1. Identification

Product identifier: CO® Contact Cleaner
Other means of identification:
- Product code: 02016
- Recommended use: Precision electronics cleaner
- Recommended restrictions: None known.

Manufacturer/Importer/Supplier/Distributor information:
- Manufacturer or sold by:
  - Company name: CRC Industries, Inc.
  - Address: 885 Louis Dr.
  - Warminster, PA 18974 US
  - Telephone:
    - General Information: 215-674-4300
    - Technical Assistance: 800-521-3168
    - Customer Service: 800-272-4620
    - 24-Hour Emergency (CHEMTREC): 800-424-9300 (US), 703-527-3887 (International)
  - Website: www.crcindustries.com

2. Hazard(s) identification

Physical hazards:
- Gases under pressure
- Liquefied gas

Health hazards:
- Not classified.

Environmental hazards:
- Not classified.

OSHA defined hazards:
- Not classified.

Label elements:
- Signal word: Warning
- Hazard statement: Contains gas under pressure; may explode if heated.
- Precautionary statement:
  - Prevention: Do not puncture or incinerate container. Do not expose to heat or store at temperatures above 49°C/120°F. Use with adequate ventilation. Open doors and windows or use other means to ensure a fresh air supply during use and while product is drying. If you experience any symptoms listed on this label, increase ventilation or leave the area.
  - Response: Wash hands after handling.
  - Storage: Store in a well-ventilated place. Protect from sunlight. Exposure to high temperature may cause can to burst.
  - Disposal: Dispose of waste and residues in accordance with local authority requirements.

Hazard(s) not otherwise classified (HNOC):
- None known.

Supplemental information:
- When exposed to extreme heat or hot surfaces, vapors may decompose to harmful or fatal corrosive gases such as hydrogen fluoride.

3. Composition/information on ingredients

Mixtures

Material name: CO® Contact Cleaner
Version #: 02
Revision date: 07-21-2015
Issue date: 08-28-2013
Specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. First-aid measures

Inhalation
Move to fresh air. Call a physician if symptoms develop or persist.

Skin contact
Wash off with soap and water. Get medical attention if irritation develops and persists.

Eye contact
Rinse with water. Get medical attention if irritation develops and persists.

Ingestion
Rinse mouth. Get medical attention if symptoms occur.

Most important symptoms/effects, acute and delayed
Direct contact with eyes may cause temporary irritation.

Indication of immediate medical attention and special treatment needed
Provide general supportive measures and treat symptomatically.

General information
Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media
Water.

Unsuitable extinguishing media
None known.

Specific hazards arising from the chemical
Contents under pressure.

Special protective equipment and precautions for firefighters
Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

Fire-fighting equipment/instructions
In case of fire: Stop leak if safe to do so. Do not move cargo or vehicle if cargo has been exposed to heat. Move containers from fire area if you can do so without risk. Use water spray to cool unopened containers. For massive fire in cargo area, use unmanned hose holder or monitor nozzles, if possible. If not, withdraw and let fire burn out.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures
Keep people away from and upwind of spill/leak. Keep out of low areas. Wear appropriate personal protective equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained.

Methods and materials for containment and cleaning up
Stop the flow of material, if this is without risk. Prevent entry into waterways, sewer, basements or confined areas. Following product recovery, flush area with water.

Environmental precautions
Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling
Avoid prolonged exposure. Provide adequate ventilation. Wear appropriate personal protective equipment. Observe good industrial hygiene practices. For product usage instructions, please see the product label.

Conditions for safe storage, including any incompatibilities
Level 1 Aerosol.

Store in a well-ventilated place. Store in a cool, dry place out of direct sunlight.

8. Exposure controls/personal protection

Occupational exposure limits

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,1,1,2-Tetrafluoroethane</td>
<td>TWA</td>
<td>4240 mg/m3</td>
</tr>
<tr>
<td>(CAS 811-97-2)</td>
<td></td>
<td>1000 ppm</td>
</tr>
</tbody>
</table>

Material name: CO® Contact Cleaner

02016    Version #: 02    Revision date: 07-21-2015    Issue date: 08-28-2013
<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methyl nonafluorobutyl ether (CAS 163702-07-6)</td>
<td>TWA</td>
<td>750 ppm</td>
</tr>
<tr>
<td>Methyl nonafluoroisobutyl ether (CAS 163702-08-7)</td>
<td>TWA</td>
<td>750 ppm</td>
</tr>
</tbody>
</table>

**Biological limit values**

No biological exposure limits noted for the ingredient(s).

**Appropriate engineering controls**

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

**Individual protection measures, such as personal protective equipment**

- **Eye/face protection**
  - Wear safety glasses with side shields (or goggles).

- **Skin protection**
  - **Hand protection**
    - Wear protective gloves such as: Neoprene. Nitrile. Polyvinyl alcohol (PVA).
  - **Other**
    - Wear appropriate chemical resistant clothing.

- **Respiratory protection**
  - If engineering controls are not feasible or if exposure exceeds the applicable exposure limits, use a NIOSH-approved cartridge respirator with an organic vapor cartridge. Use a self-contained breathing apparatus in confined spaces and for emergencies. Air monitoring is needed to determine actual employee exposure levels.

- **Thermal hazards**
  - Wear appropriate thermal protective clothing, when necessary.

**General hygiene considerations**

- Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

### 9. Physical and chemical properties

**Appearance**

- **Physical state**
  - Liquid.

- **Form**
  - Aerosol.

- **Color**
  - Clear. Colorless.

**Odor**

- Ethereal and sweetish odor.

**Odor threshold**

- Not available.

**pH**

- Not available.

**Melting point/freezing point**

- -211 °F (-135 °C) estimated

**Initial boiling point and boiling range**

- 131 °F (55 °C) estimated

**Flash point**

- None (Tag Closed Cup)

**Flame extension**

- Very fast.

**Evaporation rate**

- Not available.

**Flammability (solid, gas)**

- Not applicable.

**Upper/lower flammability or explosive limits**

- **Flammability limit - lower (%)**
  - Not applicable.

- **Flammability limit - upper (%)**
  - Not applicable.

**Vapor pressure**

- 313.4 kPa

**Vapor density**

- > 1 (air = 1)

**Relative density**

- 1.55 estimated

**Solubility (water)**

- < 140 ppm

**Partition coefficient (n-octanol/water)**

- Not available.

**Auto-ignition temperature**

- Not available.
10. Stability and reactivity

Reactivity: The product is stable and non-reactive under normal conditions of use, storage and transport.

Chemical stability: Material is stable under normal conditions.

Possibility of hazardous reactions: No dangerous reaction known under conditions of normal use.

Conditions to avoid: When exposed to extreme heat or hot surfaces, vapors may decompose to harmful or fatal corrosive gases such as hydrogen fluoride.

Incompatible materials: Strong oxidizing agents.

Hazardous decomposition products: Hydrogen fluoride.

11. Toxicological information

Information on likely routes of exposure:

<table>
<thead>
<tr>
<th>Route</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inhalation</td>
<td>Prolonged inhalation may be harmful.</td>
</tr>
<tr>
<td>Skin contact</td>
<td>No adverse effects due to skin contact are expected.</td>
</tr>
<tr>
<td>Eye contact</td>
<td>Direct contact with eyes may cause temporary irritation.</td>
</tr>
<tr>
<td>Ingestion</td>
<td>Expected to be a low ingestion hazard.</td>
</tr>
</tbody>
</table>

Symptoms related to the physical, chemical and toxicological characteristics:

Direct contact with eyes may cause temporary irritation.

Information on toxicological effects:

Acute toxicity: Not available.

Test Results:

<table>
<thead>
<tr>
<th>Product</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO® Contact Cleaner</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dermal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LD50</td>
<td>Rabbit</td>
<td>19920 mg/kg estimated</td>
</tr>
<tr>
<td>Inhalation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LC50</td>
<td>Rat</td>
<td>44056 mg/kg, 4 hours estimated</td>
</tr>
<tr>
<td>Oral</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LD50</td>
<td>Rat</td>
<td>454 mg/l, 4 hours estimated</td>
</tr>
<tr>
<td>Chronic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inhalation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NOEL</td>
<td>Rat</td>
<td>9960 mg/kg estimated</td>
</tr>
<tr>
<td>Skin corrosion/irritation</td>
<td></td>
<td>Prolonged skin contact may cause temporary irritation.</td>
</tr>
<tr>
<td>Serious eye damage/eye irritation</td>
<td>Direct contact with eyes may cause temporary irritation.</td>
<td></td>
</tr>
<tr>
<td>Respiratory sensitization</td>
<td>This product is not expected to cause respiratory sensitization.</td>
<td></td>
</tr>
<tr>
<td>Skin sensitization</td>
<td>This product is not expected to cause skin sensitization.</td>
<td></td>
</tr>
<tr>
<td>Germ cell mutagenicity</td>
<td>No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.</td>
<td></td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.</td>
<td></td>
</tr>
</tbody>
</table>

IARC Monographs. Overall Evaluation of Carcinogenicity

Not available.

US. National Toxicology Program (NTP) Report on Carcinogens

Not available.

Reproductive toxicity: This product is not expected to cause reproductive or developmental effects.
Specific target organ toxicity - single exposure
Not classified.

Specific target organ toxicity - repeated exposure
Not classified.

Aspiration hazard
Not an aspiration hazard.

Chronic effects
Prolonged inhalation may be harmful.

12. Ecological information

Ecotoxicity
The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

<table>
<thead>
<tr>
<th>Product</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO® Contact Cleaner</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aquatic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crustacea EC50 Daphnia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fish LC50 Fish</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Components</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decafluoropentane (CAS 138495-42-8)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aquatic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crustacea EC50 Daphnia magna</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fish LC50 Zebra danio</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Persistence and degradability
No data is available on the degradability of this product.

Bioaccumulative potential
No data available.

Partition coefficient n-octanol / water (log Kow)

<table>
<thead>
<tr>
<th>Component</th>
<th>Log Kow</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,1,1,2-Tetrafluoroethane</td>
<td>1.274</td>
</tr>
<tr>
<td>Decafluoropentane</td>
<td>2.7, Pow at 20 °C</td>
</tr>
</tbody>
</table>

Mobility in soil
No data available.

Other adverse effects
No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal of waste from residues / unused products
The dispensed liquid product is not a RCRA hazardous waste (See 40 CFR Part 261.20 - 261.33). Consult authorities before disposal. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national regulations.

Hazardous waste code
Not regulated.

Contaminated packaging
Do not re-use empty containers.

14. Transport information

<table>
<thead>
<tr>
<th>DOT</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>UN number</td>
<td>UN1950</td>
</tr>
<tr>
<td>UN proper shipping name</td>
<td>Aerosols, non-flammable, Limited Quantity</td>
</tr>
<tr>
<td>Transport hazard class(es)</td>
<td></td>
</tr>
<tr>
<td>Class</td>
<td>2.2</td>
</tr>
<tr>
<td>Subsidiary risk</td>
<td>-</td>
</tr>
<tr>
<td>Label(s)</td>
<td>2.2</td>
</tr>
<tr>
<td>Packing group</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Special precautions for user</td>
<td>Not available.</td>
</tr>
<tr>
<td>Special provisions</td>
<td>Not available.</td>
</tr>
<tr>
<td>Packaging exceptions</td>
<td>306</td>
</tr>
<tr>
<td>Packaging non bulk</td>
<td>None</td>
</tr>
<tr>
<td>Packaging bulk</td>
<td>None</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>IATA</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>UN number</td>
<td>UN1950</td>
</tr>
<tr>
<td>UN proper shipping name</td>
<td>Aerosols, non-flammable, Limited Quantity</td>
</tr>
</tbody>
</table>


**Transport hazard class(es)**

<table>
<thead>
<tr>
<th>Class</th>
<th>2.2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subsidiary risk</td>
<td>-</td>
</tr>
</tbody>
</table>

**Packing group**

Not applicable.

**Environmental hazards**

No.

**ERG Code**

2L

**Special precautions for user**

Not available.

**Other information**

- Passenger and cargo aircraft: Allowed.
- Cargo aircraft only: Allowed.

**IMDG**

<table>
<thead>
<tr>
<th>UN number</th>
<th>UN1950</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN proper shipping name</td>
<td>AEROSOLS, LIMITED QUANTITY</td>
</tr>
</tbody>
</table>

**15. Regulatory information**

**US federal regulations**

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

**TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)**

Decafluoropentane (CAS 138495-42-8) 1.0 % One-Time Export Notification only.


- Not listed.

**SARA 304 Emergency release notification**

- Not regulated.

**US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Listed substance**

- Not listed.

**CERCLA Hazardous Substance List (40 CFR 302.4)**

- Not listed.

**CERCLA Hazardous Substances: Reportable quantity**

- Not listed.

Spills or releases resulting in the loss of any ingredient at or above its RQ require immediate notification to the National Response Center (800-424-8802) and to your Local Emergency Planning Committee.

**Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List**

- Not regulated.

**Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)**

- Not regulated.

**Safe Drinking Water Act (SDWA)**

- Not regulated.

**Food and Drug Administration (FDA)**

- Not regulated.

**Superfund Amendments and Reauthorization Act of 1986 (SARA)**

- Immediate Hazard - No
- Delayed Hazard - No
- Fire Hazard - No
- Pressure Hazard - Yes
- Reactivity Hazard - No

**SARA 302 Extremely hazardous substance**

- No
US state regulations

US. California Controlled Substances. CA Department of Justice (California Health and Safety Code Section 11100)  
Not listed.

US. New Jersey Worker and Community Right-to-Know Act  
Not listed.

US. Massachusetts RTK - Substance List  
None.

US. Pennsylvania Worker and Community Right-to-Know Law  
Not listed.

US. Rhode Island RTK  
None.

US. California Proposition 65  
California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

Volatile organic compounds (VOC) regulations

EPA
VOC content (40 CFR 51.100(s)) 0 %
Consumer products (40 CFR 59, Subpt. C) Not regulated

State
Consumer products  
This product is regulated as an Electronic Cleaner. This product is compliant in all 50 states.
VOC content (CA) 60 %
VOC content (OTC) 0 %

International Inventories

<table>
<thead>
<tr>
<th>Country(s) or region</th>
<th>Inventory name</th>
<th>On inventory (yes/no)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Australian Inventory of Chemical Substances (AICS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Domestic Substances List (DSL)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Non-Domestic Substances List (NDSL)</td>
<td>No</td>
</tr>
<tr>
<td>China</td>
<td>Inventory of Existing Chemical Substances in China (IECSC)</td>
<td>Yes</td>
</tr>
<tr>
<td>Europe</td>
<td>European Inventory of Existing Commercial Chemical Substances (EINECS)</td>
<td>No</td>
</tr>
<tr>
<td>Europe</td>
<td>European List of Notified Chemical Substances (ELINCS)</td>
<td>No</td>
</tr>
<tr>
<td>Japan</td>
<td>Inventory of Existing and New Chemical Substances (ENCS)</td>
<td>No</td>
</tr>
<tr>
<td>Korea</td>
<td>Existing Chemicals List (ECL)</td>
<td>No</td>
</tr>
<tr>
<td>New Zealand</td>
<td>New Zealand Inventory</td>
<td>Yes</td>
</tr>
<tr>
<td>Philippines</td>
<td>Philippine Inventory of Chemicals and Chemical Substances (PICCS)</td>
<td>Yes</td>
</tr>
<tr>
<td>United States &amp; Puerto Rico</td>
<td>Toxic Substances Control Act (TSCA) Inventory</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*"A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)  
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

<table>
<thead>
<tr>
<th>Issue date</th>
<th>08-28-2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revision date</td>
<td>07-21-2015</td>
</tr>
<tr>
<td>Prepared by</td>
<td>Allison Cho</td>
</tr>
<tr>
<td>Version #</td>
<td>02</td>
</tr>
<tr>
<td>Further information</td>
<td>CRC # 508C-D</td>
</tr>
</tbody>
</table>

HMIS® ratings
Health: 1  
Flammability: 1  
Physical hazard: 0  
Personal protection: B

NFPA ratings
Health: 1  
Flammability: 1  
Instability: 0
The information contained in this document applies to this specific material as supplied. It may not be valid for this material if it is used in combination with any other materials. This information is accurate to the best of CRC Industries’ knowledge or obtained from sources believed by CRC to be accurate. Before using any product, read all warnings and directions on the label. For further clarification of any information contained on this (M)SDS consult your supervisor, a health & safety professional, or CRC Industries.