one lumen per square meter).

FORCE-CURING
Accelerating the cure of a liquid coating by heating the surrounding air.

FORCED DRYING
Acceleration of drying by increasing the temperature above ambient, and circulating the heated air onto or near the coated surface.

FORD CUP
A precision laboratory instrument for measuring viscosity by timing the rate of flow of coating through an opening of predetermined size. See VISCOSITY CUP.

FOREIGN MATTER
Any material in a paint or varnish or on a coating film that does not belong there.
FORM RELEASE AGENT
Compound such as petroleum oil, wax, and silicone applied to concrete forms to allow easy removal from placed concrete after it has cured.

FOULING (BIOFOULING)
Marine organisms, both flora and fauna which, when attached to the hulls of ships and other structures in sea water, will increase drag.

FOUNTAIN ROLLER
See PAINT ROLLER TYPES.

FREE LIQUID
Material that readily separates from the solid portion of a waste at ambient temperature and pressure.

FREE SILICA
Silica generally present in small amounts in natural deposits of clay-like minerals and diatomaceous earth and usually considered to be a contaminant.

FREEZE-THAW RESISTANCE
Ability of concrete, coatings, or other materials to withstand the destructive forces of cyclic freezing and thawing.

FRENCH PROCESS ZINC OXIDE
See ZINC OXIDE.

FRETTING CORROSION
The accelerated deterioration at the interface between contacting surfaces as the result of corrosion and slight oscillatory movement between two surfaces. [ASM]

FROTHING
See FOAMING.

FUGITIVE EMISSION
Particulate matter that is not collected by a capture system and is released to the atmosphere at the point of generation.

FULL COAT
Application of a coating at a specified film thickness designed to achieve a desired effect.

FULL GLOSS
See HIGH GLOSS.

FULL PENETRATION WELD
A joint formed by deposition of molten metal such that the entire interface between the surfaces being joined is filled by deposited metal.

FUNGICIDE
See MILDEWICIDE.
FUSION
Liquefying and uniting through heating and subsequent cooling.

FUSION-BONDED EPOXY COATING
A type of epoxy powder coating commonly applied to pipelines, rebar, etc., that is cured by heating in an oven.

FUSION COATING
A powder coating that melts, fuses, and may react chemically as it is heated in an oven.

FUTURE COSTS
Planned future expenditures, calculated considering the time value of money.

FUTURE WORTH
The value of an amount of money at a future time considering the interest that could have been earned if that amount had been invested.

G

GAGE, DRY FILM THICKNESS
See DRY FILM THICKNESS GAGE.

GAGE, WET FILM THICKNESS
See WET FILM THICKNESS GAGE.

GALLON, U.S.
A liquid volume measure equal to 231 cubic inches, 3.785 liters, or four quarts.

GALVANIC CORROSION
Accelerated corrosion resulting from two dissimilar metals in electrical contact, exposed to a conductive medium.

GALVANIC PROTECTION
The selective use of galvanic corrosion to protect one metal from deterioration by connecting it to another, more active (electrically negative), sacrificial metal. Both metals must be in contact with each other in the same body of an electrolyte. Zinc, magnesium, or aluminum can be used as sacrificial metals for the galvanic protection of steel. See CATHODIC PROTECTION.

GALVANIC SERIES
A list of metals and alloys arranged according to their relative corrosion potentials in a given environment. [ASM]

GALVANIZING
Applying a zinc coating to steel by dipping it in molten zinc or by depositing zinc on the steel electrolytically or mechanically.
**GANGET ABRASIVE**  
A blast cleaning abrasive manufactured from the mineral garnet by crushing, drying, and screening (sieving). Garnet is the generic name for a group of similar minerals exhibiting common chemical and crystalline structure. Almandite, grossularite, pyrope, spessartite, and andradite are members of the garnet mineral family. See also NON-METALLIC ABRASIVE.

**GAS**  
A state of matter in which the molecules move freely, thereby causing the matter to expand indefinitely, occupying the total volume of any vessel in which it is contained.

**GATE**  
A door or other device used to control passage; used on locks and dams to control passage of water.

**GEL TIME**  
The period of time from the initial mixing of the reactants of a liquid material to the time when gelation occurs, as defined by a specific test method. [ASTM]

**GELLING**  
(1) A defect in which an oil or alkyd paint or varnish thickens to jelly-like consistency in an unopened container; (2) The first stage in the cure of an epoxy or polyurethane coating in which a soft, semisolid network is formed. See also LIVERING.

**GENERAL DUTY CLAUSE**  
A clause in the Occupational Safety and Health Act that requires employers to furnish to their workers “employment and a place of employment which are free from recognized hazards that are causing or likely to cause death or serious physical harm.” OSHA can use this clause to cite an employer when conditions it believes to be unsafe do not violate specific OSHA regulations.

**GENERAL INDUSTRY STANDARD**  
OSHA standards in Title 29 of the Code of Federal Regulations (29 CFR 1910, Occupational Safety and Health Standards) that relate to industries other than construction, such as, ship repair, ship building, and ship breaking. The standard applies to manufacturing plants that require that protective clothing be worn by workers.

**GENERAL SERVICES ADMINISTRATION (GSA)**  
An agency of the United States federal government that deals with procurement of goods and services.

**GENERATOR (HAZARDOUS WASTE)**  
Any facility owner, operator or person whose act or process produces hazardous waste or whose act first causes a hazardous waste to become subject to regulation.

**GENERIC**  
(1) Belonging to an entire class or group; (2) Non-proprietary.

**GHOSTING**  
A cosmetic coating defect occurring to low sheen finishes in which there are areas with less color or difference in sheen from surrounding areas.
GIRDER
A flexural member that is the main or primary support for the structure, and that usually receives loads from floor beams and stringers. Any large beam, especially if built up. [B]

GIRDER BRIDGE
A bridge whose superstructure consists of two or more girders supporting a separate floor system of slab and floor beams, or any bridge utilizing large, built-up steel beams, prestressed concrete beams, or concrete box girders. [B]

GLASS BEAD ABRASIVE
A specialty blast cleaning abrasive made of manufactured glass beads.

GLASS TRANSITION TEMPERATURE (Tg)
The temperature range (relatively small for most polymers) within which an amorphous polymer changes from a flexible, rubbery, or viscous state to a hard, glass-like, or brittle state.

GLOBAL ENGINEERING DOCUMENTS
Database search for information on ANSI-approved, ISO, and IEC standards. global.ihs.com

GLOSS
The degree to which a surface reflects visual images. Gloss is a direct function of coating composition and the amount and size of pigment particles in the coating. Other things being equal, the more pigment particles there are, the lower the gloss. See also FLAT, EGGSHELL, SEMIGLOSS, HIGH GLOSS, GLOSS METER.

GLOSS METER
An instrument to measure a coating’s degree of gloss (sheen or luster) in relative terms. A gloss meter measures the amount of light reflected from a surface at a selected angle from the perpendicular. The results are very dependent on the instrument design, calibration, technique used, etc. See also GLOSS. [Painting/Coatings Dictionary]

GLOSS RETENTION
Ability of a coating material to maintain its gloss.

GLYCOL
Synonym for dihydric alcohols; ethylene glycol (CH₂OHCH₂OH) is the simplest glycol. [CED]

GLYCOL ETHER SOLVENT
An organic solvent that is a subcategory of an alcohol solvent. Glycol ether solvents used in paints include ethylene glycol monoethyl ether, ethylene glycol monobutyl ether, ethylene glycol monoethyl ether acetate, and propylene glycol monomethyl ether acetate. See ESTER SOLVENT.

GOUGE HARDNESS
In determining coating hardness by pencil testing (ASTM D 3363) the gouge hardness is defined by the hardest pencil that will leave the film uncut. See also SCRATCH HARDNESS, HARDNESS TESTING, and PENCIL METHOD.

GRADE D BREATHING AIR
See BREATHING GRADE COMPRESSED AIR.
GRAFFITI
Markings, slogans, or drawings that deface a wall or other surface.

GRAININESS
A rough, bumpy, or sand-like texture in a dry coating film.

GRAM
A metric unit of mass or weight, abbreviated as “g.” About 28 grams are equivalent to one ounce. See also KILOGRAM.

GRAPHITIZATION
Dealloying of cast iron to leave graphite residue.

GRAVING DOCK
One specific type of drydock. A fixed basin for dry-docking of ships, usually composed of stone masonry, reinforced concrete, or steel sheet piling cells near a waterway; it can be closed off from the waterway by a movable gate, usually a floating caisson. The vessel is floated in, the gates closed, and the water pumped out. The vessel is set on blocks, and the basin during pumping leaves the hull exposed for exterior painting or repairs. See DRY DOCK.

GRAY BLAST
See COMMERCIAL BLAST CLEANING.

GREASE PAINT
A coating that protects metal substrates but does not dry; it is often suitable for areas inaccessible for conventional coating, such as spaces on ships.

GRINNING THROUGH
Showing through of the underlying surface layer due to inadequate opacity of a paint film that has been applied to it. [CED] See INCOMPLETE HIDING.

GRIT
(1) An angular material with sharp, irregular edges obtained from slag, steel, minerals, and various other materials for use as a blast cleaning abrasive; (2) Small, hard foreign particles sometimes found in paint and coating materials.

GRIT ABRASIVE
Metallic or non-metallic particles used for abrasive blast cleaning. See also GRIT, METALLIC ABRASIVE, STEEL ABRASIVE, NON-METALLIC ABRASIVE.

GRIT BLASTING
Abrasive cleaning of a surface by blasting with angular chilled iron grit, aluminum oxide, or any crushed or irregular abrasive. The grit is projected onto the surface either mechanically or by means of compressed air. See also GRIT, ABRASIVE BLAST CLEANING.

GRIT, STEEL
See STEEL GRIT ABRASIVE, GRIT ABRASIVE.
GROUND
A conducting connection, whether intentional or accidental, between an electrical circuit or equipment and the earth, or some conducting body, such as a water pipe or ground rod that serves as the earth.

GROUND BED (ANODE BED)
Cathodic protection system. A group of immersed or buried anodes joined together and usually located remotely from the structure to be protected.

GROUND FAULT CIRCUIT INTERRUPTER (GFCI)
A device whose function is to interrupt the electric circuit to the load when a fault current to ground exceeds some predetermined value that is less than that required to operate the overcurrent protective device of the supply current.

GROUNDING
The process of creating an electrical ground to dissipate an electric current or electrostatic charge.

GROUNDING LUG
An attachment such as on abrasive pots or airless spray units to which a grounding wire is attached to dissipate the buildup of static electricity.

GROUND SUPPORTS
Supports or scaffolding that rest on the ground or roadway.

GROUT
A mixture of cementitious material and water, with or without aggregate, proportioned to produce a pourable consistency without segregation of the constituents; also a mixture of other composition but of similar consistency. [ACI]

GUARDRAIL SYSTEM
A barrier erected to prevent a worker on an elevated structure, scaffold or platform from falling to lower levels.

GUIDE COAT
Any coat selected or tinted to be a different color than preceding and/or following coats to permit visual detection of the preceding coat and/or by the following coat, where there are coating voids.

GUNITE
A proprietary term for shotcrete. [ACI]

GUSSET PLATE
A plate serving to connect or unite the elements of a member or the members of a structure and to hold them in correct alignment and/or position at a joint. [B]

H

HACKLE(S)
Thin, needle-like or sliver-like protrusions (ranging from 3 to 6 mils [76 to 152 micrometers]) found on steel plates that have been blasted with steel shot or grit. [Painting/Coatings Dictionary]
HAIRLINE CRACKS
Very fine cracks which do not penetrate the topcoat; they occur erratically and at random. [CED]

HALOGEN
An element such as fluorine, chlorine, bromine and iodine in the seventh column of the periodic table of elements.

HALOGENATED SOLVENTS
Solvents containing halogen (usually chlorine) and having improved solvency and reduced flammability compared with the hydrocarbons from which they are derived. Some of these solvents are highly toxic, and precautions must be taken to avoid inhalation of their vapors. See CHLORINATED SOLVENT. [Painting/Coatings Dictionary]

HAMMER TEST
Procedure for determining concrete hardness by tapping with a hammer

HAND CLEANING
Surface preparation using hand tools such as wire brushes, scrapers, and chipping hammers. See HAND TOOL CLEANING.

HAND-HELD ELECTROSTATIC SPRAY GUN
A hand-held spray gun that uses electrostatics to improve efficiency. This application gives higher transfer efficiency than nonelectrostatic hand-held spray. [EPA]

HAND TOOL
Hand-held device used for surface preparation. Commonly used hand tools include abrasive pads, sandpaper, scrapers, putty knives, wire brushes, and chipping hammers.

HAND TOOL CLEANING
The use of manually operated impact, scraping, sanding, and brushing tools to remove loose paint, loose rust, and loose mill scale. Such tools include slag hammers, chipping hammers, scrapers, and wire brushes. The specification SSPC-SP 2, “Hand Tool Cleaning,” is a consensus standard covering the procedures necessary for hand-tool cleaning of steel surfaces. See also SSPC-SP 2, HAND TOOL CLEANING.

HAND WIRE BRUSHING
Manual cleaning of a surface using a hand tool (wire brush) prior to coating. See SSPC-SP 2.

HARDENER
A chemical (including fluoro silicates or sodium silicate) applied to concrete floors to reduce wear and dusting. [ACI] See CURING AGENT.

HARDNESS
Ability of a coating film, as distinct from its substrate, to resist cutting, indentation or penetration by a hard object.

HARDNESS TESTING, PENCIL METHOD
A method of testing coating hardness that uses a series of pencils (actually leads) of different hardness. The hardest pencil that will leave the film uncut defines the gouge hardness; the hardest
pencil that will not scratch the film defines the scratch hardness. This method is defined in ASTM D 3363.

HAZARD
A danger that may result in personal injury or death when a substance or object is used in a particular quantity or manner, or a procedure is done without regard for prudent working practices. Hazards present in painting operations include toxic substances, materials that can ignite and/or explode, electrocution, falls, confined spaces, hand- and power-operated equipment, lead paint removal, etc.

HAZARD COMMUNICATION STANDARD
OSHA standard 29 CFR 1910.1200, also known as HAZCOM or the employee right-to-know law. It requires employers to inform employees of hazards associated with chemical substances with which employees may work. Hazard information is to be communicated to employees through a written hazard communication program that includes a list of hazardous substances, material safety data sheets, container labeling, and employee training.

HAZARDOUS AIR POLLUTANTS (HAPS)
Approximately 190 substances specifically listed in the Clean Air Act Amendments that may be hazardous to human health or the environment, but that are not specifically regulated elsewhere in the CAAA.

HAZARDOUS AND SOLID WASTE AMENDMENTS (HSWA)
Amendments to RCRA that directed EPA to establish new requirements, bringing small quantity generators into the hazardous waste regulatory system.

HAZARDOUS ATMOSPHERE
An atmosphere that may expose workers to the risk of death, incapacitation, injury, acute illness, or self-rescue impairment from one or more of the following causes: (1) flammable gas, vapor, or mist in excess of 10 percent of its lower flammable limit (LFL); (2) airborne combustible dust at a concentration that meets or exceeds its LFL. (NOTE: This concentration may be approximated as a condition in which the dust obscures vision at a distance of 5 feet [1.5 m] or less.); (3) atmospheric oxygen concentration below 19.5 percent or above 23.5 percent; (4) atmospheric concentration of any substance for which a dose or a permissible exposure limit is published in 29 CFR 1910 Subpart Z, Toxic and Hazardous Substances, which could result in employee exposure in excess of its dose or permissible exposure limit; (5) any other atmospheric condition that is immediately dangerous to life or health.) (NOTE: For air contaminants for which OSHA has not determined a dose or permissible exposure limit, other sources of information, such as material safety data sheets, published information, and internal documents can provide guidance in establishing acceptable atmospheric conditions.)

HAZARDOUS MATERIAL CONTAINING DUST AND DEBRIS
Dust and debris generated during the project which contains hazardous material (e.g., lead) in any amount, including but not limited to pulverized paint, spent abrasive, filters (wet and dry), and containment materials upon which hazardous materials are present.

HAZARDOUS MATERIALS TRANSPORTATION ACT
Congressional law that provides for EPA and the Department of Transportation (DOT) to work together to establish regulations for the transportation of hazardous materials and hazardous wastes.
HAZARDOUS PAINT
Coating material containing lead, hazardous metals, or other substances in sufficient concentrations to create an environmental hazard or an occupational hazard for the worker exposed to or handling the paint waste.

HAZARDOUS SUBSTANCE
(1) A substance that creates a hazard because it is explosive, flammable, toxic, or otherwise potentially harmful; (2) Any material designated as hazardous by the Clean Water Act, the Solid Waste Disposal Act, the Clean Air Act, or the Toxic Substances Control Act.

HAZARDOUS WASTE
A solid waste, including liquid waste, that exhibits any of the following hazardous characteristics: ignitability, corrosivity, reactivity, or toxicity, as defined in 40 CFR 261, “Identification and Listing of Hazardous Waste,” or that is on a special list established by EPA. Lead paint debris is classified as hazardous due to the characteristic of toxicity if more than 5 parts per million (ppm) of lead are extracted from the debris when tested by specialized procedures (see EP Toxicity and Toxicity Characteristic Leaching Procedure). Lead is assigned the EPA Hazardous Waste Number D008. Other elements in addition to lead can cause paint debris to be classified as hazardous due to toxicity (e.g., barium, cadmium, chromium, and mercury). [ILPR]

HAZARDOUS WASTE MANIFEST
The shipping document U.S. EPA Form 8700-22, Uniform Hazardous Waste Manifest, and, if necessary, U.S. EPA Form 8700-22A, originated and signed by the generator, transporter, and disposal firm to provide a paper trail for handling and disposal of hazardous waste. It must accompany the shipment to its destinations and must be signed by the transporter and disposer and then returned to the generator to keep on file.

HAZARDOUS WASTE NUMBER
A number assigned by EPA to each listed and characteristic hazardous waste. These numbers must be included on paperwork, such as the hazardous waste manifest.

HEAD PROTECTION
Helmets or hard hats meeting ANSI Z89.1 protect workers’ heads from impact and penetration from falling and flying objects.

HEARING CONSERVATION PROGRAM
An employee hearing conservation program requires monitoring, employee notification, audiometric testing, protective equipment, training and recordkeeping.

HEAT AGING
Deterioration of a coating as a result of exposure to elevated temperatures.

HEAT GUN
A tool used to blow very hot air onto a painted surface to soften the paint film for easy removal with a scraper. A heat gun should be used with care; it is dangerous and can be a fire hazard when used improperly.

HEAT RESISTANCE
The ability of a coating to resist deterioration when exposed continuously or periodically to high temperatures at or below a given level. Heat resistance depends on the binder type and other coating ingredients.
HEAT-SHRINK SLEEVE
Sleeve, usually plastic, that is placed around a structural component and shrunk in place by heating.

HEAT STRIPPING
Use of a heat gun to soften existing paint film for removal by scraping.

HEATER
A heat-producing device used to control the viscosity of coating materials for plural-component, airless, and sometimes air spraying systems. Heaters can be placed in the supply container, in the supply hose (in-line), or both.

HEAVY-CENTERED PATTERN
A spray pattern with more coating at the center of the pass than at the edges.

HEAVY INDUSTRIAL ENVIRONMENT
See CHEMICAL ENVIRONMENT.

HEAVY METAL
Metallic element of high molecular weight, compounds of which are often toxic.

HEGMAN NUMBER
A measure of the fineness of dispersed particles in a coating. Hegman numbers range from 0 to 8, with 8 describing a coating with the finest dispersion. See FINENESS, OF GRIND.

HEMATITE
A mineral, iron oxide (Fe2O3), used as an aggregate in high density concrete and in finely divided form as a red pigment for coloring concrete [ACI]

HEPA FILTER
See HIGH EFFICIENCY PARTICULATE AIR FILTER.

HETEROGENOUS
Differing in nature, composition or structure.

HIDING
Opacity; the ability to obscure a substrate

HIDING PIGMENT
A pigment with a high refractive index that gives the most hiding power to a coating. Rutile titanium dioxide, followed by anatase titanium dioxide, zinc sulfide, and zinc oxide are materials with high refractive indices.

HIGH BUILD COATINGS
Coatings that are applied in thicknesses (minimum 5 mils; 125 micrometers) greater than those normally associated with paint films and less than those normally applied with a trowel.

HIGH EFFICIENCY PARTICULATE AIR (HEPA) FILTER
An air filter that removes 99.97 percent of all particles larger than 0.3 microns.

HIGH FLASH (HI-FLASH) NAPHTHA
A hydrocarbon solvent mixture composed primarily of aromatic compounds and having a flash point above 113°F (45°C).

**HIGH GLOSS**
A smooth and almost mirror-like surface when viewed from all angles. The gloss usually is above 70 on the 60-degree gloss meter. See also GLOSS, GLOSS METER.

**HIGH-PRESSURE WATER CLEANING (HP WC)**
HP WC is cleaning performed at pressures from 34 to 70 MPa (5,000 to 10,000 psi). [SP 12]

**HIGH-PRESSURE WATERJETTING (HP WJ)**
Waterjetting performed at pressures from 70 to 210 MPa (10,000 to 30,000 psi). [SP 12]

**HIGH-SILICON CAST IRON**
An iron alloy commonly used as an anode in impressed current cathodic protection systems. The alloy commonly contains 14-18% silicon.

**HIGH-SOLIDS COATING**
A coating with a total solids content at least 70% by volume, some much higher.

**HIGH VOLUME AIR MONITOR (OR SAMPLER)**

**HOG**
The upward curvature of a ship’s bottom.

**HOLD COAT**
See PRECONSTRUCTION PRIMER.

**HOLDING PRIMER**
See PRECONSTRUCTION PRIMER.

**HOLD POINT**
Critical point in an operation where it is stopped until the work to date has been approved.

**HOLIDAY**
Pinhole, skip, discontinuity, or void in a coating film that exposes the substrate. [ASTM]

**HOLIDAY DETECTOR, HIGH VOLTAGE TYPE**
Also called a spark tester; an instrument for detecting holidays in a nonconductive coating applied over a conductive substrate. A spark test instrument applies a voltage to the surface with a probe that creates a spark whenever a holiday, pinhole, or other defect is found. The spark triggers an alarm or light on the instrument. The voltage used depends on the coating type and thickness.
HOLIDAY DETECTOR, LOW VOLTAGE WET SPONGE TYPE
An instrument that uses 5-90 volts DC to detect holidays in coating. It is typically used for films of less than 20 mils (510 micrometers) dry film thickness.

HOLIDAY TEST
Test for detecting small areas of paint film that are incompletely coated (contain holidays). Standard methods for holiday testing are defined in ASTM D 5162, ASTM D 4787 and NACE RP0188-90. See HOLIDAY, HOLIDAY DETECTOR, HIGH VOLTAGE TYPE and HOLIDAY DETECTOR, LOW VOLTAGE WET SPONGE TYPE.

HOMOGENEOUS
Of the same or similar in composition or structure.

HOMOPOLYMER
See POLYMER.

HONEYCOMB
Voids left in concrete due to failure of the mortar to effectively fill the spaces among course aggregate particles. [ACI]

HOSE
Cylindrical, flexible tubing of varying length used to tie key components of blast cleaning and spray application equipment together. Common types of hoses include: (1) air supply hoses (bull hoses), which are used to feed air from the compressor to the blast pot or spray pot; (2) blast hoses, which are thick, reinforced hoses that carry the air and abrasive mix from the blast pot to the nozzle; (3) whip hoses, which are short, smaller diameter hoses sometimes used near the blast nozzle or spray gun for better handling and flexibility; (4) control hoses, which are used to control the air and abrasive flow from the blast pot; and (5) personal air hoses, which are used to feed breathing air to the blasting hood.

HOT DIP GALVANIZING
See GALVANIZING.

HOT-DIPPED GALVANIZED STEEL
See GALVANIZING.

HOT FLOCKING METHOD
A method of powder coating application that relies on a non-electrostatic spray of powder onto parts which have been preheated above the softening point of powder. In this method, powder melts and clings to the preheated parts. In some cases the coating is fused/cured by residual heat in the parts, while in others, post-heating is required.

HOT MELT APPLICATION
Application of a solventless coating that has been heated to reduce its viscosity. Hot melts can be applied by mop or swab, by brush, roller, or by flow coating.

HOT MELT COATING
A solventless coating that achieves flow sufficient for application by heating to a molten state; upon cooling, it hardens to form a solid film.
**HOT POTTING**
The process of mixing multi-component paints by hand or with a mixer in an open container prior to application. Mixing initiates a chemical reaction of the components that generates heat in the container. (The alternative to “hot potting” is using plural component equipment to mix the components in a closed system either just before entering the spray line or right at the spray gun.)

**HOT-ROLLED STEEL**
Steel that is hot rolled (formed and shaped while hot) during manufacture.

**HOT SOLVENT**
Solvent that evaporates rapidly under atmospheric conditions

**HOT SPRAYING**
Spray application of a coating that has been heated to reduce its viscosity. The use of heat instead of addition of thinner to reduce viscosity makes it possible to apply materials with higher solids content that are VOC-compliant.

**HOT SPRAY METHOD (POWDER APPLICATION)**
See HOT FLOCKING METHOD.

**HOT SPOTS**
Areas of higher gloss than surrounding areas often caused by being relatively resin-rich where coating was applied more thickly than other areas.

**HOT WORK PERMIT**
Written authorization for a worker to perform riveting, welding, cutting, burning, heating, or other operations capable of providing a source of ignition.

**HOUSEHOLD BLEACH**
See BLEACH SOLUTION.

**HULL**
The frame or body of a ship exclusive of masts, deck houses, superstructure, and rigging.

**HUMIDIFY**
To add moisture to the atmosphere.

**HUMIDITY**
Water vapor in the atmosphere. See also ABSOLUTE HUMIDITY, RELATIVE HUMIDITY.

**HUMIDITY, ABSOLUTE**
See ABSOLUTE HUMIDITY.

**HUMIDITY, RELATIVE**
See RELATIVE HUMIDITY.

**HVLP SPRAYING**
HVLP (high volume low pressure) spraying uses a high volume of air delivered at a low pressure to atomize paint into a lower velocity stream than conventional air spraying. The resulting “soft” spray does not bounce off the substrate or blow by it as readily as conventional air spray does. However, HVLP spraying also does not offer the same rate of productivity. HVLP can be used with any low to medium viscosity coating material.
HYDRATION OF CEMENT
The reaction of water with the calcium silicate, aluminate, or aluminoferrite components of fine Portland cement grains necessary for the setting and densifying of concrete.

HYDRAULIC ADHESION TEST EQUIPMENT (HATE)
Commercial hydraulic instrument for determining coating adhesion to a substrate by the pull-off method. See ADHESION TEST, TENSILE (PULL-OFF).

HYDRAULIC CEMENT
A cement that sets and hardens by chemical reaction with water and is capable of doing so underwater. Examples include portland cement and slag cement. [ACI].

HYDRAULIC SPRAYING
See AIRLESS SPRAYING.

HYDRAULIC STRUCTURE
A structure (dam, canal, lock, etc.) designed and constructed to impound, convey, and/or control the flow of water.

HYDROBLASTING
See WATER JETTING.

HYDROCARBON SOLVENT
Aliphatic, aromatic, or cyclic (cycloparaffinic, naphthenic) solvent containing only carbon and hydrogen. See ALIPHATIC SOLVENT, AROMATIC SOLVENT, NAPHTHENIC SOLVENT.

HYDROCARBON TEST
The use of ultraviolet light to detect fluorescence of otherwise invisible oil, grease or other hydrocarbons that may present on a surface

HYDROCHLORIC ACID
An aqueous solution of hydrogen chloride gas. Dissolves many metals, forming chlorides and liberating hydrogen. Used extensively in industry for numerous purposes including the surface preparation of concrete. See MURIATIC ACID.

HYDROGEN EMBRITTLEMENT
A process resulting in a decrease of the toughness or ductility of a metal due to the presence of atomic hydrogen. [ASM] Hydrogen in the atomic form may enter the steel during manufacturing, during processes such as welding or electroplating, or as a result of in-service conditions such as cathodic protection or corrosion to produce deterioration ranging from ductility loss to brittle failure.

HYDROGEN PASSIVATION
Passivity (deactivation) from hydrogen absorption on surface of metal.

HYDROGEN SULFIDE
H₂S. Poisonous acidic gas, with a characteristic smell of rotten eggs.

HYDROJETTING
A generic term describing the process in which pressurized water is directed through a nozzle to impact a surface. See WATER JETTING.
HYDROLASING
A term commonly used for high or ultra-high pressure water blasting. See WATER JETTING and HYDROJETTING.

HYDROLYSIS
(1) Chemical reaction consisting of splitting a compound into two parts, one of which combines with the H+ ion of water, and the other combines with the OH- ion of water [CED]; (2) The process by which some inorganic zinc-rich coatings are cured by water in the air or directly applied.

HYDROPHILIC
Having a strong affinity for water. A hydrophilic substance tends to attract, mix with, or absorb water.

HYDROPHOBIC
Having little or no affinity for water. A hydrophobic substance tends to repel, not mix with, or not absorb water.

HYDROSTATIC PRESSURE
The pressure exerted by standing water, normally against a concrete slab or surface. Dependent only upon the depth of water at the test point. It is 0 at the water surface and increases at 62.4 lbs/ft² per foot of depth.

HYDROXIDE ION
Negatively charged OH- ion derived from water.

HYDROXIDE GROUP
OH group that occurs in alcohols and other organic compounds.

HYGROSCOPIC
Capable of absorbing water.

HYGROSCOPICITY
The capacity of a compound or substance to absorb water.

HYGROTHERMOGRAPH
An instrument for measuring and recording both air temperature and relative humidity.

HYPODERMIC PRESSURE GAGE
A gage with a hypodermic needle that is inserted into the hose at various locations (e.g., just before the nozzle used with abrasive blasting equipment) to determine air pressure at these locations.
IDENTIFICATION NUMBER
Number assigned by the EPA to each generator, transporter, and treatment storage and disposal facility. These facilities are required to submit an application for such a number.

IGNITABILITY
A characteristic exhibited by a solid waste (excluding some alcohol solutions) that is a liquid which has a flash point less than 60°C (140°F) when standard tests are used, or one which is not a liquid but is a fire hazard when exposed to friction, moisture, or through spontaneous chemical changes. Also a compressed gas considered ignitable under Department of Transportation regulations, as determined by standard tests.

IGNITABLE
Capable of being set afire, or of bursting into flame spontaneously or by interaction with another substance or material.

IMMEDIATELY DANGEROUS TO LIFE OR HEALTH (IDLH)
Any condition that poses an immediate or delayed threat to life; would cause irreversible, adverse health effects; or that would interfere with a worker’s ability to escape unaided from a permit space.

IMMERSION-GRADE COATING
A coating suitable for use under immersion in water or other liquids.

IMMERSION SERVICE
Use of a coating under water or other liquid; in this service, the coating normally is called a lining.

IMMISCIBLE
Not miscible (mixable). A quality of any liquid that will not mix with another specified liquid, in which case it forms two separate layers or exhibits cloudiness or turbidity. [PDCA]

IMPACT RESISTANCE
Ability of a coating to resist a sudden blow; ability to resist deformation from impact.

IMPACT STRENGTH
See IMPACT RESISTANCE.

IMPACT TOOL
A hand or power tool that cleans by striking a surface. Typical impact tools include needle guns, rotary peeners, chipping and scaling hammers, and chisels.

IMPERMEABLE
Not permitting the passage of a fluid or gas.

IMPRESSED CURRENT SYSTEM CATHODIC PROTECTION
Application of cathodic protection by means of an external DC power source. See CATHODIC PROTECTION. [ASTM]
INCHES OF WATER
A unit of pressure equal to the pressure exerted by a column of liquid water an inch high at standard temperature. Typically expressed in inches water column (w.c.). [ACGIH Industrial Ventilation Manual]

INCIDENTAL FOOD CONTACT SURFACE
Any surface that is in such close proximity to food process areas that it will at times come into contact with the food.

INCLUSION
Presence of foreign material in the finished material. [CED]

INCOMPATIBILITY
Inability of coating materials to perform satisfactorily when in direct contact with another coating or substrate. The incompatibility may be chemical (e.g., causing bleeding or saponification) or physical (e.g., inability to expand and contract with substrate).

INCOMPLETE HIDING
Failure to completely obscure from vision any underlying coating or other substrate.

INDENTATION HARDNESS
Resistance to penetration by an indenter. [CED]

INDICATOR
Reagent used in chemical analysis that undergoes color changes with a change in chemical environment.

INDIRECT COSTS
Such costs as engineering fees, overhead, cost of capital, and depreciation.

INDUCTION TIME
Sometimes called sweat-in time, the time interval that must elapse after mixing the components of multi-component paint before satisfactory application can begin. Allows chemical reaction to reach necessary stage.

INDUSTRIAL BLAST CLEANING
Level of blast cleaning of steel. According to SSPC-SP 14/NACE No. 8, a blast cleaned surface, when viewed without magnification, that is free of all visible oil, grease, dust, and dirt. Traces of tightly adherent mill scale, rust, and coating residues are permitted to remain on up to 10% of the surface, if evenly distributed.

INDUSTRIAL ENVIRONMENT
Atmospheric exposures that include urban communities, manufacturing centers, and industrial plants, but not heavy industrial environments such as coke plants, which fall under chemical environments. The atmosphere contains a considerable amount of gas containing sulfur and industrial fumes that increase the rate of corrosion and adversely affect paint life.

INDUSTRIAL FINISHES OR COATINGS
Coatings applied to factory-made articles (before or after fabrication), usually with the help of special techniques for applying and drying as opposed to trade sales paints.
INDUSTRIAL MAINTENANCE PAINT
High performance coating formulated to resist moderate to heavy industrial atmospheres that might include intermittent exposure to water and chemicals, acid rain, chlorides and sulfates, and other substances that accelerate the process of corrosion. See MAINTENANCE PAINTING.

INERT FILLERS
Filler materials for coatings or other products that are chemically unreactive (inert).

INERT PIGMENT
(1) An extender pigment resistant to chemical reaction; (2) A pigment that remains relatively inactive or chemically unchanged in paints under stated conditions. [Painting/Coatings Dictionary]

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(1) An extender pigment resistant to chemical reaction; (2) A pigment that remains relatively inactive or chemically unchanged in paints under stated conditions. [Painting/Coatings Dictionary]

INFLAMMABILITY
See FLAMMABILITY.

INFRARED (IR)
Invisible part of the electromagnetic spectrum between radio waves and the red portion of visible light, with wavelengths between 0.78 and 1.0 micrometer (780 to 1,000 nanometers). It produces a heating effect on impact with an absorptive surface, and sometimes is used to cure coatings. Infrared radiation also is used to chemically characterize materials such as coating binders in infrared spectroscopy.

INFRASTRUCTURE
Basic system that supports modern industrialized society. Includes such systems as water supply, sewage collection and treatment, roads, bridges, and electrical power production and distribution.

INGESTION
Entry of material (e.g., toxins) into the body through the mouth, or by inhalation through the respiratory system.

INHIBITIVE PIGMENT
A pigment that when formulated into a coating provides active corrosion inhibition to a metal substrate or inhibits some other undesirable effect.

INHIBITIVE PRIMER
Primer containing inhibitive pigment or other material.

INHIBITOR
(1) General term for compounds or materials that slow down or stop an undesired chemical reaction, such as oxidation, corrosion, drying, skinning, mildew growth, etc. [Painting/Coatings Dictionary]; (2) In wet cleaning methods for steel, a material that can be added to the water or applied as a rinse to prevent flash rusting. See also RETARDER.

INITIAL CONDITION
The condition of unpainted steel before surface preparation.

INITIATOR
See CATALYST.
INLET LOADING
The amount of material going into a dust collector.

INORGANIC COATINGS
Coatings based on silicates or phosphates and usually pigmented with metallic zinc. Also see CEMENT PAINT and ZINC-RICH PRIMER.

INORGANIC ZINC-RICH COATING
Anti-corrosive primer for iron and steel incorporating zinc dust pigment in an inorganic silicate vehicle. The most common types of inorganic zinc-rich coatings are: (a) post-cured, with water-borne alkali metal silicate binder; (b) self-cured, with water-borne alkali metal silicate binder; (c) and self-cured, with solvent-borne alkyl silicate binder. Inorganic zinc-rich coatings require very good surface preparation (near-white metal or white metal blast cleaning or pickling). They provide resistance to abrasion, dry heat, immersion in hydrocarbon products, solvents, fresh water, and pH-neutral aqueous solutions, and exposure in damp, humid environments, and chemical environments where the pH ranges between 5 and 9. See also ZINC-RICH COATING.

INSPECTOR
An individual or group of individuals whose job it is to witness and document the coating work in a formal fashion.

INTERCOAT ADHESION
The ability of one coat of paint to adhere to the next. See ADHESION.

INTERCOAT CONTAMINATION
Contamination between successive coats of paint or a coat of paint and the base substrate.

INTERCOAT DELAMINATION
The separation (disbonding) of two adjacent coats of paint.

INTERCOAT DISBONDING
See INTERCOAT DELAMINATION.

INTEREST
The rate of payment for the use of money. This may be expressed as a percentage (e.g., 6%) or as a decimal (e.g., 0.06).

INTERGRANULAR CORROSION
Corrosion occurring preferentially at grain boundaries, usually with slight or negligible attack on the adjacent grains. Also called intercrystalline corrosion. [ASM]

INTERIM FINAL STANDARD ON LEAD IN CONSTRUCTION
The term used to identify OSHA Standard 29 CFR 1926.62, “Interim Final Rule on Lead Exposure in Construction,” which was developed for the protection of construction workers, including painters and blasters, exposed to lead. The lead standard for general industry is found in 29 CFR 1910.1025.

INTERMEDIATE COAT
One or more coats of paint between the primer coat and the finish coat. Sometimes called a mid-coat.
INTERNAL PHASE
In an emulsion, the discontinuous phase. For example, in an oil-in-water emulsion, the oil is the internal phase.

INTERNATIONAL CONCRETE REPAIR INSTITUTE (ICRI)
An organization working to improve the quality of concrete restoration, repair, and protection, through education of, and communication among, the members and those who use their services. 1323 Shepard Drive, Suite D, Sterling, VA 21064. (703) 450-0116. www.icri.org

INTRACOAT ADHESION
Cohesion within a coat of paint. The ability of a paint film to hold itself together. See COHESION.

INTRACOAT DISBONDING
See COHESIVE FAILURE.

INTRINSICALLY SAFE
Electrical equipment designed to separate sparking from external environment, which can thus be used in hazardous environments.

INTUMESCENT COATING
A fire-retardant coating that when heated forms a foam produced by nonflammable gases, such as carbon dioxide and ammonia. This results in a thick, highly insulating layer of carbon (about 50 times as thick as the original coating) that serves to protect the coated substrate from fire. See also FIRE-RETARDANT. [ASTM D 16]

ION
An atom, or group of atoms, that has gained or lost one or more outer electrons and thus carries an electric charge. Positive ions, or cations, are deficient in outer electrons. Negative ions, or anions, have an excess of outer electrons. [ASM]

ION FLOW
A charge transfer caused by the movement of electrically charged atoms or groups of atoms through an electrolyte.

IONIC CONTAMINANTS
See SOLUBLE SALT CONTAMINANTS.

IRON OXIDE(S)
A red, brown, or yellow pigment substantially an oxide of iron, rich in iron and marketed under a variety of names, such as red oxide, jeweler’s rouge, venetian red, ferric oxide, Indian red, red ochre, mineral rouge, Spanish oxide, and Turkey red.

IRON SLAG ABRASIVE
A byproduct abrasive for blast cleaning created from the slag produced in iron smelting, which is basically a calcium silicate slag. See also SLAG ABRASIVE.

ISOCYANATE
A compound containing one or more of the chemical group -N=C=O. Isocyanates comprise one major component of two-component polyurethane coatings. When the isocyanate groups are crosslinked with a compound containing more than one hydroxyl group (polyol), a polyurethane polymer is formed. When reacted with a primary polyamine, a polyurea is formed.
See POLYURETHANE COATING.

**ISOLATION (EXPANSION) JOINT**
Joint in concrete slab to permit complete freedom of movement between the slab and vertical or horizontal elements (e.g., walls and columns).

**JOB SPECIFICATION**
Written, legal document, usually part of a contract, which precisely describes an item of work that is to be accomplished. See SPECIFICATION.

**JOB STANDARD**
The minimum acceptable standard of quality for a coatings project, or a specific work item, established prior to beginning the work.

**JOINT**
A physical separation in a concrete system, whether precast or cast-in-place, including cracks if intentionally made to occur at specific locations; also the region where structural members intersect, such as a beam-column joint. [ACI]

**JOINT, EXPANSION**
(1) a separation provided between adjoining parts of a structure to allow movement where expansion is likely to exceed contraction; or (2) a separation between pavement slabs on grade, filled with a compressible filler material; or (3) an isolation joint intended to allow independent movement between adjoining parts. [ACI]

**JOINT FILLER**
Compressible material used to fill a joint to prevent the infiltration of debris and provide support for sealants applied to the exposed surface. [ACI]

**JOINT SEALANT (SEALER)**
Liquid material applied as a topping over a joint filler after the concrete has been placed and cured.

**JOURNEYMAN PAINTER/BLASTER**
A painter or blaster who successfully has completed an apprenticeship program and has acquired the training and experience to be skilled in the trade.

**KEEL**
Longitudinal timber or plate extending along the center of the bottom of a ship and often projecting from the bottom.
KETIMINE
The reaction product of an aliphatic amine with a ketone (see BLOCKED KETIMINE).

KETIMINE EPOXY
An epoxy system with a ketamine co-reactant.

KETONE SOLVENT
An organic solvent containing the C=O grouping. These solvents have relatively strong solubility parameters and exhibit strong hydrogen bonding and high polarity. Ketones used in paints include acetone (dimethyl ketone), methylethyl ketone (MEK), and methylisobutyl ketone (MIBK).

KEYING (KEYING IN)
Process by which cured concrete is removed to create a termination border for a fluid-applied flooring system.

KILOGRAM
(1) The base SI unit of mass equal to 1,000 grams. Its equivalent in English units is about 2.2 pounds. The abbreviation for kilogram is “kg;” (2) A unit of force, usually written as “kilogram-force,” equal to the force that produces an acceleration of 9.80665 meters per second when acting on a mass of one kilogram. Newton, not kilogram-force, is the standard SI-derived unit of force.

KNIFE ADHESION
See ADHESION TEST, CROSSCUT.

KORT NOZZLES
Tube-like enclosures around a propeller.

KREBS UNITS (KU)
Units of viscosity of paint based on tests with the Krebs-Stormer viscometer.

LACQUER
A coating composition that is based on synthetic thermoplastic film-forming material dissolved in organic solvent that dries primarily by solvent evaporation. Typical lacquers include those based on nitrocellulose, other cellulose derivatives, vinyl resins, acrylic resins, etc. [ASTM D 16] They are re-soluble in their own solvent. [CED]

LADDER
A climbing device made of wood, metal, or fiberglass and consisting of a series of equally spaced rungs or steps between two side rails.

LADDER, DUTY RATING
A description of the weight limit and general usage for a ladder, developed by ANSI.

LADDER, HIGHEST STANDING LEVEL
The height a climber can achieve on a ladder when using it according to safety instructions.
LADDER HOOK
A steel hook shaped like an inverted U. One end attaches to the ladder and the other end hooks the ladder to a roof, pipe, or similar anchorage.

LADDER JACK
A metal bracket that attaches to a non-self-supporting ladder. When used in pairs, ladder jacks can support a plank or lightweight stage placed across them to form a light-duty scaffold.

LADDER, PORTABLE
A ladder that can be moved as opposed to one affixed to a building or structure. Portable ladders are either fixed or adjustable in length. They also are either self-supporting or non-self-supporting, depending on whether they stand on their own or lean against a structure or surface for support.

LADDER SHOE
A device mounted on the base of a ladder side rail to give stability and slip resistance to the ladder.

LADDER, TYPES OF
(1) STEPLADDER — A ladder of fixed height with two front and two back legs connected by hinges and a spreading device that open to make the ladder self-supporting or close for storage. (2) STRAIGHT LADDER — A non-self-supporting ladder of fixed length with two parallel rails joined by rungs. (3) EXTENSION LADDER — A non-self-supporting ladder with two or three sections that fit together in such a way that the ladder length can be adjusted. (4) TRESTLE LADDER — A self-supporting ladder constructed like a stepladder, except that it is designed to hold one end of a plank. Two trestle ladders and a plank form a work platform. (5) ARTICULATED LADDER — A ladder with joints that can be locked into a variety of positions so it can be used as a straight ladder, stepladder, etc. (6) PLATFORM LADDER — A stepladder with a platform at the highest standing level.

LADDER WORKING LENGTH
The length of a non-self-supporting portable ladder measured along the rails from the base support to the point of bearing at the top.

LAITANCE
A thin, weak, brittle layer of cement and aggregate fines on a concrete surface. The amount of laitance is influenced by the type and amount of admixtures, the degree of working, and the amount of water in the concrete.

LAMELLAR
See LAMINAR.

LAMINAR
Arranged in, consisting of, or resembling thin plates or scales.

LAMINAR RUST
See Stratified Rust.

LAMINATIONS
(1) Relatively large surface flakes, scales, or layers that are formed on steel during the rolling process; (2) Different layers of liquid-applied or composite membrane. See also SLIVERS.
LAND BAN (LAND DISPOSAL RESTRICTIONS)
The restriction in 40 CFR 268 that prohibits the land disposal of hazardous material unless the material has been treated prior to disposal to render it non-hazardous.

LAND DISPOSAL
Placement in or on the land, including but not limited to, placement in a landfill, surface impoundment, waste pile, injection well, land treatment facility, salt dome formation, salt bed formation, underground mine or cave, or placement in a concrete vault or bunker intended for disposal purposes.

LAND DISPOSAL RESTRICTIONS
Section of hazardous waste regulations that identifies hazardous wastes that are restricted from land disposal and defines those limited circumstances under which an otherwise prohibited waste may continue to be land disposed.

LANYARD
A synthetic line of rope, wire rope, or strap that has a connector at each end for connecting the body harness to a deceleration device, lifeline, or anchorage.

LAP
The region where one area of a coated surface merges into an adjacent, freshly coated area during application of a single coat to the entire surface. The objective of the painter is to avoid showing the lap. [ASTM D 16]

LAP LENGTH
The length of overlapping steel reinforcing bars.

LAP MARKS
Visually darker section edges where paints or stains have dried before adjacent areas have tied into them, i.e., where a wet edge has not been maintained.

LAP WELD
A joint formed between two overlapping structural elements by the deposition of molten metal.

LARGE QUANTITY GENERATOR (LQG)
A business which generates more than 1,000 kg (2,200 pounds) of hazardous waste or more than 1 kg of acutely hazardous waste in any calendar month. A large quantity generator must comply with all applicable hazardous waste management rules.

LATERAL BRACING
The bracing assemblage engaging the chords and inclined end posts of truss and the flanges of plate girder spans in the horizontal or inclined planes of these members to function in resisting the transverse forces resulting from wind, lateral vibration, and traffic movements tending to produce lateral movements and deformation. [B]

LATEX
Stable dispersion of a polymeric substance in an essentially aqueous medium. After polymerization, a latex is a solid dispersed in water and, therefore, technically not an emulsion. However, it is common in the paint industry to use the words latex and emulsion synonymously. [Painting/Coatings Dictionary]
**LATEX PAINT**
A paint containing a stable aqueous dispersion of synthetic resin, produced by emulsion polymerization, as the principal constituent of the binder. Modifying resins may also be present. See also LATEX, EMULSION PAINT. [Painting/Coatings Dictionary]

**LATTICE**
A framework of crossed lines or members. Also, a framework of cut lines used in adhesion testing. See ADHESION TEST, CROSSCUT.

**LATTICE TRUSS**
In general, a truss having its web members inclined but more commonly the term is applied to a truss having two or more web systems composed entirely of diagonal members at any interval and crossing each other without reference to vertical members. [B]

**LEACHABLE**
Extractable from debris; assessed by tests such as the Toxicity Characteristic Leaching Procedure (TCLP) and EP Toxicity Test procedure. For example, if leachable lead is 5 mg/l or greater, the debris is classified as hazardous waste and must be transported, treated, and disposed of accordingly. [ILPR]

**LEACHATE**
The amount of specific substance (e.g., lead) that is carried off or dissolved out of a material. For example, the amount of leachable lead that classifies paint debris as being hazardous is 5 mg/L (ppm) when tested by the TCLP.

**LEAD**
A heavy metal. Lead compounds have been used extensively in the past as coating pigments for color, hiding, or corrosion inhibition. Lead is hazardous to health if breathed or swallowed. It is especially hazardous to children, causing mental retardation as well as many other effects. It is also hazardous to workers exposed to lead-containing dust. Residential use of lead-containing paint pigments has been eliminated in the United States, and industrial use has been greatly reduced.

**LEAD-CONTAINING PAINT**
There is no consensus definition for lead-containing paint in industrial maintenance applications. The following definitions have been developed for related applications: (1) CONSUMER PRODUCTS — A paint or other, similar surface coating material in which the lead content (calculated as lead metal) exceeds 0.06 percent by weight of the total nonvolatile content of the paint or the weight of the dried paint film. The 0.06 percent level is equivalent to 600 ppm [ILPR]; (2) RESIDENTIAL USE — A paint that contains at least 0.5 percent lead by weight of the dried paint film. The 0.5 percent level is equivalent to 5000 ppm. Sometimes called lead paint or leaded paint.

**LEAD IN CONSTRUCTION STANDARD**
The term used to identify OSHA Standard 29 CFR 1926.62, “Interim Final Rule on Lead Exposure in Construction,” which was developed for the protection of construction workers including painters and blasters, exposed to lead.

**LEAD PAINT**
See LEAD-CONTAINING PAINT.
LEADED PAINT
Paint that incorporates lead-containing pigment to provide corrosion resistance, hiding, or coloration.

LEAD PIGMENT
A finely ground insoluble mineral containing a lead compound and used to impart color, hiding, or corrosion-inhibition to coatings. Examples are lead oxide and lead chromate.

LEAD POISONING
A disease resulting from exposure to relatively low levels of lead over a long period of time or very high levels over a short period of time. Can result in a wide variety of symptoms, particularly nervous system disorders.

LEAD SOAP
Lead salt of a fatty acid from a drying oil; it inhibits corrosion of steel.

LEAD STANDARD
The general term used to identify OSHA Standard 29 CFR 1926.62, “Interim Final Rule on Lead Exposure in Construction,” which was developed for the protection of construction workers, including painters and blasters, exposed to lead. The lead standard for general industry is found in 29 CFR 1910.1025.

LEAFING
The floating and slight overlapping of aluminum and certain other pigment particles in the form of laminar flakes on the surface of a coating. Leafing occurs when such pigments are mixed with a suitable vehicle and applied as a coating. [Painting/Coatings Dictionary]

LEAK DETECTION SYSTEM
System capable of detecting the failure of either the primary or secondary containment structure, or the presence of the product or hazardous waste the structure contains, or other accumulated liquid, in the secondary containment structure.

LEAST FIRST COST
The lowest amount for initial cost of a system. Excludes costs of operation, maintenance, and repair.

LETHAL DOSE 50% (LD50)
A method for expressing quantitatively acute toxicity. An LD50 value is the dosage that is likely to kill 50% of a group of animals identical with those tested. Small differences between the LD50s of two chemicals do not indicate important differences in hazard. Note that large LD50 values represent low toxicities while small values represent high toxicities.

LEVELING
The ability of a coating to flow out after application so as to obliterate any surface irregularities such as brush marks, orange peel, peaks, or craters, which have been produced by the mechanical process of application.

LEVELING AGENT
Chemical added to coating to increase the ability of the wet film to settle to a uniform thickness.
LIFE-CYCLE COST
Cost of a system throughout its life (i.e., initial cost plus costs of operation, maintenance, and repair).

LIFE JACKET
A personal flotation device in the form of a sleeveless vest or jacket worn when working over or near water.

LIFELINE
A safety line that is securely fastened above an elevated job site to a solid anchor on a building or structure and that extends to the ground. A worker’s body harness is attached to the lifeline with a lanyard. An individual lifeline is required for each worker who must have fall protection equipment.

LIFT SPAN
A superstructure span moved by revolution in a vertical plane or by lifting in a vertical direction to free a navigable waterway of the obstruction it presents to navigation. [B]

LIFTING
Softening and raising or wrinkling of a previous coat by the application of an additional coat. [Painting/Coatings Dictionary] Lifting often occurs because the solvents in the new coat are too strong for the previous coat.

LIMESTONE DROP TEST
A method for estimating the effect of falling stone on a coated surface on pipelines.

LIMITED ACCESS AREA
(1) A location in which the physical characteristics of a structure or surface restrict a worker from performing a task in the usual manner. (2) A location in which the configuration of a structure or surface or the characteristics of a tool restrict the use or performance of that tool at that location. (c) A location having physical or chemically hazardous characteristics that restrict a worker from entering without special equipment or procedures.

LIMPET CELL
A rigid cell used to collect soluble salts from a contaminated surface in order to determine their concentration.

LINE OF DEMARCATION
On ships, the line of demarcation is where the above-water paint system meets the underwater paint system. It is usually the deep load line or draft line on the vertical sides of the ship.

LINE TRAVEL MACHINE
A machine that performs one of the cleaning or coating processes and moves continuously on wheels or other means along the length of the pipeline.

LINER, BAG
See DROP-IN LINER.

LINER, SHEET
See SHEET LINER.
LINING
(1) A material used to protect the interior of a container against corrosion and/or to protect the contents of the container from contamination by the container shell material. Sprayable linings, sheet liners, and drop-in liners can be used to accomplish these purposes; (2) Any sheet, plate, or layer of material attached directly to the inside face of form work to improve or alter the surface texture and quality of the finished concrete. [ACI] See also DROP-IN LINER, SHEET LINER.

LINSEED OIL
Drying oil from seeds of the flax plant. This best known and most widely used oil in the paint industry is characterized by its relatively short drying time.

LIQUOR STORAGE AREA
In pulp and papermaking, a chemical tank farm where the white, black, and green process liquors are stored in atmospheric storage tanks.

LISTED WASTES
Any of the more than 400 specific wastes that appear on any one of the four lists of hazardous wastes contained in RCRA regulations.

LITER
A unit of liquid measure equal to the volume of one kilogram of pure water at 4.5 degrees Celsius. One liter is equivalent to 1.06 liquid quarts.

LITMUS TEST
The use of litmus paper or pH paper to measure the acidity or alkalinity (pH) of a water solution.

LIVE LOAD
Weight of any movable, non-continuous load such as vehicular traffic on a bridge. [B]

LIVERING
The progressive, irreversible increase in consistency of a pigment-vehicle combination. Livering usually results from a chemical reaction of the vehicle with the solid dispersed material, but it also may result from polymerization of the vehicle. The irreversible character of the changes distinguishes livered material from thixotropic “build-up,” which is reversible. [Painting/Coatings Dictionary]

LOADING FIXTURE
A component of an instrument (e.g., an adhesion tester) to which a force (load) is applied to determine a physical property such as bonding strength.

LOCAL CORROSION CELL
An electrochemical cell created on a metal surface because of a difference in potential between adjacent areas on that surface.

LOCK
An enclosure with gates at each end to raise and lower boats from one elevation to another.
LOCKOUT
Lockout is a means of protecting workers from injury or death caused by the accidental start-up or release of stored energy from equipment. It involves blocking the flow of energy from the power source to the piece of equipment by using a device such as a padlock or chain, or by removing a component such as a fuse or circuit breaker. See TAGGING.

LONG OIL ALKYD
See LONG OIL ALKYD RESIN.

LONG OIL ALKYD RESIN
An alkyd binder with a relatively high oil-to-alkyd resin ratio. These products contain more than 60 percent oil as a modifying agent. [Painting/Coatings Dictionary] They generally are slower drying, tougher, and more flexible than short oil alkyd resins. See also MEDIUM OIL ALKYD RESIN, SHORT OIL ALKYD RESIN.

LONG OIL VARNISH
An oleoresinous varnish, other than alkyd. A long oil varnish is usually slower drying, tougher and more elastic than a short oil varnish.

LOSS OF COOLANT ACCIDENT (LOCA)
An accident in a nuclear reactor in which water spills from the system to the extent that the fuel in the reactor is no longer immersed. A LOCA leads to rapid buildup of heat, since the core is deprived of the cooling influence of the water. The LOCA is the design basis accident for the containment.

LOW-PRESSURE WATER CLEANING (LP WC)
Water cleaning performed at pressures less than 34 MPa (5,000 psi). This is also called “power washing” or “pressure washing.” [SP 12]

LOW RESISTANCE PATH
In parallel electrical circuits, a circuit path that offers the least resistance to current flow.

LOW SOLVENT COATING
Generally, a coating that contains a relatively small amount of volatile organic compounds (VOC); e.g., less than 30% by volume. See also HIGH SOLIDS COATING.

LOW VOLTAGE WET SPONGE HOLIDAY DETECTOR
See HOLIDAY DETECTOR, LOW VOLTAGE WET SPONGE TYPE.

LOWER EXPLOSIVE LIMIT (LEL)
The concentration, at ordinary ambient temperatures, of a compound in air below which an explosion will not occur if the mixture is ignited. The concentration is expressed as a percent of the gas vapor in air by volume. When the concentration of a substance in air is above the lower explosive limit and below the upper explosive limit (UEL), the mixture will burn and explode. See also UPPER EXPLOSIVE LIMIT.

LOWER FLAMMABLE LIMIT (LFL)
The minimum concentration of a combustible substance that is capable of propagating a flame through a homogeneous mixture of the combustible and a gaseous oxidizer under the specified conditions of test. [ASTM]
**LUMINOUS PAINT**  
A coating that emits light rather than just reflecting it. There are three classes: (1) fluorescent, which requires ultraviolet light to activate it; (2) daylight fluorescent, which emits additional light from absorbed solar radiation; and (3) phosphorescent, which continues to glow for some time after the external energy is removed. [PDCA]

**LUSTER**  
The gloss of a finished surface. See GLOSS.

**MAGNETIC BASE READING (MBR)**  
The surface profile or roughness measured using a dry film thickness gage. Magnetic base reading is the measurement obtained when placing a dry film thickness gage on a magnetic substrate that has been blast cleaned.

**MAGNETIC FIXED PROBE GAGE, TYPE 2**  
A gage whose operation depends on relating the magnetic flux within the probe or the instrument to the coating dry film thickness.

**MAGNETIC GAGE**  
See DRY FILM THICKNESS GAGE, MAGNETIC.

**MAGNETIC PULL-OFF GAGE, TYPE 1**  
A dry film thickness gage that uses a type of spring balance to pull a small permanent magnet from the surface of the painted steel. The magnetic force holding the magnet to the surface varies inversely as a non-linear function of the distance between magnet and steel, i.e., the thickness of the dry paint film. Type 1 refers to the gage’s designation in SSPC-PA 2.

**MAINTENANCE COATING**  
A coating which is designed to protect highway and railroad structures, chemical and manufacturing plants, public utilities, and other, heavy-duty industrial facilities from deterioration.

**MAINTENANCE PAINTING**  
(1) In broad terms, all painting on industrial structures conducted for protection or aesthetics; (2) Any coating work conducted subsequent to the coating work associated with construction to ensure continuous protection of coated surfaces.

**MAJOR STATIONARY SOURCE**  
A system which emits or could emit 100 tons per year or more of a pollutant subject to regulations.

**MALLEABLE IRON ABRASIVE**  
See METALLIC ABRASIVE.
MANDREL
In bend testing, the tool used to control the strain on the concave side of a bend in a wrap-around bend test and also to apply the bending force in a semi-guided or guided bend test. [ASTM] The mandrel can be a cylindrical or conical shape.

MANHOLE
A precast concrete structure for vertical access to a pipeline or other closed structure. [ASTM]

MANIFEST
Concerning hazardous waste, the shipping document originated and signed by the generator in accordance with hazardous waste regulations.

MANIFEST DOCUMENT NUMBER
In the tracking of a hazardous waste, the U.S. EPA 12-digit identification number assigned to the generator plus a unique five-digit document number assigned to the manifest generator.

MANIFOLD
A mixing chamber (used in plural component spraying) in which there is more than one inlet for different products, but only one outlet for the mixed product.

MANMADE AIR POLLUTION
Air pollution that results directly or indirectly from human activities.

MANUFACTURE
(Emergency Planning and Community Right-to-Know regulations) To produce, prepare, import or compound a toxic chemical. The term manufacture also applies to a toxic chemical that is produced coincidentally during the manufacture, processing, use or disposal of another chemical or mixture of chemicals, including a toxic chemical that is separated from that other chemical or mixture of chemicals as a byproduct, and a toxic chemical that remains in that other chemical or mixture of chemicals as an impurity.

MARGINALLY PREPARED SURFACE
(1) A loose generic description of a degree of surface preparation. A “marginally prepared surface” must be further qualified as to the types of surface contaminants or the types and amounts of old coatings that are not removed. For example, an aged alkyd coating, an oily, greasy, salt-contaminated, damp, or wet surface, loose, stratified, or tight rust, etc.; (2) Any degree of surface preparation that is less than commercial blast cleaning (SSPC-SP 6). See also SURFACE-TOLERANT COATING.

MARINE COATING
Coatings and varnishes formulated for use in an immersed or atmospheric marine environment or both.

MARINE ENVIRONMENT (ATMOSPHERIC)
An atmospheric exposure that frequently is wetted by salt mist, but that is not in direct contact with salt spray or splashing waves. This environment contains a high concentration of chlorides.

MARITIME ADMINISTRATION (MARAD)
Federal agency that promotes the development and maintenance of an adequate, well-balanced, United States merchant marine, sufficient to carry the nation’s domestic waterborne commerce and a substantial portion of its waterborne foreign commerce, and capable of serving as a naval
and military auxiliary in time of war or national emergency. Established the National Maritime Resource and Education Center (NMREC) to assist the U.S. shipbuilding, ship repair, owner/operators and marine suppliers in improving their international competitiveness. http://nmrec.dot.gov/

MASKING
Temporarily covering areas of a surface that are not to be painted.

MASONRY
Construction, usually set in mortar, or natural building stone or manufactured units such as bricks, concrete block, adobe, glass block, tile, manufactured stone, or gypsum block. [ASTM]

MASTIC(S)
A high-build coating or an adhesive material.

MATERIAL SAFETY DATA SHEET (MSDS)
A printed source of information about the hazards of materials, including coatings. Federal law, the Hazard Communication Standard, requires that a MSDS be published and supplied by the manufacturer of a hazardous material. The law also requires that employees have ready access to the MSDS in the workplace. The MSDS contains the following information: (1) product identification; (2) hazardous ingredients, their permissible exposure limits (PEL), and threshold limit value (TLV); (3) physical properties; (4) fire and explosion hazard data, such as flash point, lower and upper explosive limits, and firefighting procedures; (5) health hazard data; (6) chemical reactivity/stability data; (7) spill and leak procedures; (8) special protection information; and (9) additional special precautions. See HAZARDOUS COMMUNICATION STANDARD.

MAXIMUM ALLOWABLE LEVELS
Voluntary standards for levels of contaminants in drinking water established by NSF International in conjunction with the American Water Works Association, the Conference of State, Health, and Environmental Managers (COSHEM), and the Association of State Drinking Water Administrators (ASDWA). Generally equivalent to 10% of the maximum contaminant level (MCL) from EPA’s Primary Drinking Water Standards issued under the Safe Drinking Water Act. Intended as third-party standards for evaluating the health effects of additives to drinking water.

MAXIMUM AVAILABLE CONTROL TECHNOLOGY
Under the Clean Air Act Amendment of 1990, the MACT represents the technology capable of achieving reductions in emissions (e.g., of VOCs equal to the average reduction attained by the best twelve percent of similar sources, i.e., shipyards).

MAXIMUM CONTAMINANT LEVEL (MCL)
The maximum permissible level of a contaminant in water which is delivered to the free flowing outlet of the ultimate user of a public water system, except in the case of turbidity where the maximum permissible level is measured at the point of entry to the distribution system. Contaminants added to the water under circumstances controlled by the user, except those resulting from corrosion of piping and plumbing caused by water quality, are excluded from this definition.
MAXIMUM USE CONCENTRATION
The maximum airborne level of a contaminant to which an employee may be exposed when wearing a respirator. It is computed by multiplying the permissible exposure limit (PEL) and the Assigned Protection Factor (APF).

MECHANICAL ADHESION TESTING
Adhesion testing performed using a pull-off type instrument. An aluminum pull stub (loading fixture) is bonded onto a coated surface. After the bonding adhesive cures, the pulling force on the pull stub is continuously increased and monitored by the instrument until the pull stub becomes detached or until a specific force is attained. [ASTM D 4541; Annex A.1]

MEDIUM OIL ALKYD RESIN
Alkyd binder made with a medium oil-to-alkyd resin ratio. These resins contain between 40 and 60 percent oil as a modifying agent. See also LONG OIL ALKYD RESIN, SHORT OIL ALKYD RESIN.

MEDIUM OIL VARNISH
Varnish of medium oil content.

MER
The smallest repeating structural unit of any high polymer. [CED] See MONOMER.

MERCURY
A toxic heavy metallic element that is liquid at usual temperatures. Mercury compounds have been used extensively in the past in paints as a mildewcide. The toxicity of these products varies depending upon the chemical compound in which it is a component.

MESH GRID
A paint roller accessory that hangs inside a 5-gallon paint pail. Rolling a paint roller over a mesh grid works the paint into the roller cover while also removing any excess paint.

METAL DRIER
Product, usually the salt (e.g., cobalt) of an organic acid, used to accelerate the curing of coating containing drying oils.

METAL ION CONCENTRATION CELL CORROSION
A form of electrochemical attack of a metal driven by differences in environment, specifically by differences in metal ion concentration in the electrolyte between different areas on the same metal.

METAL SPRAYING
Application of a spray coat of metal (usually zinc, aluminum, or a zinc-aluminum alloy) onto a prepared surface. The metal is passed in wire or powder form through a heat source that melts the material. It then is projected onto a surface by means of a jet of compressed air. [Painting/Coatings Dictionary]

METAL SPRAY COATING
A film of molten metal applied by metal spraying. See METAL SPRAYING.

METALLIC ABRASIVE
Blast cleaning abrasive made of metal in a wide variety of types, shapes, sizes, and degrees of hardness. Cast steel shot and grit make up most of the metallic blast cleaning abrasive used.
Others include malleable iron shot and grit, chilled cast iron shot and grit, and cut-steel wire shot. See also STEEL ABRASIVE.

**METALLIC COATING**
A coating consisting of a metallic element or alloy. May be spray, chemically, electrochemically, or mechanically applied.

**METALLIC PAINT**
Paint with flecks of aluminum, copper, stainless steel, or other metals used to achieve a metallic finish.

**METALLIC PATH**
A path for charge flow by the movement of electrons, as required by a corrosion cell.

**METALLIZING**
Spraying a coat of molten metal onto a steel surface to provide corrosion protection or aesthetic appearance.

**METAMERISM**
The appearance of two materials that match under at least one set of specified light conditions but exhibit different appearances (e.g., reflectance or transmission properties) under different light conditions.

**METER**
The base SI unit of length, equivalent to 39.37 inches.

**METHYL BENZENE**
See TOLUENE.

**METHYL ETHYL KETONE (MEK)**
A low-boiling solvent, similar to acetone but less volatile, used in coatings.

**METHYL ETHYL KETONE PEROXIDE**
A chemical used in small amounts to accelerate the curing of polyester coatings.

**METHYLISOBUTYL KETONE**
A medium-boiling, strong solvent used in coatings.

**METRIC TON**
A unit of weight equal to 2,204.6 pounds, 1.1023 ton, or one megagram (1,000,000 grams).

**mg/L**
Milligrams per liter. Common units for reporting a concentration of a specific substance in units of mass per volume (e.g., amount of hazardous material contained in water). For lead in waste leachate, mg/L is roughly equivalent to parts per million (ppm).

**MICACEOUS IRON OXIDE**
A hard, dense pigment of iron oxide used which provides barrier protection by impeding the path of water and other corrosive agents in industrial coatings. It is used in protective coatings to increase resistance to blistering, delamination, and corrosion when formulated at a high pigment volume concentration.
MICELLE
Colloidal particle composed of many aggregated small molecules having a layered structure.

MICROBIOLOGICALLY INFLUENCED CORROSION (MIC)
Corrosion that is affected by the action of microorganisms in the environment, e.g., sulfate-reducing bacteria found in some petroleum products and in sewage.

MICROCRACKING
Cracks visible only under magnification which develop in a coating at the time of application or during the drying process.

MICROEMULSIONS
Transparent solutions of water and oil, that are thermodynamically stable and which spontaneously form when the components are brought in contact.

MICROMETER
(1) One millionth of a meter, abbreviated as μm. Also sometimes called a micron. Coating thickness often is expressed in micrometers or microns; (2) An instrument used to measure profile depth (depth micrometer).

MICRON
See MICROMETER.

MICROSIIEMENS
A unit of electrical conductance equal to one millionth of a Siemens.

MIDCOAT
See INTERMEDIATE COAT.

MIL
One thousandth of an inch (0.001 inch, 25.4 micrometers). The thickness of a coating on a surface sometimes is expressed in mils and sometimes in micrometers or microns.

MIL PROFILE
See SURFACE PROFILE.

MILDEW
Microorganisms, particularly fungi, that grow on paint and other surfaces, particularly in damp, shady places, causing discoloration and disfigurement.

MILDEW CHAMBER TEST
Accelerated laboratory method for determining the resistance of coatings to mildew growth; conducted in a special chamber that attempts to simulate natural conditions.

MILDEW DEFACEMENT
Unsightly appearance on coated or uncoated surfaces caused by growth of microorganisms, particularly fungi. ASTM D 3274 is the Standard Test Method for Evaluating Degree of Surface Disfigurement of Paint Films by Microbial (Fungal and Algal) Growth or Soil and Dirt Accumulation.
MILDEW RESISTANCE
A coating’s ability to resist the growth of mildew (fungus growth) on its surface.

MILDEWCIDE
An additive used to enhance a coating’s ability to resist mildew growth.

MILKINESS
Whitish or translucent appearance in an unpigmented liquid coating or film which should normally be transparent. [CED]

MILLAGE
Term sometimes used for spreading rate. See SPREADING RATE.

MILL COATING
Shop coating.

MILLIAMP
A unit of electrical current equal to 0.001 ampere.

MILLIMETER
A unit of length equal to 0.001 meter.

MILL SCALE
The heavy, bluish oxide layer formed during hot fabrication or heat treatment of steel and other metals. [Painting/Coatings Dictionary]

MINERAL ABRASIVE
Blast cleaning abrasive made from naturally occurring minerals, such as silica sand, olivine, staurolite, flint, garnet, zirconium, or novaculite. See NON-METALLIC ABRASIVE.

MINERAL ACID
An inorganic acid, such as hydrochloric, sulfuric, or nitric acid.

MINERAL SLAG ABRASIVE
See SLAG ABRASIVE.

MINERAL SPIRITS
A petroleum-derived solvent used for thinning paint. Odorless mineral spirits have been refined to remove some odorous constituents. [PDCA]

MINE SAFETY AND HEALTH ADMINISTRATION (MSHA)
Federal agency which tests and certifies respirators. MSHA’s Office of Information and Public Affairs:

MINIMUM FILM-FORMING TEMPERATURE (MFFT)
The temperature below which the effective coalescence of emulsion particles cannot occur.

MIO
See MICACEOUS IRON OXIDE.

MISCIBLE
Mixable, such as two liquids that can be blended satisfactorily.
MIST COAT
A thin discontinuous spray coat applied prior to the application of a full thickness of coating. The purpose of a mist coat is to penetrate and fill substrate or film porosity, thereby displacing air and minimizing gassing or bubbling in the finished coating system.

MIXING/MANIFOLD
Chamber into which previously unmixed components of a two-component coating are pumped in a specific ratio, mixed together, and sent directly to a spray gun for application.

MIXING RATIO
The ratio, usually by volume, of mixed components for a thermosetting coating specified by the manufacturer for complete curing into the desired film.

MIXTURE
(1) Any combination of two or more chemicals; (2) (Emergency Planning and Community Right-to-Know regulations) Any combination of two or more chemicals, if the combination is not, in whole or in part, the result of a chemical reaction.

MOISTURE CONTENT
The moisture present in a material, as determined by definite prescribed methods, expressed as a percentage of the weight of the sample on either of the following bases: (1) ORIGINAL WEIGHT — This is variously referred to as moisture content or moisture “as is” or “as received,” or (2) MOISTURE-FREE WEIGHT — This is also referred to as moisture regain (frequently contracted to “regain”) or moisture content on the “oven-dry,” “moisture-free,” or “dry” basis. [ASTM E 41]

MOISTURE-CURING COATING
Coating that forms a protective film by reacting chemically with water in the air.

MOISTURE METER
Instrument for measuring the water (moisture) content of concrete, wood, or other material with significant porosity.

MOISTURE TRAP
A device placed between an air compressor and abrasive blasting or spray painting equipment to remove moisture from air lines. A bleed valve at the bottom of the moisture trap is left slightly open to allow water caught in the trap to drain out.

MOISTURE VAPOR EMISSION RATE
Measurement of moisture vapor movement through a concrete slab. ASTM F 1869 describes how this is accomplished by absorbing moisture on anhydrous calcium chloride.

MOISTURE VAPOR TRANSMISSION RATE
Rate of movement of moisture vapor through a membrane.

MOLYBDATE PIGMENT
An insoluble inorganic compound containing the MoO$_4^{2-}$ ion that contributes a degree of corrosion resistance to industrial and marine coatings.

MONOLITH
A body of plain or reinforced concrete cast or erected as a single integral mass or structure. [ACI]
MONOLITHIC
Material of uniform composition applied as a continuous surface or structure. [ASTM]

MONOMER
The starting compound for a polymerization reaction. A monomer can link with itself or with other monomers to form a polymer.

MORTAR
A mixture of cement paste and fine aggregate; in fresh concrete, the material occupying the interstices among particles of coarse aggregate; in masonry construction, mortar may contain masonry cement, or may contain hydraulic cement with lime (and possible other admixtures) to afford greater plasticity and workability than are attainable with standard hydraulic cement mortar. [ACI]

MOTTLING
The presence of differently colored spots or blotches on a surface.

MOVABLE BRIDGE
A bridge of any type having one or more spans capable of being raised, turned, lifted, or slid from its normal vehicular and/or pedestrian service location to provide for the passage of vessels. [B]

MOVABLE SPAN
In the description of bridges, a general term applied to a superstructure span designed to be withdrawn, swung, lifted, or otherwise moved longitudinally, horizontally or vertically to free a navigable waterway of the obstruction it presents to navigation. [B]

MPa
MegaPascal $= 10^6$ Pa; 1MPa = 1,000,000 Pa; 1MPa = 145.03 psi.

MUDCRACKING
A coating defect resembling the irregular cracking of drying mud that typically arises during the curing of a relatively inflexible coating applied too thickly.

MULTICOMPONENT SPRAYING
See PLURAL COMPONENT SPRAYING.

MULTI-PACKAGE COATING
Crosslinking paint materials that must be stored in two or more separate containers and then mixed in the correct proportion before use. Once they are mixed, a chemical reaction begins, and the paint remains usable for a limited time only. See also SINGLE-PACKAGE COATING.

MURIATIC ACID
An industrial form of hydrochloric acid used to clean concrete and masonry.

N

NAP
The fibers on a paint roller cover, usually described as “short nap,” “long nap,” etc.
See also PAINT ROLLER COVER, NAP LENGTH.

NAPHTHA
Any of several hydrocarbon solvents or their mixtures that are derived from petroleum products or coal tar. Generally, these solvents are composed of aliphatic (VM&P naphtha) or aromatic (high flash naphtha) compounds. [EPA]

NAPHTHENIC SOLVENT
Solvent comprised primarily of ring compounds of saturated hydrocarbons (cycloparaffinic, naphthenic). These solvents fall between aliphatic and aromatic solvents. Examples are cycloheptane, cyclohexane, and decalin. See also ALIPHATIC SOLVENT, AROMATIC SOLVENT.

NATIONAL BUREAU OF STANDARDS
See NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY.

NATIONAL DRINKING WATER STANDARD
Federal agency that sets a maximum content of metals and other constituents in drinking water. Established by the CLEAN WATER ACT.

NATURAL RESIN
A solid organic substance, originating in the secretion of certain plants or insects, which is thermoplastic, flammable, nonconductive of electricity; breaks with a conchoidal fracture (when hard); and dissolves in certain specific organic solvents, but not water. [ASTM D 16] These resins usually are named after the locality in which they are found or their port of shipment. See also SYNTHETIC RESIN.

NATURAL WEATHERING
Gradual deterioration of a coating as a result of exposure to an exterior environment, as opposed to artificial (laboratory) accelerated weathering.

NEAR-WHITE BLAST CLEANING
High grade of blast cleaning. According to SSPC-SP 10/NACE 2 Near-White Blast Cleaning, a near-white blast cleaned surface is free of all visible oil, grease, dirt, dust, mill scale, paint, oxides, corrosion products, and other foreign matter, staining is limited to no more than 5% of each unit area of surface.

NEAT RESIN
Unfilled resin (without aggregate or other filler)

NEEDLE GAGE
An air pressure gage with a needle connected to the air inlet. A needle gage is used to check the air pressure of a blast system by inserting the needle into the blast hose just behind the nozzle and pointing the tapered tip into the direction of air flow.

NEEDLE GUN
A power impact tool with a bundle of steel needles (actually chisels) mounted in front of a piston that strikes them several times per second and pushes them against the surface being cleaned. Needle guns work best at removing loose or brittle material. Because each needle hits the surface individually, needle guns are useful for cleaning irregular surfaces, such as corners and crevices,
or around bolt and rivet heads.

**NEGATIVE AIR PRESSURE**
Air pressure inside a structure (e.g., containment) that is less than the air pressure outside the structure.

**NEOPRENE**
A synthetic rubber polymer derived from 2-chloro-1, 3-butadiene (chloroprene).

**NEPCOAT**
Northeast Protective Coatings Committee. A consortium first of New England states and now northeast states, formed to collaborate on resolving bridge coating issues.

**NEUTRALIZATION**
The process of removing excess acidity or alkalinity from concrete, masonry, or other surfaces.

**NEUTRALIZATION REACTION**
Chemical reaction between an acid and a base to produce water and salt

**NICKEL SLAG ABRASIVE**
An abrasive for blast cleaning created as a byproduct from the slag produced in nickel smelting, which is basically iron silicate. See also SLAG ABRASIVE.

**NIST PLATES**
Small, thin reference squares of 1010 steel covered with different thicknesses of a non-magnetic metal (copper-chromium alloy with a nickel finish); used to calibrate magnetic dry film thickness gages; made by the National Institute of Standards and Technology (NIST). See NIST STANDARD THICKNESS PLATES.

**NITROCELLULOSE**
Another name for cellulose nitrate. The product is obtained by treating cellulose with a mixture of nitric and sulfuric acids. It is used in the coatings industry as a base for lacquers. [CED]

**NOBLE**
Chemically unreactive.

**NOBLE METALS**
Chemically unreactive metals such as gold, silver, and platinum.

**NONAQUEOUS DISPERSION (NAD)**
The solvent analog of a latex; the polymer is dispersed in a volatile organic liquid which is not a solvent for the polymer. Nonaqueous dispersions have a much higher solids content than conventional high molecular weight solvent coatings. Like lattices, the viscosity is independent of the molecular weight of the polymer.

**NONATTAINMENT AREA**
Geographic area that does not meet one or more of the National Ambient Air Quality Standards for the criteria pollutants designated in the Clean Air Act. [EPA] Nonattainment areas must implement plans toward compliance under a schedule developed as part of the Clean Air Act Amendments.
**NON-CONDUCTIVE**
A surface or material that will not conduct electricity.

**NON-CONTACT THERMOMETER**
An instrument that determines the temperature of a surface by measuring the amount of energy being emitted by the surface. The accuracy of this instrument is dependent upon knowing the emissivity of the surface.

**NON-CONVERTIBLE COATING**
Film-former which, after being deposited from a solution, dries to give a film which is unchanged chemically from its original composition and can be re-dissolved in a solvent from which it was originally deposited. See THERMOPLASTIC. [CED]

**NONDEGRADATION CLAUSE**
A legal provision stipulating that the present air quality of an area must not be lowered. The provision is meant to protect those areas whose air quality is already better than federal standards require.

**NONDESTRUCTIVE TESTING (NDT)**
Determining physical or chemical properties without damaging item being investigated.

**NON-FERROUS**
Not containing iron; pertaining to metals other than iron.

**NONFLAMMABLE**
Not burnable, incombustible.

**NON-METALLIC ABRASIVE**
Blast cleaning abrasive made from naturally occurring, byproduct, and manufactured materials. Naturally occurring abrasives include silica sand, olivine, staurolite, flint, garnet, zirconium, novaculite, and other minerals. Byproduct abrasives include those from smelters (i.e., nickel, copper, or iron slag), and power plants (boiler slag from burning of coal), as well as agricultural products (e.g., walnut shells, peach pits, or corncobs). Manufactured abrasives include silicon carbide, aluminum oxide, and glass beads.

**NON-POINT SOURCE**
A source of water pollutants which is not an industrial or municipal discharge from a discernible, confined and discrete conveyance, such as pipe, ditch, or channel which is designed to emit effluent into a water body. See POINT SOURCE. An example of a non-point source would be municipal or agricultural runoff. Discharges from painting of bridges or other structures over or near water are non-point sources, because there is normally not an intent to discharge into the body of water.

**NONSKID COATING (NONSLIP)**
A coating that contains coarse particles (e.g., aluminum oxide, aluminum metal, garnet, sand, glass, walnut shells, or cork) and that dries to form a rough, abrasive surface that resists sliding of people and machinery on floors, ship decks, ladder treads, etc. Resins used are usually epoxies, polyurethanes, or alkyds.
NONVISIBLE CONTAMINATION (NV)
Undesirable organic matter, such as thin films of oil and grease, and inorganic and/or soluble ionic materials such as chlorides, ferrous salts, nitrates, and sulfates, which may be present on a substrate.

NONVOLATILE CONTENT (COATING)
The portion of a coating that does not evaporate during drying or curing under specified conditions, comprising the binder and, if present, the pigment. The percent volatile content is obtained by subtracting the nonvolatile content from 100. [ASTM D 16]

NONVOLATILE MATTER (NVM)
See NONVOLATILE CONTENT (COATING).

NONVOLATILE VEHICLE
The coating binder dissolved or dispersed in the solvent (volatile vehicle) that remains to form a film after solvent evaporation.

NONWOVEN ABRASIVE PAD
A web of nylon fibers imbedded with abrasive material in different sizes and densities. These pads can be used to remove dried soil, debris, and loose paint from all types of surfaces, as well as loose rust and loose mill scale from steel. They also can be used to feather, or blend, the edges of a repair area with the surrounding surface. See also COATED ABRASIVE.

NOTCH GAGE
See WET FILM THICKNESS GAGE, NOTCH TYPE.

NOTICE OF PROPOSED RULEMAKING (NPR)
Announcement of a federal agency’s plans to propose, amend or revoke a regulation, published in the Federal Register. The public must have an opportunity to comment before a final rule is published.

NOVOLAC
Class of resins produced by the chemical reaction of phenol and formaldehyde; often used in high performance phenolic or epoxy coatings. See BISPHENOL F.

NOZZLE
See BLAST NOZZLE, SPRAY HEAD, SPRAY NOZZLE.

NOZZLE ORIFICE GAGE
A tapered metal rod that can be inserted into the back of a blast cleaning nozzle to determine the size of its orifice and assess the extent of wear. The nozzle normally is replaced when the orifice size increases by 1/16 inch (1.6 mm).

NUCLEIDE
A species of atom characterized by the constitution of its nucleus and hence by the number of protons, the number of neutrons, and the energy content.

NUISANCE DUST
Dust such as calcium carbonate, limestone, and titanium dioxide that presents little to no adverse effect on respiration, except at a very high concentration.
OCCUPATIONAL SAFETY AND HEALTH ACT
The Occupational Safety and Health Act of 1970 (Public Law 91-596, Dec. 29, 1970) was developed to assure safe and healthful working conditions. It authorized the Occupational Safety and Health Administration: (a) to develop and enforce regulations to protect workers from unsafe and unhealthful work environments; (b) to assist and encourage states in their efforts to ensure safe and healthful working conditions; and, (c) to provide for research, information, education, and training in the field of occupational safety and health. [ILPR]

OFF COLOR
An unacceptable variation of color from that desired or specified.

OFFSETS
An air pollution control policy that treats an entire region as if it is in a gigantic bubble. The EPA insists only that the overall clean air standards be achieved within the bubble without specifying the precise means. See BUBBLE CONCEPT.

OFFSHORE PLATFORM
A stationary steel structure in ocean or bay type waters that is used by oil and gas industry operators for drilling or oil and gas production activities.

OIL-BASED COATING
A paint or varnish that contains drying oils that cure by reaction with oxygen as the basic film-forming mechanism to convert the applied wet film to a solid film.

OIL CANNING
Bowing of the edges of a steel plate due to thermal expansion and contraction or cyclic loading and unloading. Oil canning can lead to cracking of the coating at the edges.

OIL LENGTH
The ratio of oil to resin in a medium. For an oleoresinous varnish, the oil length may be expressed in terms of parts by weight of oil to one part by weight of resin. However, in American practice, it is common to express oil length in terms of U.S. gallons of oil per 100 pounds of resin. Thus, in American usage, a 25-gallon varnish would be a varnish composed of 25 U.S. gallons of oil to 100 pounds of resin. For an alkyd resin, oil length is expressed as the percentage of oil by weight in the resin. [Painting/Coatings Dictionary]

OIL PAINT
A paint that contains drying oil, oil varnish, or oil-modified resin as the basic vehicle ingredient.

OIL SOFTENING
The conversion of a satisfactory coating into an unacceptably soft and tacky one, when in contact with household or industrial oils.
OLEFIN
A class of unsaturated aliphatic hydrocarbons having one or more double bonds. The double bond makes these compounds highly chemically reactive and useful as starting materials for the manufacture of other compounds. Examples are ethylene and propylene. [EPA]

OLEORESINOUS COATING
Unmodified drying oil coating.

OLEORESINOUS PHENOLIC COATING
Resin made by cooking phenolic resin with drying oil.

OLEORESINOUS VEHICLE
A vehicle prepared by the addition of a resin to a drying oil. These two components may or may not be further processed to obtain specified properties. Alkyd resins are sometimes, but not generally, included in this category.

OLIGOMER
A polymer containing molecules with only a few units, or “mers.”

OLIVINE ABRASIVE
A blast cleaning abrasive manufactured from the mineral olivine, which is crushed, dried, and screened (sieved). See also NON-METALLIC ABRASIVE.

ONE-COMPARTMENT COATING
See SINGLE-PACKAGE COATING.

OPACITY
In coatings, the ability to hide or obscure the underlying substrate.

OPAQUE
In coatings, a film that is not transparent.

OPEN ABRASIVE BLAST CLEANING
An air abrasive blast cleaning operation without any localized containment surrounding the blast stream.

OPEN BLAST CLEANING
See AIR ABRASIVE BLAST CLEANING.

OPEN CUP
A test method for determining flash point. See FLASH POINT.

OPERATING MIX
See ABRASIVE MIX.

OPERATING PERMIT
Authorization to discharge air pollutants. The permitting program provides a way of tracking sources and their emissions. Shop painting facilities (e.g., shipyards and rail car shops) are among the sources typically required to apply for operating permits. Under the Clean Air Act Amendments, states must develop operating permit programs which can be expected to include facilities that have not needed a permit in the past.
**ORANGE PEEL**
A coating application (usually spray) defect in which the coating surface has the irregular appearance of an orange skin because of insufficient leveling of the wet film. On products such as appliances, orange peel may be desirable.

**ORE**
A natural mineral that may be mined and treated for the extraction of any of its components, metallic or otherwise, at a profit. [ASM]

**ORGANIC ACID**
A chemical containing a carboxyl group (-COOH) capable of reacting with bases or other chemicals that can accept protons. These acids are weaker than mineral acids and are used for many purposes, such as in the synthesis of resins and additives used in coatings. Cobalt, zinc, zirconium, and other salts of some of these acids are used as driers in alkyd paints.

**ORGANIC COATING**
Protective film with resinous (organic) binder.

**ORGANIC COMPOUND**
Any chemical compound that contains the element carbon in its molecular structure.

**ORGANIC SOLVENT**
Liquid organic material including diluents and thinners that are used as dissolvers, viscosity reducers, or cleaning agents.

**ORGANIC ZINC-RICH COATING**
Anti-corrosive primer for iron and steel incorporating zinc dust pigment in an organic vehicle. The more common types of binders for organic zinc-rich coatings include epoxy polyamide, polyurethane, vinyl, and chlorinated rubber. Organic zinc-rich coatings often are used for touch-up and repair of defects and damaged areas in inorganic zinc-rich coatings because the organic binder provides better adhesion than another coat of inorganic zinc-rich. Organic zinc-rich coatings are more tolerant of surface preparation deficiencies than inorganic zinc-rich coatings. They also are less likely to mud-crack, have less abrasion resistance, and have significantly lower heat resistance (depending on binder type) than inorganic zinc-rich coatings. See also INORGANIC ZINC-RICH COATING, ZINC-RICH COATING.

**ORGANOSOL**
Combination of dispersion resins and plasticizer, dispersed in a mixture of volatile organic solvents, that contain both polar and nonpolar solvents.

**ORGANOTIN**
Compounds containing tributyltin used extensively in anti-fouling paints and wood preservatives. Their use is currently curtailed because of health and environmental concerns.

**ORIFICE**
Opening or hole in a spray or blast nozzle.

**OSHA INJURY AND ILLNESS RECORD**
A log and summary of all recordable occupational injuries and illnesses that each employer must keep. Summaries must be posted annually.
OSHA LOG 200
See OSHA INJURY AND ILLNESS RECORD.

OSMOSIS
The diffusion through a semi-permeable membrane to equalize concentrations. In coatings, typically the diffusion of water through a paint film to an underlying salt-contaminated surface to create blisters.

OSMOTIC BLISTERING
Blisters caused by water diffusion through the film to dilute an underlying solute by a process known as osmosis.

OSMOTIC PRESSURE
Pressure caused by difference in concentrations of solution, often of soluble salt, on each side of a semi-permeable membrane.

OSWER
See OFFICE OF SOLID WASTE AND EMERGENCY RESPONSE.

OUTGASSING
The spontaneous discharge of air or moisture vapor from concrete.

OUTRIGGER BEAM
A fixed or movable arm that extends beyond the edge of a roof or structure for use in rigging scaffolds.

OUTYEAR COST
Planned future expenditures.

OVERATOMIZED
Dispersed too finely by use of excessive atomizing pressure. [AM]

OVERBAKING
An exposure of the coating to a temperature moderately higher or for a longer period of time, or both, than that recommended by the manufacturer of the coating for normal curing, so as to adversely affect coating performance. [CED]

OVERBLAST
Areas where abrasive blasting has impinged on surfaces that were not intended to be blasted.

OVERCOATING
Application of coating materials over an existing coating to extend service life.

OVERCOAT (TOPCOAT) INTERVAL (WINDOW)
Range between minimum and maximum times after application that a coating has reached the state of curing so that it can be successfully topcoated.

OVERCURE
Caused by an aftercure or being subjected to too high a temperature or too long a period at a proper temperature and resulting in a product with lowered performance. [CED]
OVERLAP
A surface area coated by a previous spray pass and coated again by another spray pass.

OVER-THE-DITCH
In pipeline work, describes a process that is executed after the pipeline is welded together but before lowering the pipeline into the trench.

OVERSPRAY
(1) Atomized paint particles that deflect from or miss the surface being sprayed; (2) Spray particles that are not wet enough to fuse when they reach the surface being sprayed. As a result, overspray may contaminate property beyond the surface being sprayed. See also DRY SPRAY, BOUNCE BACK.

OXIDANT
A substance containing oxygen that reacts with chemicals in air to produce a new substance.

OXIDATION
(1) In coatings, the introduction of oxygen into a molecule, thereby producing a cured film. [Painting/Coatings Dictionary] Alkyds and drying oil-based coatings cure by oxidation; (2) Corrosion of metals and degradation of other substances caused by oxygen in the air. See also THERMOSET COATING.

OXIDE
Chemical reaction product, typically a metal, with oxygen.

OXIDIZE
Combine with oxygen; raise the valence of an atom or an ion to a higher level.

OXIDIZER
A chemical other than a blasting agent or explosive defined in 29 CFR 1910.109(a), Explosives and Blasting Agents, Subpart H-Hazardous Materials, Occupational Safety and Health Standards, that initiates or promotes combustion in other materials, thereby causing fire either by itself or through the release of oxygen or other gases.

OXY-FUEL GAS GUN
Application tool that introduces a powder into a gas stream (usually air). Used for thermal spraying of organic materials such as powdered thiokol or polyethylene.

OXYGEN CONCENTRATION CELL CORROSION
A form of electrochemical attack of a metal driven by differences in oxygen concentration in the electrolyte between different areas on the same metal.

OXYGEN DEFICIENCY
Low oxygen in an atmospheric environment, generally below 19.5%, that is a health hazard.

OXYGENATED SOLVENT
An organic solvent containing oxygen as part of the molecular structure. Alcohols and ketones are oxygenated compounds often used as paint solvents. [EPA]
**OZONE**
An oxygen molecule composed of three oxygen atoms. It is a component of photochemical smog, and its concentration in the air is regulated by pollution control laws. It is a pollutant that meets the criteria of Section 110 of the Clean Air Act. [EPA]

**PACK RUST**
Rust accumulated in joints and crevices.

**PACKAGE STABILITY**
The ability of a liquid, such as paint or varnish, to retain its original quality/composition after prolonged storage.

**PAD**
See PAINT PAD.

**PADEYE**
A structural feature used for attachment of ropes, cables, or slings. Usually consists of a plate with a circular hole that is welded to the structure.

**PAINT**
(1) Any pigmented liquid, liquefiable, or mastic composition designed for application to a substrate in a thin layer that is converted to an opaque solid film after application. Used for protection, decoration, identification, or to serve some other functional purposes; (2) Application of a coating material.

**PAINT BRUSH**
A hand-held paint application tool with a bundle of natural or synthetic bristles surrounded and bound to a handle by a ferrule or metal jacket. The part of the bristles near the ferrule is called the “butt end;” the tip of the brush is called the “flag end.” Typical types of paint brushes include those designed for sash and trim, wall and ceiling, enamel and varnish, masonry, roofing, and decorative uses.

**PAINT BRUSH BRISTLES**
Natural or synthetic fibers bundled together and attached to a handle for use in soaking up paint and spreading it onto a surface. (1) Natural bristles are usually hog bristles or horse hair. Because natural bristles can be softened by the water in water-borne coatings, they are most effective for applying solvent-borne coatings; (2) Synthetic bristles are usually nylon, polyester, or blends of these. Because some solvents can have a detrimental effect on synthetic bristles, they are most effective for applying water-borne coatings.

**PAINT CHIPPING**
See CHIPPING.

**PAINT CONTRACTOR**
An individual or firm whose primary business is providing surface preparation and coating application service.
PAINT COVERAGE
Paint spreading rate.

PAINT FAILURE
See COATING FAILURE.

PAINT HEATER
Device for lowering viscosity of paint by heating it prior to application.

PAINTING AND DECORATING CONTRACTORS OF AMERICA (PDCA)

PAINTING CONTRACTOR CERTIFICATION PROGRAM (PCCP)
A program of SSPC: The Society for Protective Coatings to certify industrial paint contracting firms according to its qualification standards.

PAINTING SYSTEM
One or more coats of paint applied in a specific sequence to achieve a specified end result. See also COATING SYSTEM.

PAINT INSPECTION GAGE (PIG)
Another name for TOOKE GAGE. See DRY FILM THICKNESS GAGE, DESTRUCTIVE.

PAINT MITT
A fabric-covered mitt worn on the hand as a painting tool. It is dipped into paint, which is applied by grasping or rubbing spindles, wrought iron, pipes, or surfaces that cannot be coated efficiently by brush, roller, or spray.

PAINT PAD
An application tool designed to wipe paint onto a surface. It consists of a flat square or rectangular backing covered with very short-napped synthetic fiber and connected to a handle.

PAINT REMOVER
A mixture that softens old paint or varnish and permits it to be removed with a scraper. Paint removers also are called chemical strippers and usually contain solvent, wax, caustics, and other chemicals. Paint removers are suitable for removing most oil-based paints, thermoplastic paints, and latex emulsion paints. See also CHEMICAL STRIPPING.

PAINT ROLLER
An application tool made of a fabric-covered tube, or roller cover, that fits over a frame with a handle and rotates smoothly to roll paint onto a surface. Paint rollers are most productive on large, flat surfaces. Special paint rollers have been developed for coating corners, edges, and piping.

PAINT ROLLER COVER
A hollow tube or core covered with natural or synthetic fibers and used on a roller to apply paint to a surface. Natural fiber materials include sheepskin, lamb’s wool, and mohair; synthetic fiber materials include acrylic, polyester, and nylon.
PAINT ROLLER COVER, NAP LENGTH
The length of the fibers on a roller cover. Short-nap covers (1/4 to 1/2 inch) are used for painting smooth surfaces; long-nap covers (3/4 to 1 1/2 inches) make it possible to work paint into crevices, pits, and other irregularities of rough surfaces.

PAINT ROLLER TYPES
(1) DIP ROLLER — Paint is supplied by dipping the roller into a paint tray or a 5-gallon pail. Excess paint is removed by rolling the cover over the ramp of the paint tray or over a mesh grid inside the pail; (2) FOUNTAIN ROLLER — The roller has a hollow core that is filled with paint. Pores in the core allow the paint to saturate the outer fabric covering. (3) PRESSURE-FED ROLLER — Paint is pressure-fed through a supply hose to the center of the roller. Like a fountain roller, a pressure-fed roller has pores in the core that allow the paint to saturate the outer fabric covering.

PAINT STRIPPER
See PAINT REMOVER.

PAINT SYSTEM
See PAINTING SYSTEM.

PAINT THERMOMETER
Instrument designed for measuring the temperature of liquid coating materials by immersion.

PAINT THICKNESS GAGE
See FILM THICKNESS GAGE.

PAINT TRAY
A tray with a well for holding paint during application. A roller cover is immersed in the paint and then rolled back and forth across a ramp at one end of the tray to work in the paint and to remove any excess material.

PARAFFIN WAX
Inert hydrocarbon wax derivative of crude petroleum. Paraffin waxes are distinguished by their melting points. Their main uses include the conferring of water resistance, slip, or solvent retention in special types of compositions. [CED]

PARAPET CLAMP
A device designed to fit over and clamp onto a parapet along the perimeter of a roof or structure for use in rigging scaffolding.

PARTNERING
A long-term contract between owner and contractor, typically five or more years, in which the parties agree to work together on whatever work comes up. The owner can negotiate prices for each item of work within the context of the agreement.

PARTICULATES
Fine liquid or solid particles such as dust, smoke, mist, fumes, or smog found in the air or emissions.
PARTS PER MILLION (PPM)
Measure of proportional content (e.g., of small amounts of contamination).

PASS (SPRAY)
One horizontal or vertical pass with a spray gun.

PASSIVATION
Act of making inert. Process of creating Passivity. See PASSIVITY.

PASSIVE FILMS
Continuous barriers formed on a metal surface by chemical or electrochemical reactions forming chemical compounds such as oxides. These barriers inhibit further chemical or electrochemical reactions on the surface.

PASSIVITY
A condition in which a piece of metal, because of an impervious covering of oxide or other compound, has a potential much more positive than that of the metal in the active state. [ASM]

PATTERN, SPRAY
See SPRAY PATTERN.

PEELABLE
A coating that is strippable. See also STRIPPABLE.

PEELING
Disbonding of particles of paint, varnish, or lacquer film from a surface due to loss of adhesion. It may be caused by dampness, grease, an improperly prepared surface, or excessive moisture behind the surface.

PEENING
Use of metallic shot to impart residual compressive stresses to improve fatigue properties of metal products and to minimize intergranular and stress corrosion cracking of alloying metal products.

PEENING, SHOT
See SHOT PEENING.

PENCIL TESTING
See HARDNESS TESTING, PENCIL METHOD.

PENCIL-TYPE PULL-OFF GAGE
A pencil-shaped magnetic pull-off gage for determining dry film thickness. See MAGNETIC GAGE.

PENETRATING PRIMER
Coating developed to penetrate old, loose coatings, and provide a good bond to subsequently applied coatings. Penetrating primers have low molecular weight and low viscosity. They are usually clear or lightly pigmented.

PERCENT SOLIDS
See NONVOLATILE MATTER.
PERCENT SOLIDS BY VOLUME
See Volume solids.

PERFORMANCE STANDARD
The EPA limit on emissions from an individual source with a specific source category. A source category is designated when the EPA determines that sources within the category contribute significantly to air pollution.

PERISHING
See DETERIORATION.

PERMEABILITY
The steady water vapor flow in unit time through unit area of body induced by unit vapor pressure difference between the two surfaces of a coating. [CED]

PERMISSIBLE EXPOSURE LIMIT (PEL)
An employee’s exposure to an air contaminant regulated under 29 CFR 1910.100 and 1926.55 may not exceed this value. Often expressed as a time-weighted average (TWA). For example, the PEL for lead is 50µg/m³ as an 8 hour TWA. See also THRESHOLD LIMIT VALUE, TIME-WEIGHTED AVERAGE (TWA).

PEROXIDE
Reactive chemical containing more oxygen atoms than a related, more stable chemical, used to catalyze some film-forming reactions.

PERSONAL FALL ARREST SYSTEM
A combination of devices used to stop or arrest a worker falling from an elevated level. It consists of an anchorage, connectors, a body harness and possibly a lanyard, deceleration device, lifeline, or combination of these devices. As of January 1, 1998, the use of a body belt for fall arrest was prohibited by OSHA, 29 CFR 1926.451, Safety Standards for Scaffold Used in the Construction Industry.

PERSONAL PROTECTIVE EQUIPMENT (PPE)
Devices worn by the worker to protect against hazards in the environment. Respirators, gloves, and ear protectors are examples.

PERSONNEL QUALIFICATION
The characteristics of abilities gained through training or experience or both that enable an individual to perform a required function.

PESTICIDE
Any substance, or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest, or intended for use as a plant regulator, defoliant, or desiccant. Some articles treated with preservatives, for instance treated wood, are exempted. Also, does not apply to products that are intended to exclude pests only by providing a physical barrier against pest access and which contain no toxicants.
PESTICIDE REGISTRATION
Approval gained by submitting an application to the EPA in order to legally distribute or sell a new pesticide product. A pesticide is considered new if it is not contained as an active ingredient in any other pesticide product registered under FIFRA at the time the application for registration is filed.

PETROLATUM
Purified mixture of semisolid hydrocarbons with unctuous nature derived from petroleum. Synonym: petroleum jelly. [CED]

pH
The negative logarithm of the hydrogen ion concentration, in mol/liter. Measure of the acidity or alkalinity of an aqueous solution. pH=7 represents neutrality, i.e., the solution is neither acid nor alkaline. pH values from 0 to 7 are acidic, the lower the pH value, the higher the degree of acidity; pH values from 7 to 14 represent alkalinity. The higher the pH value above 7, the greater the degree of alkalinity. [CED]

PHENOLIC ALKYD RESIN
Alkyd resin system modified with a phenolic resin. Phenolic modifications can perform satisfactorily in water immersion, a service in which unmodified alkyd resins are unsuitable.

PHENOLIC RESIN
Synthetic resin made by reacting phenols with formaldehyde. Phenolic varnishes are made by cooking phenolic resins with drying oils. Widely used as spar varnishes.

PHENOXY RESIN
A high molecular weight, thermoplastic polyether resin based on bisphenol A and epichlorohydrin having bisphenol A terminal groups. [CED]

PHOSPHATE PIGMENT
An insoluble inorganic compound containing the PO$_4^{3-}$ ion. Some of these pigments (e.g., zinc phosphate) contribute a degree of corrosion inhibition to industrial and marine coatings.

PHOSPHATING
Pretreatment of steel and certain other metal surfaces with chemical solutions containing metal phosphates and phosphoric acid as the main ingredients. The result is a thin, inert, adherent, corrosion-inhibiting phosphate layer that serves as a good base for subsequent paint coats. [Painting/Coatings Dictionary]

PHOSPHORIC ACID
An inorganic acid sometimes used to remove light rust from steel and to pacify the steel surface.

PHOTOCHEMICAL REACTION
A chemical reaction that is accelerated by light.

PHOTOCHEMICALLY REACTIVE ORGANIC MATERIAL
Any organic material that will react with oxygen, oxides of nitrogen, excited oxygen, ozone, or free radicals generated by the action of sunlight on components in the atmosphere, giving rise to secondary contaminants and reaction intermediates in the atmosphere that can have detrimental effects on the environment. See PHOTOCHEMICAL OXIDANT.
PHOTOCHEMICALLY REACTIVE SOLVENT
Organic solvent which is susceptible to reaction with nitrous oxides in the presence of ultraviolet light to form ozone, a component of smog. See also VOLATILE ORGANIC COMPOUND (VOC).

PHOTOCHEMICAL OXIDANT
Ozone and smaller amounts of other irritating chemicals, such as peroxyacetyl nitrate, which are products of atmospheric reactions of volatile organic compounds, oxides of nitrogen, and sunlight. Photochemical oxidants are a major portion of the air pollution commonly known as “smog.” [EPA]

PHOTOCHEMICAL REACTIVITY
Measure of the rate at which an organic compound reacts in the presence of ultraviolet radiation to form photochemical oxidants. [EPA]

PHOTOCHEMICAL SMOG
Air pollution caused by chemical reactions of various pollutants emitted from different sources.

PHOTODEGRADATION
Reduction in the functional properties of a material (e.g., a coating binder) induced by photochemical reaction.

PHTHALATE ESTERS
Esters of phthalic acid widely used as plasticizers

PHTHALIC ACID
Aromatic acid containing two carboxyl groups. It is available as three different isomers (ortho-, meta-, and para-phthalic acid), depending upon the location of the two carboxyl groups on the benzene ring

PICKLING
Treatment for the removal of rust and mill scale from steel by immersion in an acid solution containing an inhibitor. Pickling should be followed by thorough washing and drying before painting. This process is further defined in SSPC Surface Preparation Specification No. 8, “Pickling” (SSPC-SP 8).

PIER
A support for a bridge at some point between the end abutments; a waterfront structure for docking of ships.

PIGMENT
Finely ground, natural or synthetic, inorganic or organic, insoluble particles that, when dispersed in a liquid vehicle to make paint, may provide color and other properties, including opacity, hardness, durability, and corrosion resistance. The term is used to include extenders as well as white or colored pigments. (Note: The distinction between powders that are pigments and those that are dyes is generally made on the basis of solubility, pigments being insoluble and dispersed in the material, and dyes being soluble or in solution as used. See also BARRIER PIGMENT, COLOR PIGMENTS, EXTENDER PIGMENT, HIDING PIGMENT, INHIBITIVE PIGMENT, SACRIFICIAL PIGMENT. [Painting/Coatings Dictionary]
PIGMENT OVERLOAD
Use of more pigment in a coating than can be completely wetted by the resin; exceeding the critical pigment volume concentration (CPVC).

PIGMENT SOLIDS
The amount of pigment in a dry paint, expressed as a percentage. Pigment solids may be calculated by weight or by volume.

PIGMENT VOLUME CONCENTRATION (PVC)
Ratio of the volume of pigment to the volume of total nonvolatile material (i.e., pigment and binder) present in a coating. The figure usually is expressed as a percentage. [CED]

PILES
Vertical members, embedded partly or entirely in the ground, used to provide support for a structure where the ground is not firm enough or over or adjacent to water.

PINHOLE
A holiday or discontinuity that extends entirely through a coating film, approximately the size of a pin; normally caused by solvent bubbling, moisture, or foreign particles.

PINHOLING
Formation of small holes through the entire thickness of coating; see CRATERING. [AM]

PINHOLE DETECTION
See HOLIDAY TEST.

PINPOINT RUSTING
Tiny, dispersed points of rust that can appear at pinholes and holidays in a coating. Very dense pinpoint rusting can appear on painted steel surfaces where the coating does not completely cover the blast cleaning profile.

PIPE CAP
A plumbing fixture to terminate (cap) a pipe line; used in testing the surface tensile strength of concrete surfaces (ACI 503R, Appendix A).

PIT
A small hole in the surface of a metal or other material that is deeper than its diameter.

PIT-DEPTH MEASUREMENT
Determining the depth of pits such as caused by corrosion of steel from the depth that instrumented probes penetrate them.

PITOT TUBE
An instrument used to measure air velocities.

PITTING
(1) Localized corrosion of a metal surface, confined to a point or small area, that takes the form of cavities [ASM]; (2) In concrete, pitting is localized disintegration, such as popout. [ACI]; (3) Formation of depressions (pits) in the surface of a coating often caused by the escape of gas or solvent vapor.
PLACING
The deposition, distribution, and consolidation of freshly mixed concrete in the place where it is to harden; inappropriately referred to as pouring. [ACI]

PLANARITY
General evenness of a surface in an intended direction; may be a sloped or level area

PLASMA GUN
A device that introduces metal in powder form into the plasma arc cavity in a gas stream, melts it, and projects it onto the steel surface by a plasma jet.

PLASMA SPRAYING
A spray application process in which metallic or thermoplastic powders are introduced into a plasma arc cavity that contains the gas stream of a plasma gun. After being melted, the powders are projected onto the surface being coated via the flow of the plasma jet. See also FLAME SPRAYING.

PLASTER
A cementitious material or combination of cementitious and fine aggregate that, when mixed with a suitable amount of water, forms a plastic mass or paste. The paste, when applied to a surface, adheres to it and subsequently hardens, preserving in a rigid state the form or texture imposed during the period of plasticity; also the placed and hardened mixture. [ACI]

PLASTER SHIMS
See CALIBRATION SHIMS.

PLASTICIZER
(1) A substance added to paint, varnish, or lacquer to impart flexibility; (2) A material that increases the plasticity of a fresh cement paste, mortar, or concrete. [ACI]

PLIMSOL MARKS
A set of load line markings on the midship center of the ship which are certified by the vessel’s classification society. They prescribe the maximum depth allowed for different sea conditions, i.e, tropical, winter, summer, fresh water, etc.

PLURAL COMPONENT COATING
See MULTI-PACKAGE COATING.

PLURAL COMPONENT SPRAYING
A paint application method that automatically proportions and mixes two or more components of a paint material in the process of delivering them to the spray gun. Plural component spray equipment may be used to apply coatings with a pot life that is too short to permit mixing and application by conventional air and airless spray equipment. Components may be mixed just before or just after the nozzle.

PM-10
Particulate mass (dust) less than 10 micrometers (0.39 mil) in aerodynamic equivalent diameter. (Aerodynamic equivalent diameter is the diameter of a unit density sphere having the same settling velocity as the particle in question, regardless of its shape and density.) Particulates of less than 10 microns are respirable and, therefore, constitute a health hazard, especially crystalline silica and lead dust.
PNEUMATIC
Powered by air.

PNEUMATIC ADHESION TENSILE STRENGTH TESTING INSTRUMENT (PATTI)
An instrument for determining the tensile adhesion of coatings to a surface, according to ASTM D 4541. This instrument is self-aligning, and consists of detachable loading fixtures having a flat, cylindrical base, a central grip for engaging the loading fixture, and a pressurized gas system for applying a continuous pull to the loading fixture. See ADHESION TEST, TENSILE (PULL-OFF).

PNEUMATIC POWER TOOL
Tool that is powered by air pressure.

POCKMARKING
See PITTING.

POINTING (TUCK POINTING)
Shaping the mortar between bricks or blocks using a special tool on the wet mortar.

POINT SOURCE
Any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged.

POLARIZATION
A process where bubbles of hydrogen collect on the cathodic areas of steel immersed in water. The hydrogen acts as a barrier to reduce corrosion, but dissolved oxygen in the water may act as a depolarizer to allow corrosion to proceed.

POLE GUN
An airless spray gun extension manufactured in lengths of 3 to 8 feet (1 to 2.4 meters) in length and equipped with standard controls for use in spraying high areas not otherwise accessible.

POLYALCOHOL
Alcoholic or hydroxyl compounds, containing more than one hydroxyl group. Synonym: polyol. [CED]

POLYAMIDE
A curing agent for epoxy and sometimes isocyanate resins, consisting of a reaction product of a dibasic or polybasic acid with a diamine or polyamine.

POLYAMIDE RESIN
See POLYAMIDE.

POLYAMINE
An organic compound containing more than one amino group, used as a curing agent for epoxy and sometimes isocyanate resins.
POLYESTER
Organic polymer formed by condensation of a specific type of monomer (see ESTER) to produce a higher molecular weight product suitable for use as a coating binder.

POLYESTER RESIN
Synthetic resin made from polyhydric alcohols and polybasic acids, and often dispersed in a suitable monomer. Alkyd resins are a specific type of polyester resin and may be regarded as complex esters.

POLYMER
A product formed by one or more molecular structural units (monomers) linked together. A homopolymer consists of a single type of monomer linked with itself or repeated any number of times. A copolymer consists of more than one type of monomer linked in specific sequences and/or proportions.

POLYMER CONCRETE
Concrete in which a polymer is added or used instead of portland cement to bond the aggregate together.

POLYMER FLOORING
Liquid-polymer system such as a sealer, coating, or mortar that cures to form a solid film to provide repairs, protection, or enhancement to horizontal concrete surfaces.

POLYMERIZATION
Chemical reaction of two or more small molecules (monomers) combining to form a large molecule (polymer, macromolecule). The new molecule contains repeating structural units of the original molecules. [Painting/Coatings Dictionary]

POLYOL
See POLYALCOHOL.

POLYUREA
A coating material which is the reaction product of an isocyanate and a polyamine.

POLYURETHANE
A coating binder material formed by the reaction of an isocyanate with hydroxyl-containing substances (polyls) to produce an organic polymer compound known as a urethane. Polyurethane products that are most suitable for coatings show good chemical, solvent, and abrasion resistance, and good gloss retention. See POLYURETHANE COATING.

POLYURETHANE, ALIPHATIC
A polyurethane coating based upon aliphatic polyisocyanate monomers reacting with a polyol. The most commonly used monomers are hexamethylene diisocyanate and isophorone disocyanate. These coatings offer excellent resistance to ultraviolet light and weather, making them good for exterior service.
POLYURETHANE, AROMATIC
The polyurethane coating in which the isocyanate component is derived from a diisocyanate or polyisocyanate in which the functional –NCO groups are directly attached to an aromatic ring. These coatings offer excellent chemical and heat resistance, but yellow and chalk in direct sunlight. Aromatic polyurethanes are used for interior applications, such as tank linings or undercoats.

POLYURETHANE, CATALYZED
Two-component polyurethane coating in which one component contains the bulk of the coating material and a second component contains a small amount of catalyst, accelerator, or crosslinking agent. The coating has a limited pot life after the two components are mixed. Also known as an ASTM Type IV polyurethane coating.

POLYURETHANE COATING
A coating based upon the reaction of an isocyanate-containing material with a polyhydroxylated co-reactant. Polyurethane coatings are available in single component (air-drying and moisture-curing), and in multipackage chemically curing or (catalyzed) formulations.

POLYURETHANE, MOISTURE-CURED
A one-component polyurethane coating made from a resin containing free isocyanate groups. Reaction of the isocyanate groups with moisture in ambient air cures the coating and releases carbon dioxide. Also known as ASTM Type II polyurethane coating.

POLYURETHANE, OIL-MODIFIED
A one-component polyurethane coating containing a binder in which an isocyanate resin has been prereacted with an alkyd resin or a drying oil. The resin contains no significant amount of free isocyanate groups and cures by reaction of its drying oil with oxygen in air. Also known as an ASTM Type I polyurethane coating.

POLYVINYL ACETATE (PVA)
A colorless, thermoplastic, water-insoluble resinous high polymer derived from the polymerization of vinyl acetate with a catalyst; used as a latex binder in certain paints. [CED]

POLYVINYL CHLORIDE/POLYVINYL ACETATE CO-POLYMER
A tough durable polymer made from vinyl chloride (80-95%), vinyl acetate, and small amounts of other monomers that provide solubility and adhesion. Stabilizers are required to prevent decomposition by light and heat. These polymers are used in lacquer-type coatings. They have been particularly valuable for immersion service as ship hull coatings or municipal water tank linings. These coatings usually do not meet VOC requirements due to the large amount of solvent needed to dissolve the polymer, so their use has been greatly restricted.

PONDING
The accumulation of a liquid or paint in a shallow depression. [MPDA]

PONTOON BRIDGE
A bridge composed of boats, scows or pontoons so connected to the deck or floor construction that they are retained in position and serve to support vehicular and pedestrian traffic. [B]

POPPING
Formation of blisters of solvent vapor in wet coating surfaces that break but do not level because of too great a viscosity.
POPOUT
Shallow, typically conical, depression left after a small piece of the concrete surface has broken away

PORCUPINE ROLLER
See Spiked roller

POROSITY
(1) The ratio, usually expressed as a percentage of the volume of voids in a material to the total volume of the material including the voids [ACI]; (2) Small interconnected voids, such as in concrete, which allow fluids to penetrate an otherwise impervious material.

PORTABLE SCAFFOLD
See SCAFFOLD, ROLLING.

PORTLAND CEMENT
A hydraulic cement produced by pulverizing Portland-cement clinker and usually containing calcium sulfate. [ACI]

PORTLAND CEMENT ASSOCIATION
A trade association for cement companies in the United States and Canada.

POST-CURED
Cured by special treatment (e.g., heat) after application.

POST-CURING
An after-application treatment (liquid curing solution, heat, radiation, etc.) that enhances a coating’s level of cure or properties. See also SELF-CURING COATING.

POST-TENSIONED CONCRETE
Concrete that is stressed (tensioned) with steel tendons after curing of the concrete.

POTABLE WATER
Water that is fit for human consumption; mainly drinking water.

POT, BLAST
See BLAST POT.

POT LIFE
The length of time after combining two or more components of a multiple-component coating system that the mixed coating can be successfully applied.

POT, SPRAY
See SPRAY POT.

POT TENDER
Person who assists abrasive blasting operators to adjust and refill abrasive blasting pots.

POTW
Publicly Owned Treatment Works.
POWDER COATING
(1) A 100% solids coating applied as a dry powder which, when baked at a sufficiently high temperature, melts out to form a continuous film. For thermosetting materials, a chemical reaction, either condensation or addition polymerization, also takes place. This fused film has the uniformity, color, toughness, and other properties generally associated with protective and decorative coatings; (2) A coating application method which utilizes a solid binder and pigment. The solid binder melts upon heating and results in a pigmented coating upon cooling. [CED]

POWERED AIR-PURIFYING RESPIRATOR (PAPR)
A type of respirator that uses a blower to pass contaminated air through an element that removes the contaminant and provides a supply of purified air to a facepiece, helmet, or hood. A filter, cartridge, or combination of the two make up the purifying element.

POWER FILE
A power tool with a straight or curved file used to round edges or remove burrs from metal. The length of each stroke and the number of strokes per minute can be regulated.

POWER GRINDING
Abrading a metal or other hard surface using a motor-driven tool.

POWER TOOL
A tool powered by air pressure or electricity. Power tools clean a surface of old paint, rust, mill scale, or other contaminants by impact, rotary abrasive action, or a combination of both. Commonly used power tools include power chippers, needle guns,descalers, wire brushes, sanding discs, grinding wheels, and rotary peeners.

POWER TOOL CLEANING
The use of power impact, rotary, or rotary impact tools to remove loose paint, rust, mill scale, and other loose contaminants from a surface. The specification SSPC-SP 3, “Power Tool Cleaning,” is a consensus standard covering the procedures necessary for power tool cleaning of steel surfaces. Some tools can remove all paint, rust, and mill scale, and produce a surface profile in accordance with SSPC-SP 11, “Power Tool Cleaning to Bare Metal.” Consult these consensus standards for specific details and requirements. See also SSPC-SP 3, POWER TOOL CLEANING; SSPC-SP 11, POWER TOOL CLEANING TO BARE METAL, SSPC-VIS 3.

POWER TOOL CLEANING TO BARE METAL
Standard for cleaning steel surfaces for coating described in SSPC-SP 11. See POWER TOOL CLEANING.

POWER WASHERS
Low to medium pressure water cleaning equipment operating at pressures less than 5,000 psi (34 MPa). See POWER WASHING.

POWER WASHING
The use of pressurized water (less than 5,000 psi [34 MPa]) with or without chemical additives, detergents, etc., to remove contamination and debris from a surface. See WATER BLAST CLEANING.

POWER WIRE BRUSH
A power tool with a brush made of knotted or crimped wire bristles in the form of a wheel or a
cup used to clean steel, concrete, or masonry surfaces.

POZZOLAN
A siliceous or siliceous and aluminous material that in itself possesses little or no cementitious value but that will, in finely divided form and in the presence of moisture, chemically react with calcium hydroxide at ordinary temperatures to form compounds having cementitious properties; there are both natural and artificial pozzolans. [ACI]

PRACTICAL COVERAGE
The spreading rate of a paint calculated at the recommended dry film thickness and assuming a normal application loss. [MPDA]

PRE-BID MEETING
A conference between the facility owner representative and contractors held prior to release of a formal specification for a competitively bid painting or other contract. The purposes are to identify specific provisions and to answer contractor questions.

PRECISION
A measure of the agreement between results provided by the repeated use of a test method on the same sample or specimen. The higher the precision the greater the repeatability of the value is.

PRECONSTRUCTION PRIMER
Thin primer coat for steel component, usually applied in a shop prior to construction of a structure, to provide temporary corrosion control during construction.

PRECURSOR
In photochemical terminology, a compound, such as a volatile organic compound, that “precedes” an oxidant. Precursors react in sunlight to form ozone or other photochemical oxidants. [EPA]

PRE-EXISTING CONDITION
State of structure of piece of equipment before coating or other actions begin.

PREFABRICATION PRIMER
Quick-drying material applied as a thin film to a metal surface after cleaning, e.g., by a blast cleaning process, to give protection for the period before and during fabrication. Prefabrication primers should not interfere seriously with conventional welding or cutting operations or give off toxic fumes during such operations. See PRECONSTRUCTION PRIMER.

PRE-JOB CONFERENCE
Conference held before construction work is started to permit the contractor, owner, and other concerned parties to come to a common understanding of all work requirements.

PREMANUFACTURE NOTICE
A notice to the EPA required under the Toxic Substances Control Act. Companies must notify the EPA that they intend to begin manufacturing, using or importing a chemical not already listed on a toxic substances inventory that the agency maintains.

PREMATURE COATING FAILURE
A coating failure that occurs significantly before its expected life.
PRESENT WORTH
Present worth of future cash flows can be evaluated as the amount of money that would have to be set aside today to pay for the future cash flow, considering the interest that can be earned by investing the money.

PRESERVATIVE
Paint additive to prevent growth of microorganisms in the can or on the applied paint film.

PRESSURE DROP
Loss of pressure related to hose diameter, length, or kinking or to leaks at couplings.

PRESSURE-FED ROLLER
See PAINT ROLLER TYPES.

PRESSURE POT
A closed container that provides a uniform flow of material at a consistent pressure to the spray gun in conventional spraying. Available in single and double regulated pressure tanks. The single regulated pot controls only the material flow. The double regulated pressure pot has two controls, one to control material flow and another to control atomization air pressure to the spray gun.

PRESSURE WASHING
See POWER WASHING.

PRESSURIZED WATER REACTOR (PWR)
A nuclear reactor using water cooling at a pressure such that its boiling point is above the highest temperature reached.

PRE-STRESSED CONCRETE
Concrete in which internal stresses of such magnitude and distribution are introduced that the tensile stresses resulting from the service loads are counteracted to a desired degree; in reinforced concrete the pre-stress is commonly introduced by tensioning the tendons. [ACI]

PRETREATMENT
(1) Chemical treatment to prepare a bare metal surface for painting; (2) A wash primer, such as vinyl butyral.

PRETREATMENT WASH PRIMER
See WASH PRIMER.

PREVENTION OF SIGNIFICANT DETERIORATION (PSD)
A policy incorporated into the Clean Air Act that limits any increases in air pollution in clean air areas even though ambient air quality standards are being met. The policy is based on the premise that air of better quality than the ambient air quality standards should be protected.

PREVENTIVE MAINTENANCE PAINTING
Periodic application of a coating to an entire surface or to selected spots to maintain appearance and protection.

PRIMARY CONTAINMENT
(1) The main method of containing a stored product, e.g., a steel storage tank; (2) That portion of a nuclear power plant reactor building housing the nuclear reactor, a Class I area.
**PRIME PIGMENT**
Coating pigment of refractive index of 2.0 or greater that provides color and opacity.

**PRIMER**
First full coat of paint applied to a surface when a multicoat system is being used. Primers provide adhesion to a new substrate (wood, metal, masonry, or concrete), protect the substrate, and aid in the adhesion of additional coats of paint. The type and condition of the substrate and the painting system specified for a job affect the selection of the primer. Primers for steel work may contain special anti-corrosive pigments.

**PROCESS**
(Emergency Planning and Community Right-to-Know regulations.) The preparation of a toxic chemical, after its manufacture, for distribution in commerce: 1) In the same form or physical state as, or in a different form or physical state from, that in which it was received by the person so preparing such a substance; or 2) as part of an article containing the toxic chemical. Process also applies to the processing of a toxic chemical contained in a mixture or trade name product.

**PROCESS SAFETY MANAGEMENT STANDARD**
OSHA standard 29 CFR 1910.119. The purpose of this standard is to prevent fire, explosion, and release of toxic chemicals.

**PROCUREMENT DOCUMENTS**
Documents that describe the general terms and conditions of construction or other contracts.

**PROFILE**
See SURFACE PROFILE.

**PROFILE, ANGULAR**
See SURFACE PROFILE.

**PROFILE COMPARATOR**
See SURFACE PROFILE COMPARATOR.

**PROFILE DEPTH**
See SURFACE PROFILE.

**PROFILE DEPTH GAGE**
See SURFACE PROFILE DEPTH GAGE.

**PROFILE, ROUNDED**
A rounded, cratered profile texture, which can be produced by blast cleaning with a round, shot-like abrasive. See also PROFILE, SHOT ABRASIVE.

**PROFILING**
(1) Producing a surface roughness (profile) by abrasive blasting or power tool cleaning to permit tight bonding of coatings to the substrate. (2) Roughening a surface to promote adhesion of coatings.
PROGRAMMED PAINTING
A systematic process of establishing when maintenance painting is required, what painting is to be done, how it should be done, by whom, and at what time.

PROMOTER
Substance which, if added in small amounts, will increase the activity of a catalyst.

PROPORTIONING PUMPS
Pumps calibrated to mix individual components of a plural component coating in the volume ratios recommended by the coating manufacturer.

PROPOSAL
(1) The publication of a rule in preliminary form in the Federal Register. Usually, comments are invited from the affected public, and the final rule is promulgated only after these comments are considered [EPA]; (2) Contractor’s offer to provide goods and services.

PROPRIETARY
(1) Sold by a commercial company; (2) Having a commercial interest or motivation.

PROTECTION FACTOR
Level of protection provided by a respirator against air-borne toxins. Defined as the ratio of contaminants outside the respirator to the contaminants inside the respirator.

PROTECTIVE LIFE
The length of time a coating system provides protection to a substrate.

PSI
A measure of force per unit area in pounds per square inch; a measure of compressed air pressure or tensile or compressive forces. One psi equals 6.895 kilopascals (kPa).

PSYCHROMETER
An instrument used to determine humidity and dew point. Sling psychrometers measure the wet and dry bulb temperature of air. With the aid of psychrometric tables, these measurements can be used to determine the dew point and relative humidity of the air. Electronic instruments are now available that provide results directly.

PSYCHROMETRIC TABLES
US Weather Bureau Tables originally published by the US Department of Commerce, used to determine the relative humidity and dew point temperature from the dry and wet bulb readings obtained from the sling psychrometer. See also DEW POINT, RELATIVE HUMIDITY.

PULL-OFF ADHESION TEST
See ADHESION TEST, TENSILE (PULL-OFF).

PULL-OFF GAGE
See MAGNETIC PULL-OFF GAGE, TYPE 1; BANANA GAGE; and PENCIL-TYPE PULL-OFF GAGE.

PULL-OFF STRENGTH
Force necessary to pull a bonded probe (loading fixture) from a coated surface in a coating adhesion test.
PULL STUB
Also called a dolly; the loading fixture of an adhesion testing apparatus that is bonded to the coated surface that is being tested.

PUMP RATIO
(1) The ratio of air piston area to fluid piston area, which is the multiplier of input pressure that indicates output pressure; (2) For fluid proportioning pumps in plural component spray rigs, the ratio between two fluid piston output volumes per stroke.

PURGE
To remove undesired material such as residual mixed Components A and B from the mixer/manifold, lines, and the spray gun.

QUALIFIED PRODUCTS LIST
Record of coating systems or other materials that have been approved by the user for the protection of specified surfaces.

QUALIFYING AGENCY
An organization (e.g., certifying agency or facility owner) responsible for sponsorship or operation of a program to ensure uniform compliance with the provisions of a standard.

QUALITATIVE FIT TEST
See RESPIRATOR FIT TEST.

QUALITY ASSURANCE
Steps taken to control measurement and testing processes through the implementation of policies, procedures, and corrective action to assess and assure the quality of analysis and results. [ILPR]

QUALITY CONTROL
The maintenance and statement of the quality of a product (data set, etc.), specifically that it meets or exceeds some minimum standard based on known, testable criteria. [CED]

QUANTAB STRIP
Trade name for a commercial test strip used to determine chloride content of an aqueous solution.

QUANTITATIVE FIT TEST
See RESPIRATOR FIT TEST.

QUICK DRYING
See FAST DRYING.

QUICKLIME
See CALCIUM OXIDE.
RADIATION CURING COATING
A coating formulated so that the curing reaction is produced by projecting electromagnetic radiation (ultraviolet, visible, or infrared light) onto the uncured coating after application.

RADWASTE BUILDING
Building for handling or storage of radioactive waste.

RAIN SPOTTING
Particular case of water spotting caused by rain. [CED]

RATE OF RETURN AFTER TAXES
The interest rate, after taxes, at which money could be borrowed to offset project costs over the life of the project.

RATIO (MIXING)
Proportions, usually by volume, of one material to be mixed with another for a specific purpose (e.g., portions of two-component coatings)

REACTANTS
The original products of a chemical reaction.

REACTION
Chemical transformation or change of reactants. See Reactant.

REACTIVE DILUENT
A coating viscosity reducer that has low volatility and becomes a permanent part of the coating through chemical reaction, usually under ambient conditions. [Painting/Coatings Dictionary] It is used in high solids coatings to reduce the loss of organic solvents into the atmosphere.

REACTIVE PIGMENTS
Those pigments that react with the vehicle, as in the formation of zinc and lead soaps with drying oils.

REACTIVITY
A characteristic exhibited by a solid waste which can be shown by standard tests to do any of the following: readily undergo violent change without detonating, react violently with water, form potentially explosive mixtures with water, generate dangerous quantities of toxic materials when mixed with water or other materials, or one that is capable of detonation or is a forbidden explosive under Department of Transportation regulations.

REASONABLY AVAILABLE CONTROL TECHNOLOGY (RACT)
The lowest emission limit that a particular source is capable of meeting by the application of control technology that is reasonably available, considering technological and economic feasibility. RACT usually is applied to existing sources in nonattainment areas and, in most cases, is less stringent than new source performance standards. [EPA]

REBAR
Colloquial term for reinforcing bar. [ACI] See REINFORCEMENT.
**REBOUND**
In spraying of coatings, the atomized particles that bounce back from the surface being painted. See BOUNCE BACK, OVERSPRAY.

**REBOUND (e.g., SCHMIDT) HAMMER**
Spring-driven device that is rebounded off cured concrete; rebound height is indication of concrete strength.

**RECLAIMED ABRASIVE**
Abrasive that has been retrieved and reprocessed for reuse.

**RECOAT WINDOW (TIME)**
A period beginning at a point when a coat of paint has dried or cured sufficiently to be topcoated and ending when the coating has reached a degree of cure that topcoating is not recommended without an additional surface preparation procedure such as the application of a bond coat or abrading the surface.

**RECORDABLE OCCUPATIONAL INJURIES OR ILLNESSES**
Those injuries or illnesses which result in: 1) fatalities, regardless of the time between the injury and death, or the length of the illness; or, 2) lost workday cases, other than fatalities, that result in lost workdays; or 3) Nonfatal cases without lost workdays which result in transfer to another job or termination of employment, or require medical treatment (other than first aid) or involve loss of consciousness or restriction of work or motion. This category also includes any diagnosed occupational illnesses which are reported to the employer but are not classified as fatalities or lost workday cases.

**RECTIFIER**
An electrical device used to convert alternating current electricity into direct current electricity. Commonly used as a current source in impressed current cathodic protection systems.

**RECYCLABLE ABRASIVE**
Abrasive blasting material such as steel shot and grit that can be cleaned and reused to reduce the total amount of abrasives consumed.

**RECYCLING**
Reusing a material instead of discarding it as waste. Cleaning or other treatment is usually necessary before reuse. See RECYCLABLE ABRASIVE.

**RED IRON OXIDE**
An insoluble inorganic mineral used to impart color and hiding to coatings.
RED LEAD
A reddish-orange, anti-corrosive pigment used in primers for iron and steel, and consisting of lead tetroxide. It is rarely used today because of the hazards of toxic exposure associated with manufacturing, applying, and removing leaded paints.

REDUCED COAT
A coat of thinned paint.

REDUCED SERVICE LIFE
Lessened time during which the coating provides its intended function(s).

REDUCER
A volatile liquid added to a coating, varnish, resin, latex, or emulsion to lower its viscosity and/or nonvolatile content (percent solids). See also THINNER.

REDUCTION
The gain of one or more electrons by an atom or group of atoms in a chemical reaction such as corrosion of metals.

REFERENCE CELL
Standard receptacle containing an electrode and electrolyte used as a point of reference for measuring electrical potentials; used for both sacrificial anode and impressed current cathodic protection.

REFERENCE METHOD
Any method of sampling and analyzing for an air pollutant as specified by the regulations.

REFINING
The branch of process metallurgy dealing with the purification of crude or impure metals.

REFLECTANCE
The ability of a coating film to reflect or return the light that falls upon its surface.

REFLECTIVE CRACKING
Cracking that develops in a polymer system directly over a dynamic crack in the concrete.

REFLECTIVITY
(1) Reflectance which would be attained if a material were completely opaque; reflectance of a layer of material of such thickness that an increase in thickness will not change its reflectance; (2) The reflectance of a film so thick that a further increase in thickness does not change the reflectance. [CED]

REFRACTIVE INDEX
The degree to which a ray of light passing through a material is bent. The refractive index of a material is measured on an instrument called a refractometer. The higher the refractive index of a pigment, the higher is its hiding power when used in paint or enamel.

REFRACTORY
Material resistant to high temperatures [ACI]
REFRACTORY BRICK
Heat-resisting compressed blocks of clay or other earth material hardened by heat.

REGULATED AREA
Area identified by physical markings to demarcate the zone(s) where airborne concentrations of hazardous materials exceed, or can be expected to exceed, the Action Level.

REINFORCED CONCRETE
Concrete containing adequate reinforcement (prestressed or not prestressed) and designed on the assumption that the two materials act together in resisting forces. [ACI]

REINFORCEMENT
(1) Fibers, mesh, or other products used to provide additional strength or ductility to a coating film; (2) Bars, wires, strands, or other slender members which are embedded in concrete in such a manner that they and the concrete act together in resisting forces. [ACI]

RELATIVE HUMIDITY
The ratio of the actual pressure of existing water vapor to the maximum possible (saturation) pressure of water vapor in the atmosphere at the same temperature, expressed as a percentage. [ASTM E 41]

RELEASE
Any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment (including the abandonment or discarding of barrels, containers, and other closed receptacles) of any hazardous chemical.

RELEASE AGENTS
Materials used to prevent bonding of concrete to a surface. [ACI] See FORM RELEASE AGENT.

REMOVED OPERATED VEHICLE (ROV)
An unmanned vehicle fitted with a video camera and/or other equipment that can be used for underwater or in-tank inspection when extreme depth or personnel hazards exist. Pneumatically operated vehicles are used in fuel or other flammable liquids.

REMOVER
See PAINT REMOVER.

REPAINTING
See MAINTENANCE PAINTING, OVERCOATING.

REPLICA TAPE
A specially constructed tape (e.g., Testex PRESS-O-FILM™) used to measure surface profile. The tape is pressed against the surface to produce an impression of the surface profile; then, the impression in the tape is measured with a micrometer. The use of replica tape is described in ASTM D 4417 and NACE RP0287.

REPORTABLE QUANTITY
For any CERCLA hazardous substance, which appears in Table 302.4 of 40 CFR Part 302, the reportable quantity that appears in the table. For any other substance, the reportable quantity is one pound.
REPRESENTATIVE SAMPLE
A sample of material which can be expected to exhibit the average properties of product in a particular container. See SAMPLING OF DEBRIS.

RESERVOIR
Storage tank in which the diameter is greater than the height; the reverse is true for a standpipe.

RESIN
General term applied to a wide variety of more or less transparent and fusible products, which may be natural or synthetic. They may vary widely in color. Higher molecular weight synthetic resins are more generally referred to as polymers. In a broad sense, this term is used to designate any polymer that is a basic binder material for coatings and plastics. See also NATURAL RESIN, SYNTHETIC RESIN. [Painting/Coatings Dictionary]

RESIN EMULSION PAINT
A water-borne paint made of a water emulsion of an oil-modified alkyd or other resin that dries/cures to a tough film of resin. [Painting/Coatings Dictionary]

RESIN, NATURAL
A solid organic substance, originating in the secretion of certain plants or insects, that is thermoplastic, flammable, and nonconductive of electricity, breaks with a conchoidal fracture (when hard), and dissolves in certain specific organic solvents, but not water.

RESIN, SYNTHETIC
Originally, a member of a group of synthetic substances that resemble and share some of the properties of natural resins, but now used for materials which bear little resemblance to natural resins. The term is generally understood to mean a member of the heterogeneous group of compounds produced from simpler compounds by condensation and/or addition polymerization. Chemically modified natural polymers are not considered to by synthetic resins.

RESISTANCE, ELECTRICAL
The opposition that a device or material offers to the flow of direct current, equal to the voltage drop across the element divided by the current through the element. Also called electrical resistance. [ASM]

RESISTIVITY
The electrical resistance offered by a material to the flow of current, times the cross-sectional area of current flow and per unit length of current path; the reciprocal of the conductivity. Also called electrical resistivity or specific resistance. [ASM]

RESISTOR
A component of an electrical circuit that inhibits current flow.

RESOLE
Phenol-formaldehyde resin with reactive methylol groups to permit heat fusion to a hard, chemically resistant coating

RESPIRABLE DUST
Airborne dust in sizes capable of passing through the upper respiratory system to reach the lower lung passages.
RESPIRATOR
A mask covering the user’s breathing zone that either supplies breathable air or filters/absorbs impurities from the ambient air.

RESPIRATOR FIT TEST
Test to assure that a respirator properly fits a user. A qualitative fit test is a “go” / “no go” test that determines whether the respirator wearer has established a good face-to-facepiece seal. A quantitative fit test measures the effectiveness of the respirator fit against a challenge agent. Both tests can be used for half-mask or full-face respirators.

RESPIRATORY PROTECTION
Devices worn when engineering and work practice controls are inadequate to prevent overexposure by inhalation to airborne contaminants.

RESPIRATORY PROTECTION PROGRAM
A written program required of an employer by 29 CFR 1910.134, addressing procedures for the selection and use of respirators, employee instruction and training, and proper respirator storage and inspection. [ILPR]

RESTRICTED WASTE
Waste that is classified as restricted (or special) by state environmental agencies due to the presence of hazardous substance. These wastes are not regulated under RCRA. Paint debris may be classified as a restricted waste if, after testing by the Toxicity Characteristic Leaching Procedure (TCLP), the leachate contains any of the eight metals or other substances in concentrations greater than the detectable limit and less than the limits established in 40 CFR 261, EPA, Identification and Listing of Hazardous Wastes.

RETARDER
A component added to a coating to slow down a particular chemical or physical change. For example, a slowly evaporating solvent may be added to a paint to delay the setting of the coating film after application. [Painting/Coatings Dictionary]

RETICULATION
A surface defect of net-like appearance. [AM]

RETRACTION
See CRAWLING.

RETRIEVAL SYSTEM
The equipment (including a retrieval line, chest or full-body harness, wristlets, if appropriate, and a lifting device or anchor) used for non-entry rescue of persons from permit spaces.

REUSABLE ABRASIVE
An abrasive material that, upon impact, retains most of its size and shape. It can be reused without a reduction in surface profile after each use. [ILPR] Cleaning is normally required before reuse.

REVETMENT
Embarkment used to contain a material in the event of failure of a storage tank or other container.
RHEOLOGICAL MODIFIER
(1) An additive used generally for changing the viscosity or flow of paints; (2) Commonly used synonymously for associative thickeners. [CED]

RHEOLOGY
The subject of fluid flow; the property of fluid flow.

RIGGING
(1) The process of selecting and setting up supports, cables and ropes, and scaffolding systems to provide safe access to an elevated work area; (2) The cables, ropes, and related equipment used with scaffolding.

RIGHT-TO-KNOW REGULATION
See HAZARD COMMUNICATION STANDARD.

RING EXTRUSION PROCESS
A method for extruding thermoplastic coatings onto pipe. In this method, the die slit encircles the advancing pipe and the thermoplastic is extruded without seams as a plastic pipe over the steel pipe. Compare SIDE EXTRUSION PROCESS.

RISER PIPE
An upright pipe such as used to conduct water upward to an elevated water storage tank.

RIVETED CONNECTION
A joint in which the assembled elements and members are united by rivets. A bolted joint differs from a riveted one only in the use of high strength bolts as the uniting medium instead of rivets. [B]

RODDING
(1) Consolidation of concrete by means of a tamping rod [ACI]; (2) Inserting a rod into a heat exchanger tube or other structural configuration difficult to clean otherwise.

ROLLER
See PAINT ROLLER.

ROLLING SCAFFOLD
See SCAFFOLD, ROLLING.

ROOM TEMPERATURE
An indoor temperature generally between 68 and 77°F (20 and 25°C).

ROPE
A long cord made from natural fibers (e.g., manila hemp), synthetic fibers (e.g., nylon), or steel strands (wire rope or cable). Rope comes in different diameters and strengths. In the painting industry, rope is used primarily for rigging and scaffolding.

ROPEY
A quality of paint that does not flow out evenly and dries with slight ridges. This effect also can be the result of poor workmanship.
ROPY FINISH
See BRUSH MARKS.

ROSIN
A natural resin obtained from pine oleoresin after removal of the volatile fractions. Two general kinds of rosin are commercially available: gum rosin obtained from living trees, and wood rosin obtained from dead wood, stumps, and knots. [Painting/Coatings Dictionary]

ROTARY PEENER
An impact power tool that uses rotating action to impact different shapes of heavy-duty steel cutters against a steel or concrete surface to remove heavy coatings and contaminants. Rotary peeners also can be used to grind concrete. Commonly used types of cutters are cutter bundles or “stars,” rotary hammers, and rotary flaps or “roto peens.”

RUNNING
See SAGGING.

RUNS
Irregularities of a surface due to uneven flow, frequently due to application of a coat that is too heavy and not brushed out well. Also known as “sags” or “curtains.” [MPDA] See SAGGING.

RURAL ENVIRONMENT
An atmospheric exposure that is virtually unpolluted by smoke and sulfur gases, and that is sufficiently inland to be unaffected by salt contaminations or the high humidity of coastal areas.

RUST
An iron oxide that forms naturally on ferrous metals as a result of exposure to normal weathering or industrial atmospheres.

RUST-BACK (RERUSTING)
Rusting that occurs when freshly exposed, dry, bare steel is exposed to conditions of high humidity, moisture, or a corrosive atmosphere. It is the term used when steel cleaned by dry abrasive blasting, power tools, or wet abrasive blasting begins to rust after the steel surface has completely dried. This is different than FLASH RUST.

RUST BLOOM
Discoloration indicating the beginning of rusting. [ASTM/NACE]

RUST CONVERTER
Chemical product designed to change existing rust to a condition that is suitable for coating.

RUST GRADE
The amount of rust present on a steel surface within in a specified area, expressed in SSPC-VIS 2 as a combination of a percentage of area rusted and the dispersion of the rust within that area. For example Rust Grade 3-P defines an area with rust over 16 percent of the area in a pinpoint dispersion.

RUST RATING SCALE
A scale that rates degree of rusting from 10 (perfect) to 0 (100 percent failure) for use in evaluating a coating’s extent of rusting. For more information, see the standards SSPC-VIS 2 and ASTM D 610.
SACRIFICIAL ANODE SYSTEM
A cathodic protection system that uses the potential difference between a more active metal and the structure to be protected to force the charge responsible for the mitigation of corrosion flow into the circuit.

SACRIFICIAL PIGMENT
A pigment which is anodic to steel and therefore consumed by corrosion while it protects an underlying steel surface. Zinc dust is the only sacrificial pigment commonly used in paint.

SACRIFICIAL PROTECTION
(1) The use of a metallic coating, such as galvanizing or zinc-rich paint, to protect steel. In the presence of an electrolyte, such as salt water, a galvanic cell is set up and the metallic coating corrodes instead of the steel. [Painting/Coatings Dictionary]; (2) The use of galvanic anodes to protect immersed metals such as ship bottoms. See also GALVANIC CORROSION, GALVANIC PROTECTION.

SAFETY
A reasonable certainty that injury that will not result when a substance or object is used in a particular quantity and manner. Note that properly speaking, there are no safe materials or objects, only safe ways of using them. Note also that safety is not absolute, it is only relative, analogous to the “beyond a reasonable doubt” of the legal profession.

SAFETY AND HEALTH LIBRARY
Librarians can create detailed bibliographies; In addition, they can look up specific facts and answer questions right over the phone. (630) 285-1121, ext. 2199 or 2194.

SAFETY BELT
A device worn around the waist which, by reason of its attachment to a lanyard and lifeline or a structure, will prevent a worker from falling. A body harness is now required in place of the belt.

SAFETY HARNESS
See BODY HARNESS.

SAFETY NET
A protective net suspended under a person working at a height. Safety nets are required where the use of ladders, scaffolds, and fall protection equipment is impractical and the work area is no more than 30 feet (9.1m) under the walking/working surface on which employees are working.

SAG RESISTANCE
The ability of a wet paint film to resist the downward flow that results in an uneven film with thick edges and runs. See also RUNS.

SAGE
See SOLVENT ALTERNATIVE GUIDE.
**SAGGING**
(1) The irregular downward flow of wet paint under the force of gravity to produce a thicker lower edge. Thus, denser, thicker, and lower viscosity coatings are more likely to sag; (2) Subsidence of shotcrete, plaster, or the like, due generally to excessive water in the mixture; also called sloughing. [ACI]

**SALT**
An ionic compound formed in the chemical reaction between an acid and a base.

**SALT FOG RESISTANCE**
Resistance to deterioration during salt spray testing. See SALT SPRAY TEST in main glossary.

**SALT, SOLUBLE**
An ionic chemical compound that dissolves in water to form a solution of positive and negative ions. Sea water, deicing products, process chemicals, and industrial air are typical sources of soluble salts. Soluble salts can induce blistering to coating applied over them.

**SALT SPRAY TEST**
Test used to evaluate the anti-corrosive properties of a coated steel panel. It sometimes is called a “salt fog test” because a fine mist or fog of common salt (sodium chloride) solution is sprayed on the surface. The test is described in ASTM B 117, Standard Method of Salt Spray (Fog) Testing.

**SAMPLE**
A selected representative or specimen used to acquire knowledge or data about the entity from which it was taken. See REPRESENTATIVE SAMPLE, SAMPLING OF DEBRIS.

**SAMPLING OF DEBRIS**
Methods for obtaining representative samples of debris to determine whether they contain hazardous materials. Methods include simple random sampling, stratified random sampling, authoritative sampling, and systematic random sampling. These methods are defined in EPA manual SW-846. [ILPR]

**SAND ABRASIVE**
See SILICA SAND ABRASIVE.

**SAND BLAST CLEANING**
Blast cleaning a surface with silica sand, flint, or other crystalline silica abrasives, normally to remove dirt, paint, rust, or mill scale and to roughen it in preparation for coating. See also ABRASIVE BLAST CLEANING.

**SANDING**
(1) Smoothing a rough surface by hand or machine with sandpaper or nonwoven abrasive pad to achieve a better finish; (2) Roughening a smooth surface to improve adhesion of a coating.

**SANDING DISC**
Flat, circular, powered implement used to abrade a surface.

**SANDPAPER**
A strong paper coated with silica, silicon carbide, or other abrasive material. Sandpaper can be used to smooth and improve the appearance of a surface that is too rough. It also can be used to roughen a surface that is too smooth in order to improve the adhesion of a coat of paint.
SANDY FINISH
A surface condition having the appearance of sandpaper; overspray. [AM]

SAPONIFICATION
Alkaline hydrolysis of fats to form soaps.

SAPONIFICATION, COATING
The alkaline hydrolysis of coating binders (usually their drying oils) to disbond and degrade them. This commonly occurs on the alkaline surfaces of concrete and galvanizing.

SARA TITLE III
See EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT.

SATURATED AIR
Air containing a maximum concentration of water vapor for the prevailing temperature and pressure. See also DRY AIR, WET AIR.

SCAFFOLD
Equipment in a variety of types, sizes, and rigging configurations used to support workers, materials, and equipment at elevated or otherwise inaccessible work sites.

SCALING
Paint failure that causes a coating to fall off in flakes or chips. Scaling is the last stage of cracking. Moisture entering cracks in the paint film destroys its adhesive property and results in the flaking or scaling of the paint. [PDCA]

SCALING HAMMER
Tool used to remove corrosion products and other undesired materials from metal surfaces by impact.

SCARIFYING
A method of mechanically preparing concrete or other surfaces for coating. Scarifiers are sharp rotating knives in a self-contained unit resembling a plant sweeper.

SCHMIDT HAMMER
An apparatus (also called a rebound hammer) that provides a rapid indication of the mechanical properties of concrete, particularly compressive strength, based on the distance of rebound of a spring driven plunger. Also called a rebound hammer. [ACI]

SCISSORS LIFT
An elevating device that raises a work enclosure vertically by means of crisscrossed supports similar to those on a scissors car jack.

SCRAPER
A hand tool used to scrape peeling, flaking, or blistering paint, rust, and other debris from surfaces before painting. Scrapers come in many types, shapes, and sizes that are designed for general use or for specific applications.
SCRATCH HARDNESS
Resistance of a material to scratching in determining coating hardness by pencil testing (ASTM D 3363); the scratch hardness is defined by the hardest pencil that will not scratch the film. See also GOUGE HARDNESS.

SCREED
Tool used to remove excess concrete to fill a form evenly.

SCREENING
See SIEVING.

SCREWDRIVER TEST
Method of determining soundness of concrete by dragging a screwdriver across it.

SCRUB RESISTANCE
The ability of a coating to resist being worn away or to maintain its original appearance when rubbed repeatedly with an abrasive material. Typically, the rubbing procedure can employ a brush, sponge, or cloth, wetted with an abrasive soap solution, in which case it is more accurately referred to as wet scrub resistance. Syn: Wet abrasion resistance. [CED]

SCUPPER
Also called a curb inlet; an opening in the floor portion of a bridge, commonly located adjacent to the curb to provide means for rain or other water accumulated upon the roadway surface to drain through it into the space beneath the structure. [B]

SEALANT
See SEALING COMPOUND.

SEALER
(1) A coating that provides a seal against absorption or bleeding (2) A thin paint coat, typically applied at a thickness of about 38 µm (1.5 mils) which is designed to be absorbed into the pores of a thermal spray coating.

SEALING COMPOUND
A liquid that is applied as a coating to the surface of hardened concrete to either prevent or decrease the penetration of liquid or gaseous media, e.g., water, aggressive solutions, and carbon dioxide, during service exposure. [ACI]

SECONDARY CONTAINMENT
A second or back-up containment vessel surrounding a primary containment vessel, large enough to contain all the product in the primary containment vessel should it fail.

SECONDARY CONTAINMENT COATING
A coating, lining, or topping material applied to a secondary containment vessel to provide an impermeable barrier and prevent environmental contamination in the event of an accidental discharge from the primary containment vessel.

SEDIMENTATION
Action or process of depositing matter (sediment) that settles to the bottom of a liquid.
SEGREGATION
(1) nonuniform concentration of components in concrete or mortar; or (2) nonuniform distribution of size fractions in a mass of aggregate.

SELENIUM
A non-metallic element. Selenium compounds have been used as fungicides. Selenium pigments are considered by some authorities to be hazardous.

SELF-CURING COATING
A coating that cures (crosslinks) without any special treatment after application.

SELF-LEVELING
The ability of a wet coating or concrete topping to form a uniformly flat or level surface.

SELF-LEVELING FLOORING
Resinous or polymer cementitious materials that flow out over a concrete slab to seek their own levels; they usually require termination strips rather than key-in terminations.

SELF-PRIMING
A paint that can be used, perhaps in different consistencies, both to prime and to coat a surface.

SEMIGLOSS
A gloss range between high gloss and eggshell, approximately 35 to 70 on the 60-degree gloss scale. See also GLOSS, GLOSS METER. [Painting/Coatings Dictionary]

SENSITIZATION
A state of immune-response reaction in which further exposure elicits an immune or allergic response. A person previously exposed to a certain material is more sensitive when further exposed to it if that person had been sensitized to it originally. [CED]

SEPARATORS (OIL AND/OR WATER)
Equipment used to remove oil and/or water from air streams or other systems.

SERVICE ENVIRONMENT
The conditions to which a coating is exposed. Typical service exposures include atmospheric, water immersion, marine, industrial, high temperature, etc.

SERVICE LIFE
Period of time during which a coating provides its intended function.

SETTING UP
Conversion of a liquid paint during storage or after mixing to a gel-like or pseudosolid condition. The process is usually reversible by agitation and thinning but may be permanent when chemically reactive pigments or highly polymerized media are involved. The thickening which occurs when paint stands in an open can. The increasing viscosity of a paint film.

SETTLEMENT POND
Pond where sedimentation takes place.

SETTLING
The sinking of pigments, extenders, and other solid matter in paint in a container, with subsequent accumulation on the bottom of the can.
**SET-TO-TOUCH TIME**
The time required for wet paint or varnish to reach the point where none of the coating sticks to a finger that touches it.

**SHADOWING**
A coating of paint showing through a subsequent coating.

**SHEAR (STRAIN)**
Force or stress to a solid or liquid that causes its displacement.

**SHEET LINER**
A liner for a tank, vessel, or pot that is constructed from sheets of pre-fabricated material.

**SHELF LIFE**
The amount of time a coating or other material remains in usable condition during storage.

**SHERADIZING**
Deposition zinc powder onto cleaned steel by tumbling action.

**SHIM**
(1) A thin strip of non-magnetic plastic, metal, or other material of known uniform thickness used to calibrate coating dry film thickness gages; (2) A strip of metal, wood, or other material employed to set base plates or structural members at the proper level for placement of grout, or to maintain the elongation in some types of post-tensioning anchorages. [ACI]

**SHIP BOTTOM PAINT**
Anti-corrosive and anti-fouling coating for ships’ underwater hulls.

**SHIBORI**
A dyeing technique using a transfer printing process.

**SHIPBUILDING STANDARDS**
OSHA standard in 29 CFR 1915, Personal Protective Equipment for Shipyard Employment, concerning activities such as ship repair, ship building, and ship breaking.

**SHOP COAT(S)**
Coat(s) of paint applied to a surface or fabricated article in a shop before shipment to a job site.

**SHOP PAINTING**
Conducting surface preparation and coating applications within a shop facility.

**SHORT OIL ALKYD RESIN**
Alkyd binder made with a relatively low oil-to-alkyd resin ratio. These products contain less than 40 percent oil as a modifying agent. See also LONG OIL ALKYD RESIN, MEDIUM OIL ALKYD RESIN.

**SHORT-TERM EXPOSURE LIMIT (STEL)**
Maximum quantity or concentration of toxic material in working environment for limited working times, usually 15 minutes.
SHOT ABRASIVE
Smooth, rounded abrasive normally made of steel. See CHILLED IRON ABRASIVE and STEEL ABRASIVE.

SHOT BLAST CLEANING
Abrasive blast cleaning with cast steel shot or any material that maintains a spherical shape. See also SHOT ABRASIVE, ABRASIVE BLAST CLEANING.

SHOT BLASTING
See SHOT BLAST CLEANING.

SHOTCRETE
Mortar or concrete pneumatically projected at high velocity onto a surface; also known as air-blown mortar, pneumatically applied mortar or concrete, sprayed mortar, and gunned concrete. [ACI] Gunite is a proprietary term for shotcrete.

SHOT PEENING
Use of propelled metallic shot in a manner similar to shot blast cleaning except that the main purpose is not to clean a surface but to impart residual compressive stresses to improve fatigue properties of the metal and to minimize intergranular and stress corrosion cracking.

SHRINKAGE
The roughening of the surface of a coating resulting in loss of gloss or wrinkle.

SHUNT
A circuit component with low electrical resistance. Commonly used as an element to measure current flow by measuring the potential difference across the shunt that is caused by the current flow.

SIDE EXTRUSION PROCESS
A method for extruding thermoplastic coatings onto pipe. In this process, the thermoplastic coating is extruded from a straight slit in a die located beside the revolving and advancing pipe. The extruded coating forms a hot ribbon of plastic that flows onto the pipe surface as a spiral wrap, the edges of each ribbon melting into and fusing with the edge of the adjacent ribbon. Compare RING EXTRUSION PROCESS.

SIEMENS
The SI unit of electrical conductance equal to the reciprocal of the ohm.

SIEVE ANALYSIS
A procedure for determining the size distribution of a blast cleaning abrasive or other particulate matter based on the percentages of material that are retained on and passed through one or more standard screens.

SIEVE SIZE
Size of an abrasive or other particulate matter determined from ability to pass through a series of differently sized standard screens; the lowest screen size through which it will pass. The sieve number describes the number of openings in a linear inch of sieve mesh, e.g., a number 4 sieve has four openings per linear inch, each approximately 1/4 inch wide.
SIEVING
A process in which blast cleaning abrasive or other particulate material is passed through one or more screens and classified according to particle size. The terms grading, sizing, or screening also are used to describe this process.

SIGNIFICANT DETERIORATION
Pollution from a new source in a previously clean area, that is an increase in air pollution in an area meeting a national ambient air quality standard beyond the allowable increments established by the Congress or EPA.

SILICA
An extremely common mineral found in a number of forms. Sand is predominantly silica and chronic or acute exposure to the silica dust generated by blast cleaning using silica sand abrasive can cause a debilitating disease known as silicosis. Silicates (compounds containing silica) are also the predominant component of clay, diatomaceous earth, mica, and talc, which are widely used as extender pigments. With the exception of clay, all have been demonstrated to produce fibrosis of the lung.

SILICA GEL
A regenerative moisture absorbent consisting of the amorphous silica manufactured by the action of HCl on sodium silicate. Hard, glossy, quartz-like in appearance. Used in dehydrating and in drying and as a catalyst carrier. [CED]

SILICA SAND ABRASIVE
A blast cleaning abrasive manufactured from material consisting predominantly of the mineral quartz, which is washed, dried, and screened (sieved). Exposure to breathable sizes of crystalline silica (10 microns or less) can cause silicosis, a progressive lung disease. See also NON-METALLIC ABRASIVE.

SILICATE
Any member of the very widely occurring compounds characterized by the presence of the elements silicon, oxygen, and one or more metals with or without hydrogen (e.g., talc). [CED]

SILICATE PAINT
Inorganic paint based on hydrolysis of sodium, potassium, lithium, or ethylsilicate, commonly zinc-rich. Used as binders for zinc-rich paints. They are characterized by their nonflammability. Care must be exercised in the selection of pigments used with the silicate because of its alkalinity.

SILICATE RESIN
Polymer product with high temperature resistance based upon the hydrolysis of alkali silicates (e.g., potassium silicate) or alkyl silicates (e.g., ethyl silicate); used mostly for inorganic zinc-rich coatings.

SILICONE
One of a class of silicon-containing compounds comprising polymerizable, high-temperature-resistant resins, lubricant greases, and oils, organic solvent-soluble water repellants, surface tension modifiers for organic solvents, etc.

SILICONE ALKYD COATING
Coating with alkyd resin that has been modified with silicone.
**SILICONE COATING**
Class of coating with silicon-containing polymers with high temperature resistance based upon the hydrolysis of alkali or alkyl silicates.

**SILICONE RESIN**
Inorganic polymer product with high temperature resistance, based on the hydrolysis of alkali or alkyl silicate.

**SILICOSIS**
A chronic disease of the lungs caused by the continued inhalation of silica dust. [CED]

**SILKING**
A surface defect characterized by parallel hair-like striations in coated films. [AM]

**SINGLE COMPONENT SPRAY SYSTEM**
Coating application system that uses a single pump to force the pre-mixed coating through the hose to the spray gun.

**SINGLE-PACKAGE COATING**
A coating that can be stored in a single container, as opposed to a multi-package coating. See also MULTI-PACKAGE COATING.

**SINGLE-POINT RESPONSIBILITY**
Agreement for contractor to maintain coated structures in satisfactory condition for a specified period of time.

**SISSING**
See CISSING.

**SIZING**
To separate according to size. See also SIEVING.

**SKIN**
A solid or semisolid membrane that sometimes forms on paint or varnish in the can.

**SKIN TANKS**
On ships, tanks constructed just inside the hull for ballast, fuel oil, and void spaces. Some tanks are bounded by the side shell or bottom plating. The shell of the vessel is often referred to as the skin of the vessel. The significance is that these tanks can contain hot oil or cold water which influence the temperature of the steel of the outside surface.

**SKINNING**
Formation of a thick film (skin) on the surface of a liquid paint during storage, more likely to occur to a previously opened or partially filled container.

**SKIP WELD(S)**
Welds on metal components that are intermittent rather than continuous.

**SKIPS**
Holidays; misses; uncoated areas; voids. [AM]
SLAG ABRASIVE
A blast cleaning abrasive made from slag produced by metal-smelting operations or by coal-fired boilers and power plants. Most slags are processed by quenching in water, crushing when necessary, washing, and screening to produce an acceptable abrasive. Slag abrasive manufactured by an air-cooling process has a different mineral structure. The quality and durability of the abrasive depends upon the processing and can vary widely from batch to batch and from source to source. Typical slag abrasives include copper and nickel slag from metal smelting and coal slag from electric power generation.

SLING PSYCHROMETER
A psychrometer with wet bulb and dry bulb thermometers and a swivel handle that allows the instrument to be whirled through the air to obtain constant wet and dry bulb temperature readings. These temperatures can be used with psychrometric tables to determine the relative humidity and dew point. See PSYCHROMETER.

SLIVERS
Small, slender, often sharp surface protrusions that are formed on steel during the rolling process. See also LAMINATIONS.

SLOW DRYING
A coating that requires more than 24 hours to dry under ambient conditions.

SLOW SOLVENT
Solvent which evaporates slowly.

SLUDGE
Muddy sediment or deposit; precipitated solid matter produced during water or waste water treatment.

SLUMP
A measure of the consistency of freshly mixed concrete, mortar, or stucco equal to the subsidence measured to the nearest 1/4 inch (6 mm) of the molded specimen immediately after removal of the slump cone. [ACI]

SLURRY
A pourable mixture of liquid, generally water, and any finely divided insoluble solid such as pigment, extender, or Portland cement. [CED]

SLURRY BLASTING
Surface preparation method using pressurized air to propel abrasive slurry. See WET ABRASIVE BLAST CLEANING.

SLURRY/BROADCAST FLOORING
Slurry flooring into which aggregate is broadcast to saturation.

SLURRY FLOORING
Generally, 100% solids or Zero VOC chemically cured resins, incorporating use of inert fillers or powders, producing a flowable, but not necessarily self-leveling mixture. Slurry floor materials are usually troweled to the thickness of the largest aggregate in the material.
SMALL QUANTITY GENERATOR (SQG)
A generator who generates between 100 and 1000 kilograms (between 220 and 2,200 pounds or about 300 gallons) of hazardous waste and no more than 1 kg of acutely hazardous waste in a calendar month. Most hazardous waste regulations apply to these generators.

SMOG
Common name for the visible, irritating haze that results from air pollution containing photochemical oxidants. [EPA] See also PHOTOCHEMICAL OXIDANT.

SODIUM BICARBONATE ABRASIVE
A blast cleaning abrasive made of granulated sodium bicarbonate. See also SODIUM BICARBONATE BLAST CLEANING.

SODIUM BICARBONATE BLAST CLEANING
A wet blast or dry cleaning process in which granulated sodium bicarbonate is propelled to a surface by air or water pressure.

SODIUM HYPOCHLORITE
Alkaline compound in bleach solution (household bleach) used to disinfect and kill mildew and other microorganisms, frequently before painting surfaces. See BLEACH SOLUTION.

SODIUM SULFIDE SPOT TEST
Qualitative chemical spot test for detecting the presence of lead in a coating. An aqueous solution of sodium sulfide is applied to a surface, and a reaction occurs between lead ion and sulfide ion to form black lead sulfide. The user observes the test area for a gray/black color that forms if lead is present. [ILPR]

SOIL
Materials such as dirt, dust, or grease that diminish the appearance properties of a surface.

SOIL CORROSION
An electrochemical process that is responsible for corrosion of metals in contact with soil. It can be controlled by isolating a metal structure from the soil and by cathodic protection.

SOIL LEAD LEVEL
The total lead in soil determined by atomic absorption spectroscopy or inductively coupled plasma atomic emission spectroscopy. Note that this value represents the total lead in soil rather than the leachable lead. (Leachable lead is used to establish whether debris is a hazardous waste.) [ILPR]

SOILING
See DIRT ACCUMULATION.

SOLIDS
Nonvolatile matter in a coating composition; the ingredients of a coating composition that, after drying, are left behind and form the dry film. See also NONVOLATILE MATTER. [Painting/Coatings Dictionary]

SOLIDS BY VOLUME
The volume of the nonvolatile portion of a coating composition divided by the total volume of the liquid coating, expressed as a percent. [Painting/Coatings Dictionary]
**SOLIDS BY WEIGHT**
The weight of the nonvolatile portion of a coating composition divided by the total weight of the liquid coating, expressed as a percent.

**SOLID WASTE**
Any material not exempted under hazardous waste regulations (including solids, liquids and contained gas) which is discarded.

**SOLUBLE SALT CONTAMINANTS**
Water-soluble inorganic compounds (such as chlorides and sulfates) that contaminate a surface or product. When soluble salts are present on a steel surface prepared for coating, they may cause premature coating failure, particularly by osmotic blistering. Soluble salt contaminants are sometimes referred to as “ionic contaminants” or “non-visible” contaminants.

**SOLVENT**
(1) Liquid, usually volatile, used in the manufacture of paint to dissolve or disperse the film-forming constituents. Since they evaporate during drying, solvents do not become part of the dried film. Solvents are used to control the consistency and character of the liquid paint material and to regulate its application properties [Painting/Coatings Dictionary]; (2) Liquid used to dissolve and remove oil, dirt, grease, soil, and waxes from metal surfaces. See also THINNER, SOLVENT CLEANING.

**SOLVENT ALTERNATIVE GUIDE (SAGE)**
SAGE is a comprehensive guide designed to provide pollution prevention information on solvent and process alternatives for parts cleaning and degreasing. SAGE does not recommend any ozone depleting chemicals. http://clean.rti.org/index.cfm.

**SOLVENT BALANCE**
The proportion of solvent types in a coating that produces adequate solvency and proper evaporation rate for satisfactory film formation.

**SOLVENT-BORNE COATING**
Coating formulated primarily with organic solvents. If water is present, it is only in trace quantities.

**SOLVENT CLEANING**
The use of organic solvents, detergents, alkaline cleaners, and steam cleaning to remove oil, grease, dirt, soil, and other, similar organic compounds from a surface. The specification SSPC-SP 1, “Solvent Cleaning,” is a consensus standard covering the procedures necessary for solvent cleaning of steel surfaces. Consult the document for specific details and requirements. See also SSPC-SP 1, SOLVENT CLEANING.

**SOLVENT CUT-BACK**
An asphalt or coal tar bitumen that is dissolved in a suitable aliphatic or aromatic hydrocarbon solvent to lower its viscosity for application at ambient temperatures.

**SOLVENT ENTRAPMENT**
The failure of solvent to completely evaporate from a paint film due to inadequate drying conditions and/or recoating too soon. It may cause blisters or pinholes, sometimes called “solvent pop,” to form.
**SOLVENT IMBALANCE**
A proportion of solvent types in a coating that causes inadequate solvency or improper evaporation rates.

**SOLVENT-LESS COATING**
(1) A paint formulation with no materials that evaporate during application and curing; 100 percent solids coatings; (2) A paint formulation that contains no products defined as VOCs.

**SOLVENT POP**
See SOLVENT ENTRAPMENT, POPPING.

**SOLVENT RELEASE**
A coating that allows solvents to evaporate easily during the curing process is said to have good solvent release properties.

**SOLVENT RESISTANCE**
The ability of a coating to withstand solvent attack, solution, or disfigurement. See SOLVENT RUB TEST. [CED]

**SOLVENT RUB TEST**
A practice for assessing the solvent resistance and/or cure of an organic coating that chemically changes during the curing process. ASTM D 4752 is the commonly used solvent test for curing of ethyl silicate zinc-rich primer. [CED]

**SOLVENT SHOCK**
The situation wherein some of the protective vehicle is washed off the fine pigment particles, allowing them to pull together into clusters or flocs or when flocs of resin form due to dilution with a solvent or diluent of insufficient strength. [CED]

**SOLVENT WASH**
See SOLVENT CLEANING.

**SOUNDNESS**
A qualitative measure of the suitability of the concrete to perform as a solid substrate or base for a coating or patching material. Sound concrete substrates usually exhibit strength and cohesiveness without excessive voids or cracks.

**SPALL**
A fragment, usually in the form of a flake or peel, detached from a larger mass such as concrete by weathering, a blow, or interior expansion; also, to form a spall.

**SPALLING**
The chipping or fragmenting of a surface or surface coating caused, for example, by differential thermal expansion or contraction. [MPDA]. Spalling of a concrete surface also may result from corrosion of rebar or other embedded steel.

**SPAR VARNISH**
A very durable varnish formulated for use in severe environments such as ship exteriors.
SPARK TEST
See HOLIDAY DETECTOR, HIGH VOLTAGE TYPE.

SPATTER (CONCRETE)
Surface deposits from splattered concrete mix.

SPATTER COATING
An incomplete or not continuously wet coating caused by a faulty spray painting application.

SPECIFICATION
A word that is used in several ways in the coatings industry. The term “job specification” refers to the written, legal document, usually part of a contract, that precisely describes an item of work that is to be accomplished. Many technical organizations prepare documents called specifications that describe products, procedures, or conditions. For example, SSPC’s Painting Manual Volume 2 includes over a hundred frequently cited specifications covering surface preparation, abrasives, paints and paint systems, and paint application. Military, federal, state, and other agencies also have paint and related specifications. The Army and Navy also have documents called “guide specifications” (formerly called “type specifications”) which are called “engineering standards” by private industry.

SPECIFIC GRAVITY
The ratio of weight of a given volume of material to the weight of an equal volume of water at the same temperature. [MPDA]

SPECKLING
See MOTTLING.

SPECULAR GLOSS
Reflection of light in one path, as from a mirror, as opposed to diffuse reflection in all directions.

SPIKED (PORCUPINE) ROLLER
Roller for spreading floor coatings and removing entrapped air bubbles.

SPILLWAY
A passage system for surplus water to pass over or around a dam or similar structure.

SPIRAL WRAP
The technique for application of continuous ribbon or tape to a length of a pipe. The ribbon is positioned at an angle (less than 90 degrees) to the axis of the pipe such that each revolution of wrap results in one side of the ribbon being applied over the previous wrap and the other side being applied to bare pipe surface. The amount of overlap is governed by the width of the ribbon and the angle the ribbon makes with the pipe. Compare CIGARETTE WRAP.

SPASH ZONE
Area on ship or fixed marine structure subject to frequent splattering by water.

SPONGE JETTING
Air abrasive blasting using particles of sponge which may be embedded with hard abrasive such as garnet, steel grit, or aluminum oxide.
SPOON COVE
Cove of 1 inch diameter; see Coving (cove).

SPOT BLAST
Localized abrasive blast cleaning as used in surface preparation for maintenance painting.

SPOT PRIMING
Application of primer paint to localized spots where the substrate is bare or where additional protection is needed because of damage to or deterioration of a former coat.

SPOT REPAIR
Localized repair of deteriorated coating or substrate.

SPOT TEST FOR LEAD
See SODIUM SULFIDE SPOT TEST.

SPOTTING
Development of small areas on a painted surface which differ in color or gloss from the major portion of the work. [CED]

SPRAY APPLICATION
See SPRAYING.

SPRAY BOOTH
A room or enclosure specifically designed to isolate overspray and fumes resulting from the application of coatings by spray. The booth should be constructed from metal or other fireproof material, and all electrical fittings should be explosion-proof. There are two types of spray booths: the dry type or water wash type. A dry spray booth uses filters, while a water wash spray booth uses water spray. It is typically used to coat small fabricated items or test panels.

SPRAY GUN
A tool designed for the spray application of paint or coating material. See SPRAYING.

SPRAY HEAD
The fluid needle, fluid tip, and air cap of an air spray gun.

SPRAY LIFE
Time from initial mixing until a plural-component coating can no longer be sprayed to an acceptable finish.

SPRAY MOTTLE
See ORANGE PEEL.

SPRAY NOZZLE
The fluid orifice of an airless spray gun.

SPRAY PATTERN
Shape of the area where atomized paint is deposited during air or airless spray application.

SPRAY POT
(1) A pressurized tank that supplies paint to an air spray gun. A spray pot is sometimes equipped
with an air-driven agitator to prevent settling of the pigment components of the paint; (2) A small paint reservoir, commonly known as a cup, that is attached to a light-duty, suction-fed air spray gun.

**SPRAYING**
An application method in which coating material is sprayed onto a surface after being atomized, usually by a compressed air jet (air spray) or by direct pressure flow through a small orifice nozzle (airless spray). See also AIR SPRAYING, AIRLESS SPRAYING, AIR-ASSISTED AIRLESS SPRAYING, ELECTROSTATIC SPRAYING, PLURAL COMPONENT SPRAYING, THERMAL SPRAYING.

**SPREADER ADJUSTING VALVE**
The valve on a conventional air spray gun that controls the air to the horn holes in the air cap for regulating the size of the spray pattern.

**SPREADING RATE**
The area of surface covered per coat of paint at a specified dry film thickness per unit volume of coating material. Spreading rate generally is indicated by square feet covered per gallon or square meter covered per liter of paint.

**SQUARING UP**
Cutting around a section of deteriorated concrete with straight cuts that have all angles between adjacent cuts at least 90 degrees.

**SQUEEGEE**
Blade, usually rubber, set with a handle used to spread materials smoothly across a surface.

**SSPC-PA 1, SHOP, FIELD, AND MAINTENANCE PAINTING**
SSPC’s Paint Application Specification No. 1. The specification covers procedures for painting steel surfaces after the selection of the coating material has been made. It does not cover surface preparation, pretreatments, or selection of primers and finish coats. SSPC-PA 1 is intended to be used for steel which, because of its exposure condition, will be subjected to corrosive attack, either from the weather or from the service environment, and where a high quality of cleaning and painting is essential.

**SSPC-PA 2, MEASUREMENT OF DRY PAINT THICKNESS WITH MAGNETIC GAGES**
SSPC’s Paint Application Specification No. 2. The specification describes the procedures to measure the thickness of a dry film of a nonmagnetic coating applied on a magnetic substrate using a magnetic gage that is nondestructive to the film.

**SSPC-PA GUIDE 3, A GUIDE TO SAFETY IN PAINT APPLICATION**
SSPC’s Paint Application Guide No. 3. This guide defines methods and practices that are most practical in maintaining safety during application of protective coatings on steel structures. The objective of the guide is to itemize basic actions and care that should be considered while working in or on access facilities, using professional tools to apply materials having potential hazards.

**SSPC-PA GUIDE 4, GUIDE TO MAINTENANCE REPAINTING WITH OIL BASE OR ALKYD PAINTING SYSTEMS**
SSPC’s Paint Application Guide No. 4. This guide outlines the components of a complete...
maintenance repainting system. It covers the steps necessary for repainting steel structures, which previously were painted with oil base, alkyd, or other conventional oleoresinous paint systems, using the same generic paint system as the existing one.

**SSPC-PA GUIDE 5, GUIDE TO MAINTENANCE PAINTING PROGRAMS**
SSPC’s Paint Application Guide No. 5. The guide covers procedures for planning and carrying out a maintenance painting program for steel and other structures to prevent corrosion and maintain appearance. It may be used for one-time repaint programs or long-range repaint programs.

**SSPC-SP 1, SOLVENT CLEANING**
SSPC’s Surface Preparation Specification No. 1. Solvent cleaning is a method for removing all visible oil, grease, soil, drawing and cutting compounds, and other soluble contaminants from steel surfaces. It is intended that solvent cleaning be used prior to the application of paint and in conjunction with surface preparation methods specified for the removal of rust, mill scale, or paint.

**SSPC-SP 2, HAND TOOL CLEANING**
SSPC’s Surface Preparation Specification No. 2. Hand tool cleaning is a method of preparing steel surfaces by the use of non-power hand tools. Hand tool cleaning removes all loose mill scale, loose rust, loose paint, and other loose detrimental foreign matter. It is not intended that adherent mill scale, rust, and paint be removed by this process. Mill scale, rust, and paint are considered adherent if they cannot be removed by lifting with a dull putty knife.

**SSPC-SP 3, POWER TOOL CLEANING**
SSPC’s Surface Preparation Specification No. 3. Power tool cleaning is a method of preparing steel surfaces by the use of power-assisted hand tools. Power tool cleaning removes all loose mill scale, loose rust, loose paint, and other loose detrimental foreign matter. It is not intended that adherent mill scale, rust, and paint be removed by this process. Mill scale, rust, and paint are considered adherent if they cannot be removed by lifting with a dull putty knife.

**SSPC-SP 5/NACE NO. 1, WHITE METAL BLAST CLEANING**
A white metal blast cleaned surface, when viewed without magnification, shall be free of all visible oil, grease, dirt, dust, mill scale, rust, paint, oxides, corrosion products, and other foreign matter.

**SSPC-SP 6/NACE NO. 3, COMMERCIAL BLAST CLEANING**
A commercial blast cleaned surface, when viewed without magnification, shall be free of all visible oil, grease, dirt, dust, mill scale, rust, paint, oxides, corrosion products, and other foreign matter, except for staining, which shall be limited to no more than 33 percent of each unit area of surface approximately nine sq. in (6,400 sq. mm). Staining may consist of light shadows, slight streaks, or minor discolorations caused by stains of rust, stains of mill scale, or stains of previously applied paint.

**SSPC-SP 7/NACE NO. 4, BRUSH-OFF BLAST CLEANING**
A brush-off blast cleaned surface, when viewed without magnification, shall be free of all visible oil, grease, dirt, dust, loose mill scale, loose rust, and loose paint. Tightly adherent mill scale, rust, and paint may remain on the surface. Mill scale, rust, and paint are considered tightly adherent if they cannot be removed by lifting with a dull putty knife. The entire surface shall be subjected to the abrasive blast. The remaining mill scale, rust, or paint shall be tight. When painting is specified, the surface shall be roughened to a degree suitable for the
specified paint system.

SSPC-SP 8, PICKLING
SSPC’s Surface Preparation Specification No. 8. Pickling is a method of preparing steel surfaces by chemical reaction, electrolysis, or both. The surfaces, when viewed without magnification, shall be free of all visible mill scale and rust.

SSPC-SP 10/NACE NO. 2, NEAR-WHITE BLAST CLEANING
A near-white blast cleaned surface, when viewed without magnification, shall be free of all visible oil, grease, dirt, dust, mill scale, rust, paint, oxides, corrosion products, and other foreign matter, except for staining, which shall be limited to no more than 5 percent of each unit area of surface (approximately nine sq. in.[6,400 sq. mm]). Staining may consist of light shadows, slight streaks, or minor discolorations caused by stains of rust, stains of mill scale, or stains of previously applied paint.

SSPC-SP 11, POWER TOOL CLEANING TO BARE METAL
SSPC’s Surface Preparation Specification No. 11. Metallic surfaces prepared according to this specification, when viewed without magnification, shall be free of all visible oil, grease, dirt, dust, mill scale, rust, paint, oxide, corrosion products, and other foreign matter. Slight residues of rust and paint may be left in the lower portion of pits if the original surface is pitted. When painting is specified, the surface shall be roughened to a degree suitable for the specified paint system. The surface profile shall not be less than 1 mil (25 microns).

SP 12/NACE NO. 5, SURFACE PREPARATION AND CLEANING OF STEEL AND OTHER HARD MATERIALS BY HIGH- AND ULTRAHIGH PRESSURE WATER JETTING PRIOR TO RECOATING
Describes the use of high pressure water jetting without abrasive to clean surfaces. Three grades of chemical cleanliness and four grades of visual cleanliness are defined.

SSPC TR 2/NACE 6G198
A joint technical report on Wet Abrasive Blast Cleaning. Describes procedures, equipment, and materials involved in a variety of air/water/abrasive, water/abrasive, and water-pressurized abrasive blast cleaning systems.

SSPC-VIS 1, VISUAL STANDARD FOR ABRASIVE BLAST CLEANED STEEL
SSPC’s Visual Standard No. 1. The standard consists of a series of color photographs that represent various conditions of unpainted steel surfaces prior to and after surface preparation by abrasive blast cleaning. The photographs are intended to be used to supplement the written SSPC blast cleaning surface preparation specifications.

SSPC-VIS 2, STANDARD METHOD OF EVALUATING DEGREE OF RUSTING ON PAINTED STEEL SURFACES
SSPC’s Visual Standard No. 2. The standard consists of a series of color photographs that represent various amounts of visible rusting on painted steel surfaces. It illustrates four levels of rusting that range from 0.03 percent to 10 percent rust. The standard also includes a rust grading scale that ranges from 10 (no rust or less than 0.01 percent rust) to 0 (100 percent rust).
SSPC-Vis 3, Visual Standard for Power- and Hand-Tool Cleaned Steel

SSPC’s Visual Standard No. 3. The standard consists of color photographs that represent various conditions of unpainted, painted, and welded steel surfaces prior to and after power and hand tool cleaning. The photographs are intended to be used to supplement the written SSPC power and hand tool surface preparation specifications.

Stable
Resistant to change. In the case of corrosion, resistant to chemical reaction with oxygen.

Stack Liner
Protective lining for chimney, flue, or other exhaust interior subject to high temperatures or otherwise corrosive conditions.

Stain
(1) [as related to abrasive blast and power tool cleaning methods] An area of a surface which, when compared to adjacent areas, has an equal surface profile but is discolored (usually darker) with a material having no apparent volume. The material cannot be removed by methods commonly used to remove dust, but can be removed by more thorough abrasive blasting when abrasive blasting is used, or more thorough power tool cleaning when power tool cleaning is used. (2) A solution or suspension of coloring material formulated to provide a color to a surface, especially wood, without completely hiding it or forming a continuous film.

Stain Resistance
The ability of a coating to avoid change in appearance after a material capable of staining has been applied and removed.

Stainless Steel
Any of several steels containing 12 to 30% chromium as the principal alloying element; they usually exhibit passivity in aqueous environments. [ASM]

Standard
An established practice or reference used as a basis for comparing or measuring quality, quantity, performance, etc., determined by general or consensus agreement.

Standard Atmospheric Pressure
A pressure of 760 mm Hg (101325 Pa) of air having a density of 1300 kg/m³, under standard gravity of 9.80665 m/s². See also Atmospheric Pressure.

Standard Conditions
Conditions used in defining material properties; for a gas, a temperature of 0°C (32°F), and a pressure of 1 atmosphere (0.101 MPa); for a solid, the form that is most common at ordinary temperatures and at 1 atmosphere (0.101 MPa).

Standard Jetting Water
Water of sufficient purity and quality that it does not impose additional contaminants on the surface being cleaned and, of critical importance to water jetting operations, does not contain sediments or other impurities that are destructive to the proper functioning of the water jetting equipment being used. [SSPC-SP 12/NACE NO. 5] See WATER JETTING.

Standard, Primary
A national ambient air quality standard promulgated under the Clean Air Act. The primary
standard established ambient concentrations of pollutants that could have an adverse impact on human health.

**STANDARD, SECONDARY**
A national ambient air quality standard promulgated under the Clean Air Act. The secondary standard established ambient concentrations of pollutants that could have an adverse effect on the public welfare (other than human health).

**STAND-OFF DISTANCE**
The distance from a blasting nozzle to the surface being cleaned. Stand-off distance determines both the cleaning power and the size of the blast pattern. The closer the nozzle, the smaller the blast pattern and the stronger the abrading action.

**STANDPIPE**
A water tank with a height greater than its diameter.

**STATE IMPLEMENTATION PLAN (SIP)**
The plan, including the most recent revision thereof, which has been approved by the EPA as required under the Clean Air Act. Intended to identify methods of controlling designated air pollutants which meet the requirements of the act.

**STATIC CRACK**
A crack in a concrete surface with a width that does not change.

**STATIC PRESSURE (SP)**
The potential pressure exerted in all directions by a fluid at rest. For a fluid in motion, it is measured in a direction normal to the direction of flow. Usually expressed in inches water column when dealing with air. [Definition from ACGIH Industrial Ventilation Manual]

**STATIONARY SOURCE**
Any building, structure, facility, or installation which emits or may emit any air pollutant subject to regulation under the Clean Air Act or its amendments.

**STAUROLITE ABRASIVE**
A blast cleaning abrasive manufactured from the mineral staurolite, which is crushed, dried, and screened (sieved). See also NON-METALLIC ABRASIVE.

**STEAM CLEANING**
A cleaning process using low pressure steam, intended to remove oil, grease, dirt, and other surface contaminants. It is described in SSPC-SP 1.

**STEEL ABRASIVE**
Cast steel shot or grit used for abrasive blast cleaning. Cast steel shot consists of nearly spherical particles of steel obtained by granulating a molten stream of metal with water or air, or by other methods. Cast steel grit consists of angular particles produced by crushing steel shot.

**STEEL DECK INSTITUTE**
The Steel Deck Institute was formed to bring uniformity to the design, manufacture, quality control and construction practices applicable to cold-formed steel decking. P.O. Box 25, Fox River, Grove, IL 60021-0025. (847) 462-1930. www.SDI.org
STEEL GRIT ABRASIVE
See STEEL ABRASIVE.

STEEL SHOT ABRASIVE
See STEEL ABRASIVE.

STEEL WOOL
Steel in fine strands used for cleaning and abrading surfaces.

STEL
See SHORT-TERM EXPOSURE LIMIT.

STIFFENER
An angle, tee, plate or other rolled section riveted, bolted or welded upon the web of a plate girder or other “built-up” member to transfer stress. [B]

STITCH WELDING
Discontinuous welding; skip welding.

STOICHIOMETRIC
Possessing the ratio of chemical reactants so that after completion of the reaction, all are completely consumed and none remains.

STONING
Smoothing (as in irregular concrete surface) with an abrasive tool (stone).

STORAGE
Holding materials such as hazardous waste for a temporary period, as required by regulations until it is treated, disposed of, or stored elsewhere.

STORAGE STABILITY
General composite property of a material’s resistance to any change, generally when kept in a closed container, over a period of time. Color and liquid separation, formation of lumps, hard pigment settling, substantial changes in viscosity or pH, development of odor, etc., are examples of undesirable changes.

STORM WATER
Surface water run-off resulting from precipitation. In 1990, EPA started requiring industrial facilities and municipalities to acquire permits for storm water discharge and municipal storm water systems. Paint and surface debris from a painting or paint removal activity which is not properly contained and collected, could be considered an unpermitted discharge. Such discharge may be limited by state or federal regulations, water quality standards, or other state or local ordinances.

STRAINING
The process of removing any large particles from mixed paint by pouring it through a wire screen, cheese cloth, or other straining device.

STRAY CURRENT
Current flowing through paths other than the intended circuit. [ASM]
STRAY CURRENT CORROSION
Corrosion resulting from direct current flow through paths other than the intended circuit. For example, by an extraneous current in the earth. [ASM]

STREAKING
Long, narrow, irregular lines or bands or layer-edges, especially ones distinguished by color, visible on a surface. [CED]

STREAKS
A surface defect characterized by essentially parallel lines of different colors or shades. [AM]

STRESS CORROSION CRACKING
Cracking caused by corrosion together with the stresses in a metal.

STRETCH
The width of a section of wall that is painted before moving a ladder or scaffolding. [PDCA]

STRINGER
A longitudinal beam supporting the bridge deck, and in large bridges or truss bridges, framed into or upon the floor beams. [B]

STRIPE COAT
A coat of paint applied only to edges or to welds on steel structures before or after a full coat is applied to the entire surface. The stripe coat is intended to give those areas sufficient film build to resist corrosion.

STRIPPING
(1) Painting the edges of a surface or welds to give them extra protection. Striping is done before priming or before the application of a full coat of paint; (2) Paint pavement markings that delineate areas such as traffic lanes. See TRAFFIC PAINT.

STRIPPABLE
Removable. A strippable coating is one with minimal adhesion that can be removed easily from a surface. Strippable paints sometimes are applied to metal surfaces for temporary protection from corrosion or short-term protection from deterioration.

STRIPPING
Completely removing an old finish with heat or chemicals. See CHEMICAL STRIPPING, HEAT STRIPPING, PAINT REMOVER.

STROKE
A single spray or brush pass in one direction.

STROKING
Parallel movement of gun, wrist, arm, and shoulder at right angles to work during paint spray application resulting in variations of paint film thickness.

STRONTIUM CHROMATE
A bright yellow pigment of a type similar to lead chromate except that it is not blackened by hydrogen sulfide. It was used in corrosion-resistant primers, but is less used today because of concerns over its toxicity.
**STYRENE**
Colorless to yellowish oily liquid. A monomer used to make synthetic resins and elastomers. Synonyms: vinylbenzene, styrol, styrolene, cinnamene, phenylethylene. C₆H₅CH=CH₂. [CED]

**SUBACUTE TOXICITY**
The property of a substance or mixture of substances to cause adverse effects in an organism upon repeated or continuous exposure within less than the lifetime of that organism.

**SUB-ASSEMBLY**
The ship’s hull is constructed of steel plates, stiffeners, and other members which are formed into shapes. The shapes are put together to form sub-assemblies (sometimes called modules or blocks), then the sub-assemblies are put together to form the hull.

**SUBSTRATE**
Any surface to be painted, including wood, concrete, masonry, steel, other metals, and various other materials or previous paints. A previously unpainted surface sometimes is called the “original substrate.”

**SUBSTRUCTURE**
The abutments, piers, grillage or other constructions built to support the span or spans of a bridge superstructure whether consisting of beam, girder, truss, trestle or other types of construction.

**SUCTION FEED**
A method in conventional spraying of feeding coating material from the container to the spray gun. A stream of compressed air creates a vacuum at the air cap, providing siphoning action. Atmospheric pressure on the material in the suction cup forces the material in the air cap of the gun.

**SULFATE-REDUCING BACTERIA**
Bacteria found in many soils, particularly in boggy areas, in some petroleum products, and in sewage, that have the ability to convert sulfate salts to sulfides. This type of bacteria reacts with sulfur-containing organic matter to produce hydrogen sulfide (H₂S), a contaminant that reacts rapidly with both concrete and steel. Sulfide-contaminated surfaces must be cleaned and completely freed of sulfide prior to the application of coatings.

**SULFIDE STAINS**
The discoloration (darkening) of a coating resulting from the reaction of hydrogen sulfide gas with lead, mercury, or copper pigments in the coating.

**SUMP**
Pit or reservoir serving as a drain or receptacle for liquids.

**SUPERFUND**
See COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION AND LIABILITY ACT.

**SUPERPLASTICIZER**
A water-reducing admixture that can greatly reduce the water/cement ratio of a concrete mix [ACI]
SUPERSTRUCTURE
(1) Ships – The part of the ship above the main deck; (2) Bridges – The entire portion of a bridge structure that primarily receives and supports highway, railway, canal, or other traffic loads and in its turn transfers the resulting reactions to the bridge substructure. The superstructure may consist of beam, girder, truss, trestle or other type or types of construction. [B]

SUPERVISOR/COMPETENT PERSON
OSHA defines a competent person as one who is capable of identifying existing and predictable lead hazards in the surroundings or working conditions and has authorization to take prompt corrective measures. The competent person must be present during all exposure-producing operations and must demonstrate qualifications relevant to lead hazards and specific supervisor/competent person activities.

SUPPLIED-AIR RESPIRATOR
A respiratory protection device that incorporates a supply or a means of generating respirable air or oxygen.

SUPPRESSION CHAMBER
A large volume of water, or wet well in a boiling water reactor (BWR), used to suppress a pressure rise in the containment, in the event of a Loss of Coolant Accident (LOCA), by absorption of thermal energy.

SURFACE
(1) An area to be coated; (2) Characteristics of the area to be coated; (3) The kind of finish obtained after the coating work is finished. [MPDA]

SURFACE CONDITIONER
Chemical material that prepares a surface to receive a coating or other material.

SURFACE DRYING
Drying of the surface of a liquid coating film before the body of the coating film. The result often is that the under portion is slow in drying and that solvent is trapped within the coating or the coating remains soft for an extended period of time.

SURFACE HARDENERS
Compounds applied to a concrete surface to improve hardness and to decrease permeability.

SURFACE PREPARATION
Any method of treating a surface to prepare it for coating. Surface preparation methods include washing with water, detergent solution, or solvent; cleaning with hand or power tools; water washing or jetting with or without abrasive; or abrasive blast cleaning. SSPC and NACE International have a number of joint written and visual standards describing the surface preparation of steel and concrete surfaces prior to painting.

SURFACE PREPARATION WATER
Water of sufficient purity and quality that it does not prevent the surface being cleaned from achieving the WJ-1 degree of surface cleanliness or nonvisible contaminant criteria when contained in the procurement documents. SP water should not contain sediments or other impurities that are destructive to the proper functioning of the cleaning equipment.
SURFACE PROFILE
The textured surface that results from abrasive blast cleaning or power tool cleaning to bare metal. For steel, surface profile is a measurement of the peak-to-valley height of the surface, often expressed as an average of multiple individual measurements.

SURFACE PROFILE COMPARATOR
An instrument used to determine the profile of a blast cleaned surface by visual or tactile comparison of the surface with a series of reference surfaces of known profile depths.

SURFACE PROFILE DEPTH GAGE
A gage consisting of a dial gage and a stylus which protrudes from the base of the gage into the valleys of a blasted steel surface. The extent of protrusion provides a measure of the profile. Its use is described in ASTM D 4417.

SURFACE TENSION
The work required to enlarge the surface of a liquid, expressed as dynes/cm. Surface tension tends to minimize the volume and surface area of a liquid.

SURFACE-TOLERANT
Capable of application over marginally cleaned surfaces.

SURFACE-TOLERANT COATING
(1) A coating designed to be applied over a lesser degree of surface preparation than commercial blast cleaning (SSPC-SP 6); (2) A very loose, general description of a coating. A “surface-tolerant coating” must be further qualified as to the types of surfaces over which it can be applied successfully. For example, application over an aged alkyd coating, an oily or greasy, salt-contaminated, or damp or wet surface, loose, stratified, or tight rust, etc., can all require a different type of surface-tolerant coating. See also MARGINALLY PREPARED SURFACE.

SURFACER
Pigmented composition for filling minor irregularities to obtain a smooth, uniform surface preparatory to applying finish coats; usually applied over a primer and sandpap ered for smoothness. [ASTM]

SURFACING
Aggregate-containing polymeric coating, generally applied at thicknesses equal to or greater than 1/16 inch (62.5 mils).

SURFACTANT
A term contracted from “surface-active agents.” Surfactants are additives that reduce surface tension and improve wetting (wetting agents), help disperse pigments (dispersion agents), inhibit foam formation (anti-foaming agents), or improve emulsions (emulsifying agents). [Painting/Coatings Dictionary]

SURGE TANK (FILTER HOUSING)
The component of an airless spray system that acts as a reservoir for material being applied. Its function is to eliminate the pulsation of the material being pumped at high pressure through the spray system. As the material is pumped through the airless spray system, the material in the surge tank is constantly being replaced, eliminating the pulsating action of the material pump.
A systematic assessment of the condition of metal and other substrates in an industrial plant, or government facility, normally conducted by sections or process blocks, for the purpose of planning and budgeting maintenance painting operations for an extended period of time, such as five years.

**SUSPENDED SPAN**
A superstructure span having one or both of its ends supported upon or from adjoining cantilever arms, brackets or towers, and designed to be unaffected by other stress transmission to or from an adjacent structure. [B]

**SUSPENDING AGENT**
See ANTI-SETTLING AGENT.

**SUSPENSION BRIDGE**
A bridge in which the floor system and its incidental parts and appliances are supported in practically horizontal position by being suspended from cables which are supported at two or more locations upon towers and are anchored at the extreme ends. The cables constitute the main suspension members. [B]

**SUSPENSION CABLE (SUSPENSION CHAIN)**
One of the main members upon which the floor system of a suspension bridge is supported. [B]

**SWEAT-IN TIME**
See INDUCTION TIME.

**SWEATING**
The exudation of oil from a coating after it appears to have cured.

**Sweep Blast Cleaning**
A fast pass of the abrasive blasting pattern over a surface to remove loose material and to roughen the surface sufficiently to successfully accept a coat of paint. This method of cleaning sometimes is specified as SSPC-SP 7, Brush-off Blast Cleaning. See also BRUSH-OFF BLAST CLEANING.

**Swing Bridge**
A bridge having a superstructure designed to revolve in a horizontal plane upon a pivot. [B]

**Synthesize**
Form a compound by chemical reactions of simpler compounds or elements.

**Synthetic Resin**
Originally, a synthetic substance that resembled and shared some of the properties of natural resins, but now used for material that bears little resemblance to natural resins. The term generally is understood to mean a member of the heterogeneous group of compounds produced from simpler compounds by polymerization and/or condensation. Chemically modified natural polymers are considered natural resins, not synthetic resins. See NATURAL RESIN. [Painting/Coatings Dictionary]
TABER ABRASER
An instrument used to measure abrasion resistance (ASTM D 4060). Specimen on a turntable rotates under a pair of weighted abrading wheels that produce abrasion through side slip. [CED]

TACK
The stickiness of a surface such as a paint or varnish film during the drying period. Oil paints and spar varnishes may retain tack for several weeks after they are considered dry. [PDCA]

TACK-FREE
Absence of tack or stickiness in an applied coating after suitable drying time. In some cases, coatings are tack-free after application; tack may not develop until a little later.

TAGGING
Tagging is a means of protecting workers from injury or death caused by the accidental start-up or release of stored energy from equipment. It involves placing a tag on the power source as a warning not to restore energy to the piece of equipment. See LOCKOUT.

TAGOUT
The placement of a tagout device on an energy isolating device, in accordance with an established procedure, to indicate that the energy isolating device and the equipment being controlled may not be operated until the tagout device is removed.

TAIL
An undesired finger-like projection of paint from its desired spray pattern (fan).

TAIL SOLVENT
The highest boiling fraction in a blend of solvents. In paint, the last solvents to evaporate from an applied coating film (the slowest evaporating solvents). See also EVAPORATION RATE.

TANK
Stationary device designed to contain an accumulation of product, hazardous waste, or other material which is constructed primarily of non-earthen materials such as wood, concrete, steel or plastic which provides structural support.

TANK LINING
A material used to protect the interior of a tank shell against corrosion and/or to protect the contents of a tank from contamination by the shell material. Both sprayable linings and drop-in liners can be used to accomplish these purposes. See also LINING, DROP-IN LINER.

TANNIC ACID
An organic acid extracted from tree bark, nut shells, and other plant parts, sometimes used in rust-inhibiting treatments to bind existing surface rust in less active form, more suitable for coating.

TAPE ADHESION TEST
See ADHESION TEST, CROSSCUT.
TAPE WRAPPING MACHINE
Machine to wrap piping or other components with a protective covering such as tape.

TARPAULINS
Flexible fabric, vinyl, plastic or canvas cover sheets, impenetrable to dust, wind, and water, used to enclose the cable and/or scaffold support system comprising the containment system.

TAX RATE
The total rate of federal, state and local income taxes paid. Tax rate may be expressed as a decimal or percentage.

TECHNICAL STANDARD
Consensus criteria document of engineering societies, trade and professional associations, or government agencies.

TEFLON
Polytetrafluoroethylene. It finds only limited use in protective coatings.

TEMPERATURE
A measure of hotness or coldness usually recorded with a thermometer on either the Fahrenheit or Celsius scale.

TEMPERATURE, DEW POINT
See DEW POINT.

TEMPERATURE, DRY BULB
See DRY BULB TEMPERATURE.

TEMPERATURE, WET BULB
See WET BULB TEMPERATURE.

TEMPORARY COATING
A coating designed to function for a limited time and then to be removed easily.

TENSILE ADHESION TEST
See ADHESION TEST, TENSILE (PULL-OFF).

TENSILE STRENGTH
The maximum tensile stress that a material is capable of sustaining. Tensile strength is calculated from the maximum load during a tension test carried to rupture and the original cross-sectional area of the specimen. [ASTM]

TERATOGEN
A substance, such as lead or certain glycol ethers, capable of interfering with the development of a fetus, causing birth defects.

TERPOLYMER
A polymer containing three different types of monomer.

TEST FENCE
A fence strategically located in a part of the country for specific weather conditions and exposure (temperature, humidity, sunlight duration, salt spray, etc.) and facing a specific direction and
angle. It contains a series of racks for exposing test panels to determine the exterior durability properties of different coatings on various substrates. [Painting/Coatings Dictionary]

**TEST METHOD**
A definitive, standardized set of instructions for the identification, measurement, or evaluation of one or more qualities, characteristics, or properties of a material.

**TEST PANELS**
Pieces of material, such as wood, metal, or concrete, that are exposed in laboratory or field test environments after they are coated.

**TEST STRIP**
Paper strip dipped into solution for estimate of amount of contaminant or other material present.

**THEORETICAL COVERAGE**
Spreading rate of a coating to a completely flat surface, assuming no losses in handling.

**THERMAL SHOCK**
A rapid force exerted on a coating due to a sudden change in temperature.

**THERMAL SPRAYING**
A process for applying metallic wire, metallic powder, or thermoplastic powder. The material is melted and sprayed onto a surface to produce a uniform coating. Gas wire guns and electric arc guns are used for spraying metallic wire; plasma guns are used for spraying metallic and thermoplastic powders. See also FLAME SPRAYING, METALLIZING, PLASMA SPRAYING.

**THERMIT REACTION**
Explosive effect that occurs when aluminum and iron oxide are heated. Aluminum pigmented paints associated with rusty steel are susceptible to the effect, leading to potential problems in hazardous environments such as gas, fuel oils, etc. Used to field-weld cathodic protection and bonding cables and other structures. Sometimes called cadwelding.

**THERMOPLASTIC**
Ability of a material to become soft when heated and hard when cooled without undergoing chemical change. While the material is soft, it can be reformed or molded. As used in the coatings industry today, the original meaning of the term thermoplastic has changed somewhat. It is now used to classify coating types according to how the resins cure, and the solubility of the cured film. The term thermoplastic is virtually synonymous with the term non-convertible.

**THERMOPLASTIC COATING**
A coating with thermoplastic properties. It may form a film by solvent or water evaporation or by a phase change such as melting and solidifying. See LACQUER, THERMOPLASTIC.

**THERMOPLASTIC LINING**
A spray-applied lining using thermoplastic materials.

**THERMOPLASTIC POWDER**
Powdered organic polymeric materials that are melted by heat; some are sprayed through a flame to melt them, so that they are applied to a substrate as a liquid and then solidify on cooling to form a protective film without undergoing chemical change.
THERMOSET COATING
A coating that forms a film as a result of a chemically crosslinking reaction (oxidation, polymerization, etc.) is called a thermoset coating because it is not softened or deformed by heating. See also CROSSLINKING.

THERMOSETTING
Property of being permanently changed when subjected to heat, catalyst, ultraviolet light, or chemical reaction, and cannot be softened and reformed by reheating. As used in the coatings industry today, the original meaning of the term thermosetting has changed somewhat. It is now used to classify coating types according to how the resins cure, and the solubility of the cured film. Thus, the term thermosetting is virtually synonymous with the term convertible. See CONVERTIBLE COATING.

THERMOSET LINING
A lining using thermoset materials.

THICKENER
A material that, when added to a coating, increases its viscosity.

THICKNESS, COATING
See FILM THICKNESS.

THICKNESS GAGE, DRY FILM
See DRY FILM THICKNESS GAGE.

THICKNESS GAGE, WET FILM
See WET FILM THICKNESS GAGE.

THINNER
A volatile liquid used to improve the application properties of a coating, normally by reducing viscosity. A thinner may be a single solvent or a combination of solvent types. Often, specific thinners are required by the manufacturer of a coating to prevent damage to coating properties that may occur when an inappropriate thinner is used. See also SOLVENT and DILUENT.

THIXOTROPE
An additive that makes paint thixotropic. See THIXOTROPIC PAINT.

THIXOTROPIC
Having a gel consistency that becomes liquid when stirred or brushed to permit application but returning to its original consistency upon standing. Thixotropic paints are less likely to drip from a brush than other types and can be applied in rather thicker films without running or sagging.

THIXOTROPIC PAINT
Paint that is free-flowing and easy to manipulate while being brushed or sprayed but that sets to a gel within a short time when it is allowed to remain at rest. Because of these qualities, a thixotropic paint is less likely to drip from a brush than other types and can be spray-applied in thicker films without running or sagging. [Painting/Coatings Dictionary]
THRESHOLD LIMIT VALUE (TLV)
A figure developed by the American Conference of Governmental Industrial Hygienists intended to represent the maximum level of airborne contaminants that will cause no adverse effects, even after prolonged exposure; a concentration of airborne material that experts agree can be inhaled for a working lifetime by almost all workers without any injury. The few workers who will be affected will develop their symptoms so slowly that periodic medical examinations can be expected to detect them while the effects are still reversible. While permissible exposure limits are legally binding limits, required by OSHA, TLVs are recommended limits.

THRESHOLD PLANNING QUANTITY (TPQ)
Quantity substance used in industry which triggers emergency planning and reporting requirements. A lower TPQ reflects a substance that is considered more hazardous. Applicable TPQs for specific substances are found in several sections of the regulations developed under the Emergency Planning and Community Right-to-Know Act. TPQs are also given for substances which are covered by the Act, but for which there is no substance-specific TPQ.

THROUGH DRYING
Uniform drying throughout the film, as opposed to top-drying or bottom-drying.

TIE COAT
A coating used to provide a transition from a primer or undercoat to a finish coat and to bond generically different types of coatings, or to improve the adhesion of a succeeding coating.

TIE ROD
(1) A mechanical connection in tension used to prevent concrete forms from spreading due to the fluid pressure of fresh unhardened concrete. Also called a form tie [ACI]; (2) The tension component that connects a bulkhead to a tie-back system that is designed to prevent the bulkhead from overturning.

TIE-ROD HOLE
Opening left in concrete after tie-rods securing forms in place are removed.

TIME-OF-WETNESS
Duration of wetness (e.g., of a substrate exposed to high humidity and precipitation); length of time until an applied coating dries.

TIME VALUE OF MONEY
The economic principle that money can either earn interest over time if invested or is obtained with the additional cost of interest over the period that is used.

TIME-WEIGHTED AVERAGE (TWA)
(1) The average airborne exposure of a worker in any eight-hour shift of a 40-hour work week. A formula is used to calculate the permissible exposure limit (PEL) using a time-weighted average when a worker is exposed in a hazardous environment for more than eight hours in a given day: 
PEL = 400/hours worked in the day. For example, if the PEL is $50 \mu g/m^3$ for an eight-hour workday, it is reduced to $40 \mu g/m^3$ in the case of a 10-hour workday (400/10 = 40); [ILPR] (2) Maximum allowed exposure to toxic materials over a working period, usually 8 hours.

TIN
A soft, silvery-white metallic element. Organotin compounds, once widely used in anti-fouling paints, have been greatly restricted because of toxicity.
TINTING
Adjusting the color of paint to a wide range of tints, shades, or tones.

TITANIUM DIOXIDE (TiO$_2$)
A bright white, highly opaque, insoluble inorganic mineral used to impart hiding to coatings.

TITRATION
In chemical analysis, the determination of the reactive capacity, usually of a solution; especially the analytical process of successively adding measured amounts of a reagent (as a standard solution) to a known volume or weight of a sample or sample solution until a desired end point is reached. [ASTM]

TOEBOARD
A barrier secured along the sides and ends of a platform, to prevent equipment, material, or a person from falling from it.

TOLERANCE
The total range of variation (usually bilateral) permitted for a size, position, or other required quantity; the upper and lower limits between which a dimension must be held. [ASTM, CED]

TOLUENE
A volatile, flammable liquid used as a solvent for coatings and lacquers.

TOOKE GAGE
See DRY FILM THICKNESS GAGE, DESTRUCTIVE. Also called PAINT INSPECTION GAGE (PIG).

TOOKE BOX TALK
Informal discussion of a working group concerning important aspects of work before starting it.

TOOTH
(1) The profile of a substrate, created to promote coating adhesion; (2) The roughness inherent in a surface or coating, or created mechanically or by etching. See also SURFACE PROFILE.

TOP COAT
The last coating material applied in a coating system, specifically formulated for aesthetics and/or environmental resistance. Also referred to as a finish coat.

TOP DRYING
Drying of a coating film on the top or surface but not beneath it.

TOPSIDE
The area on the sides of the hull which are above the deep load line. Topside usually refers to the area from the deep load line to the rail (above the boottop). Sometimes the word encompasses the decks and areas above deck, such as hatches, masts, pipes, etc. These areas are exposed to the weather as opposed to immersed in the sea.

TOTAL PRESSURE (TP)
The algebraic sum of the static pressure (SP) and the velocity pressure (VP); typically in inches of water. TP can be positive or negative.
TOTAL SOLIDS
See SOLIDS, NONVOLATILE CONTENT.

TOTAL SUSPENDED PARTICULATE (TSP)
The total of all particulate matter emitted into the ambient air as analyzed from samples collected using high-volume air monitors. The analysis is conducted in accordance with 40 CFR 50, Appendix B, “Reference Method for Determination of Suspended Particulate Matter Collected from Ambient Air.” [ILPR]

TOUCH-UP PAINTING
Application of paint on small areas of painted surfaces to repair mars, scratches, and small areas where the coating has deteriorated, in order to restore the coating to an unbroken condition.

TOUGHNESS
That property of a material by virtue of which it can absorb work. This is a measure of the amount of energy that must be used to cause a sample in a tensile tester to rupture. It is a measure of the area under the stress-strain curve. [CED] Compare with TENSILE STRENGTH, ELONGATION, and HARDNESS.

TOXIC POLLUTANT (PER CLEAN WATER ACT)
Any pollutant listed as toxic under Section 307 (a)(1) of the Clean Water Act or, in the case of sludge use or disposal practices, any pollutant identified in regulations implementing Section 405 (d) of the CWA. [ILPR]

TOXIC SUBSTANCES CONTROL ACT (TSCA or TOSCA)
A federal law that controls exposure and use of raw industrial chemicals not subject to other laws.

TOXICITY
(1) The capacity of a substance to injure by chemical means; (2) Characteristic of solid waste which is shown to contain specified contaminants, including lead and chromium, at a concentration equal to or greater than the regulatory level, using a standard test method known as the Toxicity Characteristic Leaching Procedure.

TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP)
A test for determining whether debris is hazardous based on an analysis of the leachate by either atomic absorption spectroscopy or inductively coupled plasma atomic emission spectroscopy. [ILPR]

TOXICITY (HUMAN)
The capacity of a substance to injure a person by chemical means. All substances are toxic; they differ in degree of toxicity and in the nature of injury they may cause. Toxicity is ACUTE when the adverse effect is the result of swallowing a substance, having it on the skin for a few hours, or breathing it for up to a work shift. Toxicity is CHRONIC when the adverse effect is the result of swallowing, contact, or breathing almost daily for a year or longer. SUBACUTE is used for effects of exposure periods between acute and chronic. Toxic effects may be reversible or irreversible. With a reversible effect, soon after exposure ceases, the affected person returns completely to normal. There is no residual effect whatsoever. An Irreversible effect is a permanent change in an affected person. The next exposure is more likely to have a serious effect, because the response starts at a higher baseline.
TOXICOLOGY (HUMAN)
The body of knowledge of the adverse effects upon humans of excessive exposure to chemicals.

TRAFFIC PAINT
Paint designed for traffic control, such as center lines on highways and parking lot and curb markings. Traffic paints must dry rapidly, exhibit good abrasion and water resistance, and be suitable for application to either concrete or asphalt. They sometimes contain coarse, high index of refraction glass beads to provide retroreflectivity.

TRANSFER EFFICIENCY
Percent of mass or volume of coating solids actually applied (transferred) from container to coated surface.

TRANSITION PRIMER
A coating used to separate incompatible layers of paint, such as a primer and a finish coat, but permit their use in a total system. The transition primer must be compatible with both. See TIE COAT.

TRANSPORTATION
Movement of hazardous waste by air, rail, highway, or water.

TRANSPORTER
Person engaged in the off-site transportation of hazardous waste by air, rail, or highway.

TREATMENT, HAZARDOUS WASTE
Any method, technique, or process, including neutralization, designed to change the physical, chemical or biological character or composition of any hazardous waste so as to neutralize such waste, or so as to recover energy or material resources from the waste, or so as to render such waste non-hazardous, or less hazardous; safer to transport, store or dispose of; or amenable for recovery, amenable for storage, or reduced in volume.

TREATMENT, STORAGE, AND DISPOSAL (TSD) FACILITY
The TSD Facility is the last phase of the cradle-to-grave concept in handling hazardous waste, and is responsible for its proper treatment and disposal. Requirements are found in 40 CFR 264 and 265.

TRESTLE
A bridge structure consisting of beam, girder or truss spans supported upon bents. [B]

TRIGGERING
Squeezing of a spray gun trigger before and releasing it after crossing an area to be coated to produce a uniform coating thickness.

TRISODIUM PHOSPHATE (TSP)
A commonly used alkaline cleaner. See also ALKALINE CLEANER.

TRUSS
A jointed structure having an open built web construction so arranged that the frame is divided into a series of triangular figures. [B]
**TRUSS BRIDGE**
A bridge having a truss for a superstructure: the ordinary single span rests upon two supports, one at each end, which may be abutments, piers, bents, or towers, or combinations thereof. The superstructure span may be divided into three parts: 1) the trusses, 2) the floor system and 3) the bracing. [B]

**TUBERCULATION**
Formation of localized corrosion products scattered over the surface in the form of knob-like mounds.

**TUCK POINTING**
See POINTING.

**TUNG OIL**
A drying oil extracted from nuts of the Aleurites fordii tree, native to China. Varnishes made from tung oil have fast dry, water resistance, and exterior durability. [MPDA]

**TURBIDITY**
Term used to indicate the degree of cloudiness of water samples, which is caused primarily by the presence of colloidal matter. [IUPAC, CED]

**TURPENTINE**
A colorless, volatile liquid distilled from oleoresins obtained from pine trees. It is no longer in widespread use for paint formulation, but still is sold and used as a thinner for oil paints and varnishes.

**TWO-COAT SYSTEM**
A coating system applied in two separate coats.

**TWO-COMPONENT COATING**
Cross-linking systems that must be stored in separate containers before use. Otherwise they would react and form a useless gel. See MULTI-PACKAGE COATING.

**TWO-COMPONENT GUN**
Spray gun having two separate sources for different fluids leading to the spray head used in plural component spraying.

**TWO-COMPONENT SPRAYING**
See PLURAL COMPONENT SPRAYING.

**TWO-PACKAGE COATING**
See MULT-IPACKAGE COATING.

**TYPE I MAGNETIC PULL-OFF GAGE**
See MAGNETIC PULL-OFF GAGE, TYPE I.

**TYPE II MAGNETIC FIXED PROBE GAGE**
See MAGNETIC FIXED PROBE GAGE, TYPE II.
ULTRA-HIGH PRESSURE WATER CLEANING
Removal of surface contaminants (cleaning) by jetting with water at a pressure in excess of 25,000 psi (170 MPa).

ULTRASONIC GAGE
Instrument for measuring thickness of a material based on the time sound takes to travel through it.

ULTRASONIC THICKNESS MEASUREMENT
Determining thickness of a solid substrate such as steel using equipment by applying wave energy above the normal hearing range and timing its retroreflection.

ULTRAVIOLET (UV)
A band of electromagnetic radiation between 10 and 400 nanometers in wavelength. The part of the UV spectrum in the actinic region (280 to 315 nanometers) is especially destructive to organic paint binders. Ultraviolet energy is also used sometimes to cure a coating. “Black light” is a popular term for UV radiation.

UNDERCURE
Failure of a coating to reach its optimum degree of cure, with a resultant loss of performance properties.

UNDERCUTTING
The gradual penetration and spread of corrosion beneath a coating from a break or pinhole in the film or from unprotected edges. Also referred to as creepage.

UNDERFILM CORROSION
Corrosion that occurs between a coating and the metal substrate without a break in the coating layer.

UNDERGROUND EXPOSURE
An environment in which a coated substrate is buried in soil.

UNDERGROUND STORAGE TANK (UST)
Tank buried in the ground and used to store water or chemical products. See also ABOVEGROUND STORAGE TANK.

UNDERWRITERS LABORATORIES INC. (UL)
Independent, not-for-profit product safety testing and certification organization. 333 Pfingsten Road, North Brook, IL 60062-2096. (847) 272-8800. www.ul.com

UNEVEN LOSS OF GLOSS
Uneven loss of gloss is a cosmetic coating surface defect in which there is a variation in reduction of sheen such as may occur where there is partial shading.
UNIFORM CORROSION
(1) A type of corrosion attack (deterioration) uniformly distributed over a metal surface; (2) Corrosion that proceeds at approximately the same rate over a metal surface. Also called general corrosion. [ASM]

UNIT COST
Cost of doing a job calculated by unit of work or component type, such as a pipe rack or by unit area.

UNIVERSAL PRIMER
A general term used to describe a special primer for one or both of the following purposes: (1) a tie coat that permits the use of a topcoat not normally compatible with an existing coating; (2) a surface tolerant coating for incompletely cleaned steel. They are generally single component products not often used with high-performance systems or aggressive environments.

UNIFORM CORROSION
(1) A type of corrosion attack (deterioration) uniformly distributed over a metal surface; (2) Corrosion that proceeds at approximately the same rate over a metal surface. Also called general corrosion. [ASM]

UPPER EXPLOSIVE LIMIT (UEL)
The concentration at ordinary ambient temperatures of a compound in air above which an explosion will not occur if the mixture is ignited. UEL is expressed in the percent of gas vapor in air by volume. When concentrations of a substance in air are below the upper explosive limit and above the lower explosive limit (LEL), the mixture will burn and explode. See also LOWER EXPLOSIVE LIMIT.

URALKYD
See POLYURETHANE, OIL-MODIFIED.

URALKYD RESIN
See POLYURETHANE, OIL-MODIFIED.

UREA RESIN
A synthetic resin made from urea and an aldehyde. [CED]

URETHANE COATING
See POLYURETHANE COATING.

URETHANE, ALIPHATIC
See POLYURETHANE, ALIPHATIC.

URETHANE ALKYD RESIN
See URALKYD RESIN.

URETHANE COATING
See POLYURETHANE COATING.

URETHANE, MOISTURE-CURED
See POLYURETHANE, MOISTURE-CURED.
USEFUL LIFE
The length of time a coating adequately performs its function. See SERVICE LIFE in main glossary.

UV ABSORBER
Material added to coatings to minimize the degradation caused by exposure to ultraviolet radiation that is present in sunlight.

VACUUM BLASTING
Abrasive blast cleaning using a vacuum shroud to capture dust, debris, and other materials while they are being generated and prevent them from escaping into the environment. See CLOSED ABRASIVE BLAST CLEANING.

VACUUM-SHROUDED POWER TOOL
Power tool equipped with a vacuum shroud to capture dust, debris, and other materials while they are being generated and prevent them from escaping into the environment. See also POWER TOOL CLEANING.

VAPOR BARRIER
Waterproof membrane placed under concrete floor slabs that are placed on grade.

VAPOR PRESSURE
(1) The force exerted by a vapor. If a vapor is kept in confinement over its liquid so that it can accumulate above the liquid, the temperature being held constant, the vapor pressure approaches a fixed limit called the maximum or saturated vapor pressure, dependant only on the temperature and the liquid. The term vapor pressure is sometimes used as synonymous with saturated vapor pressure. [Definition from ACGIH Industrial Ventilation Manual] (2) Force, usually expressed in millimeters of mercury or pascals, at any given temperature of a vapor in equilibrium with its liquid or solid form. [CED]

VAPOR TRANSMISSION RATE
See MOISTURE VAPOR TRANSMISSION RATE, MOISTURE VAPOR EMISSION RATE.

VARIANCE
Permission granted by the federal Occupational Safety and Health Administration or state occupational safety and health agency to remain outside compliance with written requirements of health and safety standards. Employers may request a variance if they cannot fully comply with a standard or if they can prove their facilities or methods of operation provide employee protection “at least as effective” as that required by OSHA. Air pollution districts may also issue variances for emission of VOCs or other toxic volatiles.

VARNISH
A liquid composition that is converted to a transparent or translucent solid film after application as a thin layer. [ASTM D 16]

VARNISH MAKER’S AND PAINTER’S NAPHTHA
See VM&P NAPHTHA.
VEHICLE
The liquid portion of paint in which the pigment is dispersed. It is composed of binder, solvent, and anything dissolved in the liquid portion of the paint. See also BINDER. [Painting/Coatings Dictionary]

VEHICLE SOLIDS
The amount of nonvolatile matter in the vehicle portion of paint, expressed as a percentage either of the total vehicle or the total paint vehicle solids may be calculated by weight or by volume. See NONVOLATILE VEHICLE.

VELOCITY
The time rate of movement including the direction of movement; feet per minute (FPM).

VELOCITY PRESSURE (VP)
The kinetic pressure in the direction of flow necessary to cause a fluid at rest to flow in a given velocity. Usually expressed in inches water gauge. [ACGIH Industrial Ventilation Manual]

VELOMETER
An instrument used to determine air velocities in ducts, static pressure, and total pressure; also known as a swinging vane anemometer.

VENTILATION SYSTEM
A method of providing air movement across a work area by either natural or mechanical means. Mechanical ventilation includes fans, hoods, and duct work, and also may include dust collectors to clean the discharged air.

VENTURI
The type of abrasive blasting nozzle with internal restriction at the center to increase the abrasive speed and produce a more uniform blast pattern.

VERMICULITE
Lightweight, porous, fire-retardant material that is used as an aggregate in both coatings and concrete.

VERTICAL LIFT BRIDGE
A bridge having a superstructure designed to be lifted vertically by cables or chains attached to the ends of the movable span with its ends seated upon bridge seat pedestals.

VINYL ALKYD RESIN
Alkyd resin modified with vinyl resin. This modification can enhance the recoatability, moisture resistance, and chemical resistance of the alkyd resin.

VINYL BUTYRAL PRETREATMENT WASH PRIMER
See WASH PRIMER.

VINYL COATING
A coating based upon one of many forms of vinyl resin, such as polyvinyl acetate or polyvinyl chloride. Solvent-borne industrial coatings based on vinyl resins have seen widespread use for immersion in water and exposure to chemicals, but their use recently has been limited by VOC regulations.
VINYL RESIN
A synthetic resin made from vinyl compounds. Polyvinyl acetate and polyvinyl chloride are examples of vinyl resins.

VISCOMETER
An instrument for measuring flow properties. The chief types of viscometers are as follows: capillary, rotational, outflow or efflux (Ford cup, usually called orifice type), falling ball, tackmeter (radial flow type), bubble type. The term “viscometer” is preferred to “viscosimeter.” [CED]

VISCOSITY
The quality or property of a fluid (e.g., paint) that causes it to resist flow. A high viscosity coating is thick; a low viscosity coating is thin.

VISCOSITY CUP
A laboratory or field instrument for measuring the viscosity of a liquid by timing the liquid’s flow through an opening in the bottom of a small open bowl.

VISUAL COMPARATOR
One of several visual systems used to estimate the profile of an abrasive blasted steel surface.

VM&P NAPHTHA
Varnish Maker’s and Painter’s Naphtha is a hydrocarbon solvent mixture composed primarily of aliphatic compounds.

VOLATILE
(1) Easily evaporated; (2) Any liquid that evaporates.

VOLATILE CONTENT
The portion of a coating material that evaporates during application, drying, and curing, in contrast to the nonvolatile components which comprise the cured film.

VOLATILE ORGANIC COMPOUND (VOC)
(1) Any organic compound that reacts in the atmosphere with nitrogen oxides in the presence of heat and sunlight to form ozone; (2) Any organic compound (other than those designated by EPA as having negligible photochemical reactivity) that is emitted into the atmosphere during the application or curing of a coating. It is detected by reference methods such as EPA Method 24 or ASTM D 2369, Standard Test Method for Volatile Content of Coatings.

VOLATILE VEHICLE
The solvent portion of a coating vehicle lost during film formation. See SOLVENT.

VOLUME PERCENT SOLIDS
The nonvolatile or solid components of a coating, expressed as percent by volume. This number can be used to calculate the amount of wet film thickness that needs to be applied to produce the desired dry film thickness of a coating. For instance, a coating with 50 percent volume solids will require twice as much wet film thickness as is desired in the dry film thickness, because half the volume of the material will volatilize.
WASHABILITY
(1) The ease with which dirt can be removed from a painted surface by washing; (2) The ability of a coating to withstand washing without substantial damage. [Painting/Coatings Dictionary]

WASH PRIMER
Priming paint usually supplied as a one- or two-component system. The paint contains carefully balanced proportions of an inhibiting chromate pigment, phosphoric acid, and synthetic resin binder mixed in an alcohol solvent. On clean, light alloy, or ferrous surfaces, and on many nonferrous surfaces, such paints give excellent adhesion, partly due to chemical reaction with the substrate, and give a corrosion-inhibiting film that is a good basis for the application of subsequent coats of paint. [Painting/Coatings Dictionary] This wash primer is applied at a low film thickness, typically about 0.5 mil (13 micrometers). Also known as: pretreatment primers, etch primers, and self-etch primers.

WASTE ANALYSIS PLAN
Required for on-site treatment of hazardous waste. A written waste analysis plan must be filed with the EPA regional administrator a minimum of 30 days prior to the treatment activity.

WASTE GENERATOR
A producer of hazardous waste or identified or listed in 40 CFR 261, Identification and Listing of Hazardous Waste. (In paint removal operations, the owner of the structure and contractor are classified as co-generators.)

WASTE STREAM
A waste stream represents debris of a similar type and make up. The paint debris from a given structure represents a single waste stream if the coating system and method of removal is constant. The debris represents a different waste stream, if different coating materials or methods of removal are involved. For example, the waste created when using recycled steel grit generates a different waste stream than waste created using a disposable abrasive (e.g., coal slag) even though the paint being removed is the same.

WASTE TREATMENT
Any method, technique, or process designed to change the physical, chemical, or biological characteristics or composition of any hazardous waste so as to neutralize it; to recover energy or material resources from the waste, or to render it non-hazardous or less hazardous, safer to transport, store or dispose of, amenable for recovery, amenable for storage, or reduced in volume.

WATER-BASED COATING
See WATER-BORNE COATING.

WATER BLAST CLEANING
An alternative to air abrasive blast cleaning for wood, concrete, metal, or other surfaces. Water blast cleaning can be used with or without abrasive injection. Water cleaning at pressures up to 5,000 psi (34.48 MPa) is called low pressure water cleaning or power washing. High pressure water cleaning uses water pressures between 5,000 and 10,000 psi (34.48 to 68.95 MPa). Water jetting is water blasting with added abrasive at pressures between 10,000 and 25,000 psi (68.95 to 172.38 MPa). Ultra high pressure water jetting is water blasting at pressures above 25,000 psi (172.38 MPa). See also WATER JETTING, WET ABRASIVE BLAST CLEANING, SSPC-SP
WATER-BORNE COATING
Paint with a binder that is dispersed or dissolved in water. See also WATER-DISPERSIBLE COATING, WATER-REDUCIBLE COATING.

WATER BREAK
The appearance of a discontinuous film of water on a surface, signifying nonuniform wetting and usually associated with a surface contamination. [ASTM, CED]

WATER BREAK TEST
A qualitative test for surface contaminants, particularly grease and oil, conducted by spraying a fine mist of water on the surface and observing for water break.

WATER CLEANING
A method of using pressurized water, heated or unheated, with or without detergent, to prepare surfaces for coating. Low-pressure water cleaning uses pressures up to about 43 MPa (5,000 psi); high-pressure water cleaning ranges from 34 MPa (5,000 psi) to 170 MPa (25,000) psi; and ultrahigh-pressure water cleaning uses pressures above 170 MPa (25,000 psi). When pressures exceed 69 MPa (10,000 psi), a jet nozzle is used and the process is called water jetting.

WATER-DISPERSIBLE COATING
An organic coating that normally is solvent-borne but by adjusting the chemistry can be dispersed in water.

WATER IMMERSION
Direct contact of a surface with fresh or salt water.

WATER JET CLEANING
See WATER JETTING.

WATER JETTING
The use of water at high or ultrahigh pressure (pressures above 69 MPa/10,000 psi) to prepare a surface for recoating. High pressure water jetting is cleaning performed at pressures from 69 to 170 MPa (10,000 to 25,000 psi). Ultrahigh pressure water jetting begins at 170 MPa (25,000 psi). [SSPC-SP 12/NACE No. 5]

WATER JETTING WITH ABRASIVE INJECTION
Using water at high pressure (10,000 to 25,000 psi [68.95 to 172.38 MPa]) or ultra high pressure (greater than 25,000 psi [172.38 MPa]) with abrasive injected into the water stream to remove paint, rust, and mill scale, and impart a profile on a metal surface.

WATER LINE
In general, a waterline is the interface between a body of water and the atmosphere, which typically varies with the level of water. On ships, waterlines are formed on the hull by the water at different levels of draft.

WATER PAINT
A paint, the vehicle of which is water emulsion, water dispersion, or ingredients that react chemically with water.
WATER QUALITY STANDARDS
Provisions of state or federal law which consist of designated use or uses for the waters of the United States and water quality criteria for such waters based upon such uses. Water quality standards are to protect the public health or welfare, enhance the quality of water and serve the purposes of the Act.

WATER-REDUCIBLE COATING
Coating that can be diluted (reduced) with water, water-cosolvent mixtures, and sometimes with alkali (alkali-soluble resins).

WATER-SOLUBLE RESIN
In most cases, amines and/or cosolvents are required to solubilize these carboxyl-containing resins. The preferred term is “alkali-soluble resin.” These systems are generally dispersions of micelles rather than true solutions. [Painting/Coatings Dictionary] The particles are in the size range of 0.01 to 0.1 micrometer, which produce a clear mixture in the absence of added pigment.

WATER SPOTTING
See WATER STAINING.

WATER STAINING
Any nonuniform change in appearance, including color, gloss, or sheen in the shape of spots and streaks, resulting from the accumulation of water on or the contact of water with the painted surface. It is apparent after drying. [CED]

WATER TANK LINING
See TANK LINING.

WATER-THINNED COATING
A coating that is dispersed in water and uses water for thinning.

WATER TRAP
A structural feature in which liquid (such as rainwater) may accumulate from the environment.

WATER VAPOR TRANSMISSION RATE (WVT)
The steady water vapor flow in unit time through unit area of a body, between two specific, parallel surfaces, under specific conditions of temperature and humidity at each surface. [CED]

W / C
Ratio of the weights of water-to-cement (or cementitious material) in a mix expressed.

WEATHER RESISTANCE
The capability of a coating to resist the combination of exposures created by weather, such as heat, cold, thermal cycling, rain, and sunlight.

WEATHERING
The behavior of paint films exposed to natural weather or accelerated weathering equipment; characterized by changes in color, texture, strength, chemical composition, or other properties. [CED]

WEATHERING CHAMBER
An apparatus in which specimen materials can be subjected to artificial and accelerated
weathering tests that simulate natural weathering by the use of controlled cycles of ultraviolet radiation, light, water, and heat. Electric arcs, fluorescent bulbs, or other sources of ultraviolet light, water spray, and heating elements are used to simulate the natural conditions of sun, rain, and temperature changes.

WEATHERING CONDENSATION TEST
A test that exposes coated specimens to a cycle consisting of fluorescent ultraviolet light and condensing humidity to accelerate the effects of sunlight and moisture.

WEATHERING STEEL
High strength steel which forms a thin protective oxide film that does not require painting in many exposure locations. Common trade names are Corten or Mayar.

WEATHERING TOPCOATS
Exterior finishes designed to resist deterioration from ultraviolet light, rain, and other natural destructive elements in the atmosphere.

WEATHER-OMETER™
An apparatus in which specimen materials can be subjected to artificial and accelerated weathering tests which simulate natural weathering, by the use of controlled cycles of ultraviolet radiation, light, water, and heat. Electric arcs, water spray and heating elements are used to simulate the natural conditions of sun, rain, and temperature change.

WEB
On bridges, a web is the portion of a beam, girder or truss located between and connected to the flanges or the chords. [B]

WEBBING
See WRINKLING.

WEEP HOLE
An open hole to provide means of liquid drainage.

WEIGHT PERCENT NVM (NONVOLATILE MATERIAL)
The portion of a coating that remains as part of the cured film, expressed as percent by weight. This contrasts to expressing content by volume percent. [EPA]

WELD FLUX
A material used to promote fusion of metals, employed in welding.

WELD SLAG
Amorphous deposits formed during welding. [CED]

WELD SPATTER
Beads of metal produced during the welding process that adhere to the surface near the weld.

WELD-THROUGH PRIMER
A primer that is designed to protect steel prior to welding, permits welding to specification requirements without being removed, and can be overcoated.

WET ABRASIVE BLAST CLEANING
Combining water and abrasives in a blast cleaning operation by one of several methods, including
use of abrasive slurry under pressure, injection of water into the abrasive stream or external application to the abrasive stream as it exits the blast nozzle, or injection of abrasive into pressurized water. Wet abrasive blast cleaning keeps dust from the blasting process to a minimum. To prevent flash rusting, inhibitors may be added to the water or used in a follow-up rinse. Described in SSPC-TR 2/NACE 6G198, “Wet Abrasive Blast Cleaning.” See WATER JETTING WITH ABRASIVE INJECTION.

**WET ABRASIVE BLASTING**
See WET ABRASIVE BLAST CLEANING.

**WET ADHESION**
The ability of a coating to adhere tightly to a substrate under wet conditions.

**WET AIR**
Saturated air that contains droplets of moisture (condensed water vapor). See also DRY AIR, SATURATED AIR.

**WET BLASTING**
See WET ABRASIVE BLAST CLEANING.

**WET BULB DEPRESSION**
The difference between the dry bulb temperature (t) and the wet bulb temperature (t_w). [ASTM]

**WET BULB TEMPERATURE**
The temperature recorded on the wet bulb thermometer of a psychrometer. See also PSYCHROMETER, DRY BULB TEMPERATURE.

**WET BULB THERMOMETER**
The thermometer on a sling or other psychrometer whose bulb is covered with a wet cotton sock. See PSYCHROMETER.

**WET DOCK**
Pier or other waterfront facility for berthing ships where the ship remains afloat in water, as opposed to a dry dock, graving dock or floating dry dock in which the entire hull is exposed.

**WET EDGE**
Length of time a coating can stand and be brushed or rolled back into the next stretch without showing a lap. [MPDA]

**WET FILM THICKNESS (WFT)**
The thickness of a wet liquid coating film immediately after application and before evaporation of any volatile material from the film.

**WET FILM THICKNESS GAGE**
A tool used to measure wet film thickness. See WETTING THICKNESS GAGE, NOTCH TYPE.
WET FILM THICKNESS GAGE, NOTCH TYPE
Gage with one or more faces cut in a series of notches that is used to determine coating wet film thickness, as described in ASTM D 4414.

WET-ON-WET COATING
Painting technique whereby additional coats are applied before previous coats have dried, and the composite film then dries as a whole. The process requires specially formulated paints. Often used in automotive and furniture finishing. [Painting/Coatings Dictionary]

WET SPONGE TESTER
See HOLIDAY DETECTOR, LOW VOLTAGE WET SPONGE TYPE.

WET STORAGE STAIN
See WHITE RUST.

WETTING
(1) The power of a vehicle to spread uniformly and rapidly over the surface of pigment particles. A vehicle with good wetting properties assists in the grinding or dispersion of pigments and the ability to wet the surface to which the coating is applied [Painting/Coatings Dictionary]; (2) The ability of the coating being applied to come into physical contact with the existing coating or oxide layer. Good wetting depends on the relative surface tensions of the two surfaces.

WETTING AGENT
A substance capable of lowering the surface tension of liquids, facilitating the wetting of solid surfaces and permitting the penetration of liquids into the capillaries.

WFT
See WET FILM THICKNESS.

WHEEL BLAST CLEANING
See CENTRIFUGAL BLAST CLEANING, CLOSED ABRASIVE BLAST CLEANING.

WHIP CHECK
Safety cable in abrasive blasting that connects air hoses across the coupling to keep the hoses from flying around if the connection separates.

WHIP END
A section of either an airless paint hose or abrasive blasting hose at the working end that is more flexible than the rest of the hose run for easier manipulation by the operator.

WHIP HOSE
See HOSE.

WHITE METAL BLAST CLEANING
Highest grade of abrasive blast cleaning. According to SSPC-SP 5/NACE No. 1, “White Metal Blast Cleaning,” a white metal blast cleaned surface is “free of all visible oil, grease, dust, mill scale, rust, coating, oxides, corrosion products, and other foreign matter.” See SSPC-SP 5/NACE No. 1.
WHITE RUST
White oxidation products (oxide, hydroxide, carbonate) of zinc formed on galvanizing and other zinc-coated surfaces during exterior storage.

WIND SCREEN
Flexible sheet of formed or woven material of an open mesh construction used to contain paint overspray and abrasive blasting residue. Screens often are classified according to retention capacity (e.g., 85 percent), which represents the amount of light transmittance through the screen (or opacity) by virtue of the mesh size of its openings. Screens are permeable to fine dust. [ILPR]

WIRE BRUSH
A hand tool or a power tool attachment made of wire bundles used to clean dirt, loose rust, loose paint or varnish, plaster spatter, and other debris from a surface.

WIRE BRUSH CLEANING
Cleaning a surface with a wire brush that is either a hand tool or a power tool. See also HAND TOOL CLEANING, POWER TOOL CLEANING.

WIRE BRUSHING
See WIRE BRUSH CLEANING.

WIRE ROPE
A cable made of steel strands, frequently galvanized steel, wrapped around a core. The direction of the strands is called the lay of the rope.

WITHIN COATS
See INTRACOAT.

WOOD PROCESSING AREA
In pulp and papermaking, the wood processing area is where the woodchips are screened for oversized or undersized chips. Some mills may include the debarking drums and chipper in this area.

WOODYARD
The receiving station at the beginning of the papermaking process where the logs and chips are delivered and stored. In the woodyard, logs are debarked and chipped, and chips are screened. The woodyard is the doorway through which woodchips enter the paper mill.

WORK CAGE
A single-point suspension scaffold that is adjustable in height as needed and enclosed with guardrails, midrails, and toeboards. A work cage is large enough for the operator to work standing up. It allows access to high work areas not easily reached by larger scaffolding systems. See also BOSUN’S CHAIR.

WORK MIX
See ABRASIVE MIX.

WORK PERMIT
Formal instruction, issued daily or weekly, to allow working in a hazardous environment.
**WORK PLAN**
Document that translates the specification requirements into actions, scheduled in a logical sequence, that must be used by the workers to meet all requirements.

**WORK PRACTICE CONTROL**
Work procedures that are intended to reduce exposure to a known hazard. Examples include: following proper housekeeping and personal hygiene procedures, and regular inspections and maintenance of equipment such as dust controllers to minimize the accumulation of lead dust.

**WORKABILITY**
That property of freshly mixed concrete, cementitious or resinous mortar that determines the ease and homogeneity with which it can be mixed, placed, consolidated, and finished.

**WOVEN ROVING**
A cloth consisting of glass fibers woven in a pattern to impart strength when used to reinforce a coating or other composite system.

**WRAP AROUND EFFECT**
The effect of an electrostatic charge upon a sprayed coating, so that the coating covers all exposed conductive areas, including edges.

**WRINKLING**
A defect that creates small furrows or ridges in a coating film. Wrinkling usually occurs with thick films of oil-based paint.

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**XYLENE**
An aromatic solvent used in the manufacture of paints. It also is used widely as a thinner and cleanup solvent. Dimethylbenzene \([C_6H_5(CH_3)_2]\), occurring as three isomers with very similar properties and usually sold as a mixture. Also known as xylol.

**XYLOL**
See XYLENE.

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**YEAR ZERO**
In cost analyses, the current year is considered as year zero and cash flows occurring in the current year are not discounted.

**YELLOWING**
The formation of a yellow color or cast on a white or light-colored coating.
**ZAHN CUP**
A field instrument used to check viscosity at the job site. See VISCOSITY CUP, FORD CUP.

**ZINC**
A hard, metallic element with a bluish tinge. Zinc or its compounds are used as reinforcing pigments and corrosion resistant pigments. Zinc dust is used in zinc-rich coatings to provide galvanic protection of steel. It is also the basis for galvanizing and thermal sprayed zinc coatings.

**ZINC DUST**
Finely divided zinc metal used as a pigment in zinc-rich and zinc dust/zinc oxide protective coatings for iron and steel. [Painting/Coatings Dictionary]

**ZINC OXIDE**
A fine particle, white pigment used in paint for mildew resistance, corrosion resistance, and film reinforcement. [Painting/Coatings Dictionary] American process zinc oxide pigment is made directly from zinc ores, and sometimes is called direct process. French process zinc oxide pigment is made from zinc metal, and sometimes is called indirect process.

**ZINC PROTOPORPHYRIN**
A medical screening test for the effect of lead on the metabolism of individuals exposed to lead. It is often used in conjunction with the blood lead analysis, as it reflects lead absorption over a longer time period than blood lead.

**ZINC-RICH COATING**
Anti-corrosive primer for iron and steel. Zinc-rich coatings use zinc dust in a concentration sufficient to provide electrical conductivity in the dried film. This enables the zinc metal to corrode preferentially to the ferrous substrate, giving galvanic protection. [Painting/Coatings Dictionary] See also INORGANIC ZINC-RICH COATING, ORGANIC ZINC-RICH COATING, GALVANIC PROTECTION. Described in SSPC Paint Specifications 20 & 29.

**ZINC SHOT BLASTING**
A modification of the normal blast cleaning procedure in which metallic zinc particles are substituted for all or part of the shot, grit, or sand; also called zinking.

**ZINC SILICATE COATING**
Inorganic zinc-rich coating that contains a silicate binder.