1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Brenntag Canada Inc.

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PRODUCT IDENTIFICATION

Product Name: Copperas Red Iron Oxide, Solid.

Chemical Name: Iron Oxide.

Synonyms: Copperas Red NF2899-Pure; Copperas Red RC1599-Pure; Copperas Red RC2199-Pure; Copperas Red RC2200-Pure; Copperas Red RC2899-Pure; Copperas Red RC2900-Pure; Copperas Red RC3098-Pure; Copperas Red RC4098-Pure; Copperas Red RC5098-Pure; Copperas Red RC6098-Pure; Copperas Red RC8098-Pure; Copperas Red RC9998-Pure; Copperas Red RD5098; Copperas Red RD1299-ED; Copperas Red RD1599-ED; Copperas Red RD2199-ED; Copperas Red RD2899-ED; Copperas Red RD4098-ED; Copperas Red RD6098-ED; Copperas Red RD1599-SICO; Copperas Red RE2899; Copperas Red HP2199; Copperas Red HP3098.

Chemical Family: Inorganic Pigment.

Molecular Formula: Fe2O3 + Fe3O4.


WHMIS Classification / Symbol: Not WHMIS Regulated.

READ THE ENTIRE MSDS FOR THE COMPLETE HAZARD EVALUATION OF THIS PRODUCT.

2. COMPOSITION, INFORMATION ON INGREDIENTS (Not Intended As Specifications)

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>CAS#</th>
<th>ACGIH TLV (TWA)</th>
<th>% Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron Oxide</td>
<td>1332-37-2</td>
<td>5 mg/m³ as Fe (Dust and Fume)</td>
<td>90 - 100</td>
</tr>
<tr>
<td>Iron Oxide (Fe3O4)</td>
<td>1317-61-9</td>
<td>5 mg/m³ as Fe (Dust and Fume)</td>
<td>*A4 0 - 10</td>
</tr>
</tbody>
</table>

A4 = Not classifiable as a human carcinogen. (ACGIH-A4).

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: Mechanical hazard. Dust may cause mechanical irritation to skin, eyes and respiratory tract. Low hazard for usual industrial or commercial handling. See "Other Health Effects" Section. Can decompose at high temperatures forming toxic gases.
4. FIRST AID MEASURES

FIRST AID PROCEDURES

**Inhalation:** If respiratory problems arise, move the victim to fresh air. Give artificial respiration ONLY if breathing has stopped. Give cardiopulmonary resuscitation (CPR) if there is no breathing AND no pulse. Obtain medical advice IMMEDIATELY.

**Skin Contact:** Start flushing while removing contaminated clothing. Wash affected areas thoroughly with soap and water. If irritation, redness, or a burning sensation develops and persists, obtain medical advice.

**Eye Contact:** Immediately flush eyes thoroughly for 15 minutes with running water. Hold eyelids open during flushing. If irritation persists, repeat flushing.

**Ingestion:** Ingestion is not a likely route of exposure. This product may cause mild gastrointestinal discomfort.

**Note to Physicians:** Treat symptomatically.

Other Health Effects: Medical conditions that may be aggravated by exposure to this product include diseases of the skin, eyes or respiratory tract.

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5. FIRE-FIGHTING MEASURES

<table>
<thead>
<tr>
<th><strong>Flashpoint (°C)</strong></th>
<th><strong>AutoIgnition Temperature (°C)</strong></th>
<th><strong>Flammability Limits in Air (%):</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-combustible (does not burn):</td>
<td>Not applicable.</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Flammability Class (WHMIS):</td>
<td>Not regulated.</td>
<td></td>
</tr>
<tr>
<td>Hazardous Combustion Products:</td>
<td>Thermal decomposition products are toxic and may include oxides of iron and irritating gases.</td>
<td></td>
</tr>
<tr>
<td>Unusual Fire or Explosion Hazards:</td>
<td>Avoid accumulation and dispersion of dust. Enforce NO SMOKING rules. Do not flush with water as aqueous solutions or powders that become wet render surfaces extremely slippery.</td>
<td></td>
</tr>
</tbody>
</table>
Sensitivity to Mechanical Impact: Not expected to be sensitive to mechanical impact.
Rate of Burning: Not available.
Explosive Power: Not available.
Sensitivity to Static Discharge: Not expected to be sensitive to static discharge.

EXTINGUISHING MEDIA
Fire Extinguishing Media: Use media appropriate for surrounding fire and/or materials: Foam. Dry chemical, carbon dioxide or water spray.

FIRE FIGHTING INSTRUCTIONS
Instructions to the Fire Fighters: Isolate materials that are not involved in the fire and protect personnel. Do not flush with water as aqueous solutions or powders that become wet render surfaces extremely slippery.
Fire Fighting Protective Equipment: Use self-contained breathing apparatus and protective clothing.

6. ACCIDENTAL RELEASE MEASURES

Information in this section is for responding to spills, leaks or releases in order to prevent or minimize the adverse effects on persons, property and the environment. There may be specific reporting requirements associated with spills, leaks or releases, which change from region to region.

Containment and Clean-Up Procedures: In all cases of leak or spill contact vendor at Emergency Number shown on the front page of this MSDS. Eliminate all sources of ignition. Do not flush with water as aqueous solutions or powders that become wet render surfaces extremely slippery. Wear respirator, protective clothing and gloves. Avoid dry sweeping. Do not use compressed air to clean surfaces. Vacuuming is preferred. Return all material possible to container for proper disposal. Minimize air borne spreading of dust. Collect product for recovery or disposal. Ventilate enclosed spaces. Notify applicable government authority if release is reportable or could adversely affect the environment.

Where a package (drum or bag) is damaged and / or leaking, repair it, or place it into an over-pack drum immediately so as to avoid or minimize material loss and contamination of surrounding environment. Any recovered product can be used for the usual purpose, depending on the extent and kind of contamination.

7. HANDLING AND STORAGE

HANDLING
Handling Practices: Use normal "good" industrial hygiene and housekeeping practices. Avoid accumulation and dispersion of dust. Clean up immediately to eliminate slipping hazard.
Ventilation Requirements: See Section 8, "Engineering Controls".
Other Precautions: Use only with adequate ventilation and avoid breathing dusts. Avoid contact with eyes, skin or clothing. Wash thoroughly with soap and water after handling. Wash contaminated clothing thoroughly before re-use.

STORAGE
Storage Temperature (°C): See below.
Ventilation Requirements: General exhaust is acceptable.
Storage Requirements: Store in a cool, dry and well-ventilated area. Keep away from heat, sparks and flames. Keep containers closed. Avoid moisture contamination. Prolonged storage may result in lumping or caking. Protect against physical damage.
Special Materials to be Used for Packaging or Containers: Materials of construction for storing the product include: Multi-layer bags or sacks. Confirm suitability of any material before using.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Recommendations listed in this section indicate the type of equipment, which will provide protection against overexposure to this product. Conditions of use, adequacy of engineering or other control measures, and actual exposures will dictate the need for specific protective devices at your workplace.

ENGINEERING CONTROLS
General exhaust is acceptable. Local exhaust ventilation preferred. Make up air should be supplied to balance air that is removed by local or general exhaust ventilation. Ventilate low lying areas such as sumps or pits where dense dust may collect.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Eye Protection: Safety glasses with side shields are recommended to prevent eye contact. Use chemical safety goggles when there is potential for eye contact. Contact lenses should not be worn when working with this material.

Skin Protection: Gloves and protective clothing made from leather, rubber or plastic should be impervious under conditions of use. Prior to use, user should confirm impermeability. Discard contaminated gloves.

Respiratory Protection: No specific guidelines available. Respiratory protection should not be necessary unless dust is created. If while wearing a respiratory protection, you can smell, taste or otherwise detect anything unusual, or in the case of a full facepiece respirator you experience eye irritation, leave the area immediately. Check to make sure the respirator to face seal is still good. If it is, replace the filter, cartridge or canister. If the seal is no longer good, you may need a new respirator. (6)

Other Personal Protective Equipment: Wear regular work clothing. The use of coveralls is recommended. Locate safety shower and eyewash station close to chemical handling area. Take all precautions to avoid personal contact.

EXPOSURE GUIDELINES

<table>
<thead>
<tr>
<th>SUBSTANCE</th>
<th>ACGIH TLV (STEL)</th>
<th>OSHA PEL (TWA)</th>
<th>NIOSH REL (STEL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron Oxide</td>
<td>---</td>
<td>10 mg/m³ (Fume)</td>
<td>---</td>
</tr>
<tr>
<td>Iron Oxide (Fe₃O₄)</td>
<td>---</td>
<td>10 mg/m³ (Fume)</td>
<td>5 mg/m³ as Fe (Dust and Fume)</td>
</tr>
</tbody>
</table>

9. PHYSICAL AND CHEMICAL PROPERTIES (Not intended as Specifications)

Physical State: Solid.
Appearance: Red to reddish-brown powder.
Odour: Odourless.
Odour Threshold (ppm): Not available.
Boiling Range (°C): Not applicable.
Melting/Freezing Point (°C): Not applicable.
Vapour Pressure (mm Hg at 20° C): Not applicable.
Vapour Density (Air = 1.0): Not applicable.
Relative Density (g/cc): Not available.
Bulk Density: Not available.
Viscosity: Not applicable.
Evaporation Rate (Butyl Acetate = 1.0): Not applicable.
Solubility: Not soluble in water.
% Volatile by Volume: Not available.
pH: 5 - 10 @ 10%. (3)
Coefficient of Water/Oil Distribution: Not available.
Volatile Organic Compounds (VOC): 0. (3)
Flashpoint (°C): Non-combustible (does not burn).

10. STABILITY AND REACTIVITY

CHEMICAL STABILITY

Under Normal Conditions: Stable.
Under Fire Conditions: Not flammable.
Hazardous Polymerization: Will not occur.
Conditions to Avoid: High temperatures, sparks, open flames and all other sources of ignition. Avoid moisture contamination. Avoid direct sunlight. Minimize air borne spreading of dust.
11. TOXICOLOGICAL INFORMATION

**TOXICOLOGICAL DATA:**

<table>
<thead>
<tr>
<th>SUBSTANCE</th>
<th>LD50 (Oral, Rat)</th>
<th>LD50 (Dermal, Rabbit)</th>
<th>LC50 (Inhalation, Rat, 4h)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron Oxide</td>
<td>&gt; 5 000 mg/kg (3)</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Iron Oxide (Fe3O4)</td>
<td>&gt; 5 000 mg/kg (3)</td>
<td>---</td>
<td>---</td>
</tr>
</tbody>
</table>

Carcinogenicity Data: The ingredient(s) of this product is (are) not classed as carcinogenic by ACGIH, IARC, OSHA or NTP.

Reproductive Data: No adverse reproductive effects are anticipated.

Mutagenicity Data: No adverse mutagenic effects are anticipated.

Teratogenicity Data: No adverse teratogenic effects are anticipated.

Respiratory / Skin Sensitization Data: None known.

Synergistic Materials: None known.

Other Studies Relevant to Material: None known.

12. ECOLOGICAL INFORMATION

Ecotoxicity: Not available. May be harmful to aquatic life.

Environmental Fate: Not available. Product has an unaesthetic appearance and can be a nuisance. Can be dangerous if allowed to enter drinking water intakes. Do not contaminate domestic or irrigation water supplies, lakes, streams, ponds, or rivers. Not readily biodegradable.

13. DISPOSAL CONSIDERATIONS

Deactivating Chemicals: None required.

Waste Disposal Methods: This information applies to the material as manufactured. Reevaluation of the product may be required by the user at the time of disposal since the product uses, transformations, mixtures and processes may influence waste classification. Dispose of waste material at an approved (hazardous) waste treatment/disposal facility in accordance with applicable local, provincial and federal regulations. Do not dispose of waste with normal garbage, or to sewer systems.

Safe Handling of Residues: Empty containers retain product residue. No special treatment required.

Disposal of Packaging: Recycling is encouraged. Treat package in the same manner as the product. Empty package may be disposed of with normal garbage.

14. TRANSPORTATION INFORMATION

CANADIAN TDG ACT SHIPPING DESCRIPTION:

This product is not regulated by TDG.

Label(s): Not applicable. Placard: Not applicable.

ERAP Index: -----. Exemptions: None known.

US DOT CLASSIFICATION (49CFR 172.101, 172.102):

This product is not regulated by DOT.

Label(s): Not applicable. Placard: Not applicable.

CERCLA-RQ: Not available. Exemptions: Not available.
15. REGULATORY INFORMATION

CANADA
CEPA - NSNR: All components of this product are included on the DSL.
CEPA - NPRI: Not included.
Controlled Products Regulations Classification (WHMIS):
Not WHMIS Regulated.

USA
Environmental Protection Act: All components of this product are included on the TSCA inventory.
NFPA: Health, Fire, Reactivity (Not available.)
HMIS: 0 Health, 0 Fire, 0 Reactivity (3)

INTERNATIONAL
Not available.

16. OTHER INFORMATION

REFERENCES
1. RTECS-Registry of Toxic Effects of Chemical Substances, Canadian Centre for Occupational Health and Safety RTECS database.
3. Supplier's Material Safety Data Sheet(s).
4. CHEMINFO chemical profile, Canadian Centre for Occupational Health and Safety, Hamilton, Ontario, Canada.
6. Regulatory Affairs Group, Brenntag Canada Inc.

The information contained herein is offered only as a guide to the handling of this specific material and has been prepared in good faith by technically knowledgeable personnel. It is not intended to be all-inclusive and the manner and conditions of use and handling may involve other and additional considerations. No warranty of any kind is given or implied and Brenntag Canada Inc. will not be liable for any damages, losses, injuries or consequential damages which may result from the use of or reliance on any information contained herein. This Material Safety Data Sheet is valid for three years.

To obtain revised copies of this or other Material Safety Data Sheets, contact your nearest Brenntag Canada Regional office.

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