

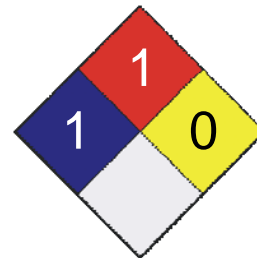
# MATERIAL SAFETY DATA SHEET

## 1. Product and Company Identification

**Product Name** C-3s Refrigeration Oil (4303)  
**CAS #** Mixture  
**Product use** Oil  
**Manufacturer** Nu-Calgon  
 2008 Altom Court  
 St. Louis, MO 63146 US  
 Phone: 314-469-7000 / 800-554-5499  
 Emergency Phone: 1-800-424-9300 (CHEMTREC)

| LEGEND<br>HMIS/NFPA |   |
|---------------------|---|
| Severe              | 4 |
| Serious             | 3 |
| Moderate            | 2 |
| Slight              | 1 |
| Minimal             | 0 |

|                     |     |
|---------------------|-----|
| Health              | / 1 |
| Flammability        | 1   |
| Physical Hazard     | 0   |
| Personal Protection | X   |



## 2. Hazards Identification

**Emergency overview** Contact may cause eye and skin irritation.  
**Potential short term health effects**  
**Routes of exposure** Eye, Skin contact, Inhalation, Ingestion.  
**Eyes** May cause irritation.  
**Skin** May cause irritation.  
**Inhalation** Excessive intentional inhalation may cause respiratory tract irritation and central nervous system effects (headache, dizziness).  
**Ingestion** May cause stomach distress, nausea or vomiting.  
**Target organs** Skin. Eyes.  
**Chronic effects** Prolonged or repeated exposure can cause drying, defatting and dermatitis.  
**Signs and symptoms** Symptoms may include redness, edema, drying, defatting and cracking of the skin. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

## 3. Composition / Information on Ingredients

**Composition comments** None by WHMIS/OSHA criteria.

## 4. First Aid Measures

**First aid procedures**  
**Eye contact** Flush with cool water. Remove contact lenses, if applicable, and continue flushing. Obtain medical attention if irritation persists.  
**Skin contact** Flush with cool water. Wash with soap and water. Obtain medical attention if irritation persists.  
**Inhalation** If symptoms develop move victim to fresh air. If symptoms persist, obtain medical attention.  
**Ingestion** Do not induce vomiting. Rinse mouth with water, then drink one or two glasses of water. Obtain medical attention. Never give anything by mouth if victim is unconscious, or is convulsing.  
**Notes to physician** Symptoms may be delayed.  
**General advice** If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Avoid contact with eyes and skin. Keep out of reach of children.

---

## 5. Fire Fighting Measures

---

|                                                   |                                                                                                 |
|---------------------------------------------------|-------------------------------------------------------------------------------------------------|
| <b>Flammable properties</b>                       | Not flammable by WHMIS/OSHA criteria.                                                           |
| <b>Extinguishing media</b>                        |                                                                                                 |
| <b>Suitable extinguishing media</b>               | Foam. Water spray. Dry chemical. Carbon dioxide.                                                |
| <b>Unsuitable extinguishing media</b>             | Not available                                                                                   |
| <b>Protection of firefighters</b>                 |                                                                                                 |
| <b>Specific hazards arising from the chemical</b> | Not available                                                                                   |
| <b>Protective equipment for firefighters</b>      | Firefighters should wear full protective clothing including self contained breathing apparatus. |
| <b>Hazardous combustion products</b>              | May include and are not limited to: Oxides of carbon.                                           |
| <b>Explosion data</b>                             |                                                                                                 |
| <b>Sensitivity to mechanical impact</b>           | Not available                                                                                   |
| <b>Sensitivity to static discharge</b>            | Not available                                                                                   |

---

## 6. Accidental Release Measures

---

|                                |                                                                                                                                                                                                                                                                                                                                                 |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Personal precautions</b>    | Keep unnecessary personnel away. Do not touch or walk through spilled material. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Keep people away from and upwind of spill/leak.                                                                                                             |
| <b>Methods for containment</b> | Stop leak if you can do so without risk. Prevent entry into waterways, sewers, basements or confined areas.                                                                                                                                                                                                                                     |
| <b>Methods for cleaning up</b> | Before attempting clean up, refer to hazard data given above. Small spills may be absorbed with non-reactive absorbent and placed in suitable, covered, labelled containers. Prevent large spills from entering sewers or waterways. Contact emergency services and supplier for advice. Never return spills in original containers for re-use. |

---

## 7. Handling and Storage

---

|                 |                                                                                              |
|-----------------|----------------------------------------------------------------------------------------------|
| <b>Handling</b> | Use good industrial hygiene practices in handling this material.                             |
| <b>Storage</b>  | Keep out of reach of children. Store in a closed container away from incompatible materials. |

---

## 8. Exposure Controls / Personal Protection

---

|                                       |                                                                                                                                                                             |
|---------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Engineering controls</b>           | General ventilation normally adequate.                                                                                                                                      |
| <b>Personal protective equipment</b>  |                                                                                                                                                                             |
| <b>Eye / face protection</b>          | Wear safety glasses with side shields.                                                                                                                                      |
| <b>Hand protection</b>                | Rubber gloves. Confirm with a reputable supplier first.                                                                                                                     |
| <b>Skin and body protection</b>       | As required by employer code.                                                                                                                                               |
| <b>Respiratory protection</b>         | Where exposure guideline levels may be exceeded, use an approved NIOSH respirator. Avoid breathing mists or vapors.                                                         |
| <b>General hygiene considerations</b> | Handle in accordance with good industrial hygiene and safety practice. When using do not eat or drink. Wash hands before breaks and immediately after handling the product. |

---

## 9. Physical & Chemical Properties

---

|                       |                        |
|-----------------------|------------------------|
| <b>Appearance</b>     | Clear.                 |
| <b>Color</b>          | Straw colored          |
| <b>Form</b>           | Liquid                 |
| <b>Odor</b>           | Mild petroleum         |
| <b>Odor threshold</b> | Not available          |
| <b>Physical state</b> | Liquid                 |
| <b>pH</b>             | Not available          |
| <b>Melting point</b>  | -42.77 °C (-45 °F)     |
| <b>Freezing point</b> | Not available          |
| <b>Boiling point</b>  | > 260 °C (> 500.00 °F) |

---

|                                                |                     |
|------------------------------------------------|---------------------|
| Flash point                                    | 165.55 °C (330 °F)  |
| Evaporation rate                               | Not available       |
| Flammability limits in air, lower, % by volume | Not available       |
| Flammability limits in air, upper, % by volume | Not available       |
| Vapor pressure                                 | < 0.001 mmHg @ 20°C |
| Vapor density                                  | > 5                 |
| Specific gravity                               | 0.9129              |
| Octanol/water coefficient                      | Not available       |
| Solubility (H2O)                               | Negligible          |
| Auto-ignition temperature                      | 343 °C (649.40 °F)  |
| VOC (Weight %)                                 | Not available       |
| Viscosity                                      | 157.2 SUS @ 100°F   |
| Percent volatile                               | Not available       |

---

## 10. Chemical Stability & Reactivity Information

---

|                                    |                                                       |
|------------------------------------|-------------------------------------------------------|
| Chemical stability                 | Stable under recommended storage conditions.          |
| Conditions to avoid                | Do not mix with other chemicals.                      |
| Incompatible materials             | Oxidizers.                                            |
| Hazardous decomposition products   | May include and are not limited to: Oxides of carbon. |
| Possibility of hazardous reactions | Hazardous polymerization does not occur.              |

---

## 11. Toxicological Information

---

|                           |                                                                                                                                   |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| Effects of acute exposure |                                                                                                                                   |
| Eye                       | May cause irritation.                                                                                                             |
| Skin                      | May cause irritation.                                                                                                             |
| Inhalation                | Excessive intentional inhalation may cause respiratory tract irritation and central nervous system effects (headache, dizziness). |
| Ingestion                 | May cause stomach distress, nausea or vomiting.                                                                                   |
| Sensitization             | Non-hazardous by WHMIS/OSHA criteria.                                                                                             |
| Chronic effects           | Non-hazardous by WHMIS/OSHA criteria.                                                                                             |
| Carcinogenicity           | Non-hazardous by WHMIS/OSHA criteria.                                                                                             |
| Mutagenicity              | Non-hazardous by WHMIS/OSHA criteria.                                                                                             |
| Reproductive effects      | Non-hazardous by WHMIS/OSHA criteria.                                                                                             |
| Teratogenicity            | Non-hazardous by WHMIS/OSHA criteria.                                                                                             |

---

## 12. Ecological Information

---

|                                 |                                                           |
|---------------------------------|-----------------------------------------------------------|
| Ecotoxicity                     | Components of this product are hazardous to aquatic life. |
| Environmental effects           | Not available                                             |
| Aquatic toxicity                | Not available                                             |
| Persistence / degradability     | Not available                                             |
| Bioaccumulation / accumulation  | Not available                                             |
| Partition coefficient           | Not available                                             |
| Mobility in environmental media | Not available                                             |
| Chemical fate information       | Not available                                             |

---

## 13. Disposal Considerations

---

|                                       |                                                        |
|---------------------------------------|--------------------------------------------------------|
| Waste codes                           | Not available                                          |
| Disposal instructions                 | Dispose in accordance with all applicable regulations. |
| Waste from residues / unused products | Not available                                          |

---

## 14. Transport Information

---

**U.S. Department of Transportation (DOT)**

Not regulated as dangerous goods.

**Transportation of Dangerous Goods (TDG - Canada)**

Not regulated as dangerous goods.

---

## 15. Regulatory Information

---

**Canadian federal regulations**

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

**US Federal regulations**

This product is not known to be a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.  
All components are on the U.S. EPA TSCA Inventory List.

CERCLA/SARA Hazardous Substances - Not applicable.

**Occupational Safety and Health Administration (OSHA)**

**29 CFR 1910.1200 hazardous chemical** No

**CERCLA (Superfund) reportable quantity**

None

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

**Hazard categories**  
 Immediate Hazard - No  
 Delayed Hazard - No  
 Fire Hazard - No  
 Pressure Hazard - No  
 Reactivity Hazard - No

**Section 302 extremely hazardous substance** No

**Section 311 hazardous chemical** No

**Clean Air Act (CAA)** Not available

**Clean Water Act (CWA)** Not available

**Safe Drinking Water Act (SDWA)** Not available

**Drug Enforcement Agency (DEA)** Not available

**Food and Drug Administration (FDA)** Not available

**WHMIS status** Not Controlled

**State regulations** This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

**Inventory name**

| Country(s) or region        | Inventory name                                | On inventory (yes/no)* |
|-----------------------------|-----------------------------------------------|------------------------|
| Canada                      | Domestic Substances List (DSL)                | Yes                    |
| Canada                      | Non-Domestic Substances List (NDSL)           | No                     |
| United States & Puerto Rico | Toxic Substances Control Act (TSCA) Inventory | Yes                    |

A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

---

## 16. Other Information

---

**Disclaimer**

Information contained herein was obtained from sources considered technically accurate and reliable. While every effort has been made to ensure full disclosure of product hazards, in some cases data is not available and is so stated. Since conditions of actual product use are beyond control of the supplier, it is assumed that users of this material have been fully trained according to the requirements of all applicable legislation and regulatory instruments. No warranty, expressed or implied, is made and supplier will not be liable for any losses, injuries or consequential damages which may result from the use of or reliance on any information contained in this document.

**Issue date** 12-Aug-2008

**Effective date** 15-Aug-2008

**Expiry date**  
**Prepared by**

15-Aug-2011  
Nu-Calgon Technical Service (314) 469-7000