MATERIAL SAFETY DATA SHEET

Sodium Hydrosulphite

Section 01 - Chemical And Product And Company Information

Product Identifier ............................. Sodium Hydrosulphite 90-92%

Product Use ................................. Vat dying of fibres and textiles; stripping agent for dyes; bleaching agent; oxygen scavenger for synthetic rubbers.

Supplier Name............................ ClearTech Industries Inc.
2302 Hanselman Avenue
Saskatoon, SK. Canada
S7L 5Z3

Prepared By.............................. ClearTech Industries Inc. Technical Department
Phone: (306)664-2522

24-Hour Emergency Phone .......... 306-664-2522

Section 02 - Composition / Information on Ingredients

Hazardous Ingredients.................. Sodium Dithionite 70-92%
                                      Sodium Carbonate 0.5-1.5%
                                      Sodium Sulphite 5-10%
                                      Sodium Chloride 1-5%

CAS Number............................... Sodium Hydrosulfite 7775-14-6
                                      Sodium Carbonate 497-19-8
                                      Sodium Sulphite 7757-83-7
                                      Sodium Chloride 7647-14-5

Synonym(s)............................... Sodium dithionite, dithionous acid, disodium salt, sodium sulfoxylate
Section 03 - Hazard Identification

Inhalation
Inhalation can cause severe irritation of mucous membranes and upper respiratory tract. Symptoms may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea and vomiting. High concentrations may cause lung damage. Higher exposures can cause a build-up of fluid in the lungs (pulmonary edema), a medical emergency.

Skin Contact / Absorption
Can irritate the skin causing a rash or burning feeling on contact. High concentrations could cause burns.

Eye Contact
Causes irritation, redness, and pain. May cause burns and possible damage to vision.

Ingestion
May cause abdominal pain, nausea, vomiting, colic and diarrhea, circulatory disturbances, central nervous system depression, irritability, restlessness, convulsions, cyanosis, respiratory and cardiovascular collapse, and death. Estimated lethal dose 30 grams.

Exposure Limits
Not Available

Section 04 - First Aid Measures

Inhalation
Remove victim to fresh air. Give artificial respiration only if breathing has stopped. If breathing is difficult, give oxygen. Seek immediate medical attention.

Skin Contact / Absorption
Remove contaminated clothing. Wash affected area with soap and water. Seek medical attention if irritation occurs or persists

Eye Contact
Flush immediately with water for at least 20 minutes. Forcibly hold eyelids apart to ensure complete irrigation of eye tissue. Seek immediate medical attention.

Ingestion
Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention. Do not give anything by mouth to an unconscious or convulsing person. Seek immediate medical attention.

Additional Information
Not Available
Section 05 - Fire Fighting

Conditions of Flammability.............. Flammable solid. Heats spontaneously in contact with moisture and air. May ignite in the presence of combustible materials.

Means of Extinction...................... Dithionite fires may require flooding with water in order to eliminate hazardous reaction since the materials generate their own oxygen. Chemical powder, dry concrete and dry sand are effective in stopping the fire but they do not interrupt the decomposition of the product.

Flash Point.......................... Not Available

Auto-ignition Temperature............. Not Available

Upper Flammable Limit ................. Not Available

Lower Flammable Limit................. Not Available

Hazardous Combustible Products... Combustion products include the evolution of sulfur dioxide gas and other metallic oxides.

Special Fire Fighting Procedures..... Wear NIOSH-approved self-contained breathing apparatus and protective clothing. Do not get water inside container. Containers exposed to direct flame contact should be cooled with large quantities of water as needed to prevent weakening of container structure.

Explosion Hazards...................... Not considered to be an explosion hazard. An explosion occurred after mixing sodium hydrosulfite, aluminum powder, potassium carbonate and benzaldehyde.

Section 06 - Accidental Release Measures

Leak / Spill............................. Wear appropriate personal protective equipment. Ventilate area. Stop or reduce leak if safe to do so. Prevent material from entering sewers. Pick up solids and put in an appropriate sealed container for later disposal. Flush area with water to remove trace residue. Avoid contact with combustible materials.

Deactivating Materials............... Not Available
Section 07 - Handling and Storage

Handling Procedures
Use proper equipment for lifting and transporting all containers. Use sensible industrial hygiene and housekeeping practices. Wash thoroughly after handling. Avoid all situations that could lead to harmful exposure. Keep away from water. Keep away from heat, sparks and flame.

Storage Requirements
Store in a cool, dry location outdoors or in well-ventilated areas of noncombustible materials. Keep containers tightly closed, and away from incompatible materials. Store away from sunlight and sources of heat. Protect against moisture, water and physical damage. Isolate from combustible materials.

Section 08 - Personal Protection and Exposure Controls

Protective Equipment

Eyes
Chemical goggles, full-face shield, or a full-face respirator is to be worn at all times when product is handled. Contact lenses should not be worn; they may contribute to severe eye injury.

Respiratory
For conditions of use where exposure to the dust or mist is apparent, a half face dust/mist respirator may be worn. For emergencies or instances where the exposure levels are not known, use a full-face positive-pressure, air-supplied respirator.

Gloves
Impervious gloves of chemically resistant material (rubber or PVC) should be worn at all times. Wash contaminated clothing and dry thoroughly before reuse.

Clothing
Body suits, aprons, and/or coveralls of chemical resistant material should be worn at all times. Wash contaminated clothing and dry thoroughly before reuse.

Footwear
No special footwear is required other than what is mandated at place of work.

Engineering Controls

Ventilation Requirements
Mechanical ventilation (dilution or local exhaust), process or personnel enclosure and control of process conditions should be provided. Supply sufficient replacement air to make up for air removed by exhaust systems.

Other
Emergency shower and eyewash should be in close proximity.
### Section 09 - Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Physical State</th>
<th>Solid powder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Odor and Appearance</td>
<td>White crystalline powder, slight sulfur dioxide odor</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>Not Available</td>
</tr>
<tr>
<td>Specific Gravity (Water=1)</td>
<td>2.30 @ 0°C</td>
</tr>
<tr>
<td>Vapor Pressure (mm Hg, 20C)</td>
<td>Not Available</td>
</tr>
<tr>
<td>Vapor Density (Air=1)</td>
<td>Not Available</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>Not Available</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>Not Available</td>
</tr>
<tr>
<td>Freeze/Melting Point</td>
<td>Decomposition temperature : 20°C (68°F)</td>
</tr>
<tr>
<td>pH</td>
<td>7.5-10</td>
</tr>
<tr>
<td>Water/Oil Distribution Coefficient</td>
<td>Not Available</td>
</tr>
<tr>
<td>Bulk Density</td>
<td>Not Available</td>
</tr>
<tr>
<td>% Volatiles by Volume</td>
<td>Not Available</td>
</tr>
<tr>
<td>Solubility in Water</td>
<td>18% (w/w) @ 0°C</td>
</tr>
<tr>
<td>Molecular Formula</td>
<td>Na₂S₂O₄</td>
</tr>
<tr>
<td>Molecular Weight</td>
<td>174.1</td>
</tr>
</tbody>
</table>

### Section 10 - Stability and Reactivity

<table>
<thead>
<tr>
<th>Stability</th>
<th>Stable when stored in closed containers at room temperature. Heats spontaneously in contact with moisture and air. Loses all of its water of crystallization at 110°C. Decomposes in hot water and acid.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incompatibility</td>
<td>Water, combustible materials, strong oxidizing agents, strong acids and sodium chlorite. An explosion occurred after mixing sodium hydrosulfite, aluminum powder, potassium carbonate and benzaldehyde.</td>
</tr>
<tr>
<td>Hazardous Products of Decomposition</td>
<td>Burning may produce sulfur oxides.</td>
</tr>
</tbody>
</table>
Polymerization........................................ Will not occur

Section 11 - Toxicological Information

Irritancy............................................ Moderate irritant to skin and eyes.

Sensitization.................................. Not Available

Chronic/Acute Effects...................... Exposure may induce allergic reaction.

Synergistic Materials...................... Not Available

Animal Toxicity Data....................... LD$_{50}$(oral, rat): 2500mg/kg (Sodium dithionite)
LD$_{50}$(oral, rat): 4090mg/kg (Sodium carbonate)
LD$_{50}$(oral, rat): 820mg/kg (Sodium sulphite)
LD$_{50}$(oral, rat): 3g/kg (Sodium chloride)

Carcinogenicity.............................. Not considered to be carcinogenic as per ACGIH. Consider to be a Group 3 (the agent, mixture or exposure circumstance, is not classifiable as to its carcinogenicity to humans) carcinogen as per IARC.

Reproductive Toxicity..................... Not Available

Teratogenicity............................... Not Available

Mutagenicity................................. Not Available

Section 12 - Ecological Information

Fish Toxicity.................................... LC$_{50}$(Leuciscus idus, 96 hr, sodium dithionite): 46-68mg/L
LC$_{50}$(Lepomis macrochirus, sodium carbonate): 300mg/L
LC$_{50}$(Lepomis macrochirus, 96 hr, sodium sulphite): 220-460mg/L
LC$_{50}$(Daphnia magna, 96 hr, sodium carbonate): 565mg/L
LC$_{50}$(Lepomis macrochirus, 96 hr, sodium chloride): 5560-6080mg/L

Biodegradability......................... Biodegrades easily in water.

Environmental Effects.................... Not Available

Section 13 - Disposal Consideration

Waste Disposal............................... Dispose in accordance with all federal, provincial, and/or local regulations including the Canadian Environmental Protection Act.
Section 14 - Transportation Information

TDG Classification

Class ........................................... 4.2
Group ........................................... II

PIN Number ................................. UN 1384

Other ........................................... Secure containers (full and/or empty) with suitable hold down devises during shipment.

Section 15 - Regulatory Information

WHMIS Classification ...................... B, D2, F

NOTE: THE PRODUCT LISTED ON THIS MSDS HAS BEEN CLASSIFIED IN ACCORDANCE WITH THE HAZARD CRITERIA OF THE CANADIAN CONTROLLED PRODUCTS REGULATIONS. THIS MSDS CONTAINS ALL INFORMATION REQUIRED BY THOSE REGULATIONS.

Section 16 - Other Information

Version # ........................................ Two
Preparation Date ............................. October 6th, 2010
Revision Date ................................. October 28th, 2013
Revision Note ................................. MSDS updated.

Note: The responsibility to provide a safe workplace remains with the user. The user should consider the health hazards and safety information contained herein as a guide and should take those precautions required in an individual operation to instruct employees and develop work practice procedures for a safe work environment. The information contained herein is, to the best of our knowledge and belief, accurate. However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damages incurred by the use of this material. It is the responsibility of the user to comply with all applicable laws and regulations.

Attention: Receiver of the chemical goods / MSDS coordinator
As part of our commitment to the Canadian Association of Chemical Distributors (CACD) Responsible Distribution® initiative, ClearTech Industries Inc. and its associated companies require, as a condition of sale, that you forward the attached Material Safety Data Sheet(s) to all affected employees, customers, and end-users. ClearTech will send any available supplementary handling, health, and safety information to you at your request.

If you have any questions or concerns please call our customer service or technical service department.
ClearTech Industries Inc. - Locations

Corporate Head Office: 2302 Hanselman Avenue, Saskatoon, SK, S7L 5Z3
Phone: 306-664-2522
Fax: 306-665-6216

www.ClearTech.ca

<table>
<thead>
<tr>
<th>Location</th>
<th>Address</th>
<th>Postal Code</th>
<th>Phone Number</th>
<th>Fax Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Richmond, B.C.</td>
<td>12431 Horseshoe Way</td>
<td>V7A 4X6</td>
<td>1-800-387-7503</td>
<td>1-888-281-8109</td>
</tr>
<tr>
<td>Port Coquitlam, BC</td>
<td>2023 Kingsway Ave</td>
<td>V3C 1S9</td>
<td>1-800-387-7503</td>
<td>1-888-281-8109</td>
</tr>
<tr>
<td>Calgary, AB.</td>
<td>5516E - 40th St. S.E.</td>
<td>T2C 2A1</td>
<td>1-800-387-7503</td>
<td>1-888-281-8109</td>
</tr>
<tr>
<td>Edmonton, AB.</td>
<td>11750 - 180th Street</td>
<td>T5S 1N7</td>
<td>1-800-387-7503</td>
<td>1-888-281-8109</td>
</tr>
<tr>
<td>Saskatoon, SK.</td>
<td>2302 Hanselman Avenue</td>
<td>S7L 5Z3</td>
<td>1-800-387-7503</td>
<td>1-888-281-8109</td>
</tr>
<tr>
<td>Regina, SK.</td>
<td>555 Henderson Drive</td>
<td>S4R 5X2</td>
<td>1-800-387-7503</td>
<td>1-888-281-8109</td>
</tr>
<tr>
<td>Winnipeg, MB.</td>
<td>340 Saulteaux Crescent</td>
<td>R3J 3T2</td>
<td>1-800-387-7503</td>
<td>1-888-281-8109</td>
</tr>
<tr>
<td>Mississauga, ON.</td>
<td>7480 Bath Road</td>
<td>L4T 1L2</td>
<td>1-800-387-7503</td>
<td>1-888-281-8109</td>
</tr>
</tbody>
</table>

24 Hour Emergency Number - All Locations - 306-664-2522