1. IDENTIFICATION

Product Identifier
Product Name United 975 UNITED CARUSOL®

Other means of identification
SDS # UNITED-975

Recommended use of the chemical and restrictions on use
Recommended Use Liquid Permanganate
Uses Advised Against For industrial and institutional use only.

Details of the supplier of the safety data sheet
Supplier Address United Laboratories, Inc.
320 37th Avenue
St. Charles, IL 60174
www.unitedlabsinc.com
www.unitedlabsinc.ca

Emergency Telephone Number
Company Phone Number 800-323-2594 (to reorder)
Emergency Telephone (24 hr) INFOTRAC 1-352-323-3500 (International)
1-800-535-5053 (North America)

2. HAZARDS IDENTIFICATION

Classification

<table>
<thead>
<tr>
<th>Oxidizing solid</th>
<th>Category 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Toxicity</td>
<td>Category 4</td>
</tr>
<tr>
<td>Aquatic Toxicity (acute)</td>
<td>Category 1</td>
</tr>
<tr>
<td>Aquatic Toxicity (chronic)</td>
<td>Category 1</td>
</tr>
</tbody>
</table>

Label elements

Signal word DANGER

Hazard statements
May intensify fire, oxidizer
Harmful, if swallowed
Very toxic to aquatic life with long lasting effects
Other Hazards

Eye Contact
Liquid permanganate may cause damage to the eye.

Skin Contact
Momentary contact of solution at room temperature will leave brown stains and may be irritating to some who are more sensitive. Prolonged contact is damaging to the skin.

Inhalation
Acute inhalation toxicity data are not available. However, airborne concentrations of sodium permanganate in the form of mist may cause irritation to the respiratory tract for some.

Ingestion
Liquid permanganate, if swallowed, may cause burns to mucous membranes of the mouth, throat, esophagus, and stomach.

Appearance  Odorless dark purple liquid  Physical State  Liquid  Odor  Odorless

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS-No</th>
<th>Weight%</th>
<th>Hazard Data</th>
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<tbody>
<tr>
<td>Sodium Permanganate</td>
<td>10101-50-5</td>
<td>19.5-21.0</td>
<td>PEL/C 5mg Mn per m³ of air</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>TLV-TWA 0.2mg MN per m³ of air</td>
</tr>
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</table>

4. FIRST-AID MEASURES

First Aid Measures

Eye Contact
Immediately flush eyes with large amounts of water for at least 15 minutes holding lids apart to ensure flushing the entire surface. Do not attempt to neutralize chemically. Seek medical attention immediately. Note to physicians: Decomposition products are alkaline. Brown stain formed is insoluble manganese dioxide.

Skin Contact
Immediately wash contaminated areas with water. Remove contaminated clothing or footwear. Wash clothing and decontaminate footwear before reuse. Seek medical attention if irritation is severe or persistent.

Inhalation
Remove person from contaminated area to fresh air. If breathing has stopped, resuscitate and administer oxygen if readily available. Seek medical attention immediately.
Ingestion

Never give anything by mouth to an unconscious or convulsing person. If person is conscious give large quantities of water or milk. Seek medical attention immediately.

Not to Physician

For inhalation, consider oxygen. Avoid gastric lavage or emesis. Decomposition products are alkaline. Insoluble decomposition product formed is brown colored manganese.

Most important symptoms and effects

| Symptom       | No information available. |

5. FIRE-FIGHTING MEASURES

NFPA* Hazard Signs

Health Hazard 1 = Materials that under emergency conditions, can cause significant irritation.

Materials that on the skin could cause irritation.

Flammability Hazard 0 = Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone and sand.

Instability Hazard 0 = Materials that in themselves are normally stable, even under fire conditions.

Special Hazard OX = Oxidizer

Suitable Extinguishing Media

Use large quantities of water. Water will turn pink to purple when in contact with potassium permanganate. Dike to contain. Do not use dry chemicals, CO₂, or foams, because they are not effective.

Special Firefighting Procedures

If material is involved in fire, flood with water. Cool all affected containers with large quantities of water. Apply water from as far a distance as possible. Wear self-contained breathing apparatus and full protective clothing.

Unusual Fire and Explosion

Powerful oxidizing material. May decompose spontaneously if exposed to heat (135°C / 275°F). May be explosive in contact with certain other chemicals (Section 10). May react violently with finely divided and readily oxidizable substances. Increases burning rate of combustible material.

Thermal Decomposition Product

Combustion: oxides of potassium, oxides of manganese. Fire may product irritating, poisonous and/or corrosive fumes.
6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions
Personnel should wear protective clothing suitable for the task. Remove all ignition sources and incompatible materials before attempting clean up.

Environmental Precautions
Do not flush into sanitary sewer system or surface water. If accidental release into the environment occurs, inform the responsible authorities. Keep the product away from drains, sewers, surface and ground water and soil.

Steps to be taken if material is released or spilled
NOTE: Do not use paper or cloth to clean up spills. It may catch fire. Contain spill by collecting the liquid in a pit or holding behind a dam (sand or soil). Proceed with either of the following two options depending upon the size of the spill and the availability of the neutralizing agents.

Option # 1: Dilute to approximately 6% with water, and then reduce with sodium thiosulfate, a bisulfite or ferrous salt solution. The bisulfite or ferrous salt may require some dilute sulfuric acid (10% w/w) to promote reduction. Neutralize with sodium carbonate to neutral pH, if acid was used. Decant or filter and deposit sludge in approved landfill. Where permitted, the sludge may be drained into sewer with large quantities of water.

Option # 2: Absorb with inert media like diatomaceous earth or inert floor dry, collect into a drum and dispose of properly. Does not use saw dust or other incompatible media. Disposal of all materials shall be in full and strict compliance with all federal, state, and local regulations pertaining to permanganates.
To clean contaminated floors, flush with abundant quantities of water into sewer, if permitted by federal, state, and local regulations. If not, collect water and treat as described above.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on Safe Handling
Ensure adequate ventilation. Wash hands thoroughly with soap and water after handling permanganate solution. Do not eat, drink or smoke when working with sodium permanganate. Wear proper protective equipment. Remove clothing if it becomes contaminated.

Conditions for safe storage, including any incompatibilities

Storage Conditions
Store in accordance with NFPA 430 requirements for Class II oxidizers. Protect containers from physical damage. Store in a cool, dry area in closed containers. Segregate from acids, peroxides, formaldehyde, and all combustible, organic, or easily oxidizable materials including antifreeze and hydraulic fluid.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines
Individual protection measures, such as personal protective equipment

Personal Protective Equipment

Eye/Face
Face shield, goggles, or safety glasses with side shields should be worn. Provide eyewash in working area.

Gloves
Rubber or plastic gloves should be worn.

Other Protective Equipment
Chemically resistant clothing covering arms and legs, and rubber or plastic apron should be worn. Caution: If clothing becomes contaminated, wash off immediately.

Respiratory Protection
In cases where overexposure to dust may occur, the use of an approved NIOSH-MSHA dust respirator or an air supplied respirator is advised. Engineering or administrative controls should be implemented to control dust.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Remarks · Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical State</td>
<td>Liquid</td>
<td></td>
</tr>
<tr>
<td>Appearance</td>
<td>Dark purple liquid</td>
<td>Odor</td>
</tr>
<tr>
<td>Color</td>
<td>Dark purple</td>
<td>Odor Threshold</td>
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<tr>
<td>pH</td>
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<td>Melting Point/Freezing Point</td>
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<tr>
<td>Boiling Point/Boiling Range</td>
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<td>Literary Reference</td>
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<td>Flash Point</td>
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<td>Evaporation Rate</td>
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<td>Flammability (Solid, Gas)</td>
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<td>Upper Flammability Limits</td>
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<td>Vapor Pressure</td>
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<td>Vapor Density</td>
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<td>Specific Gravity</td>
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<tr>
<td>Solubility in other solvents</td>
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<tr>
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<td>Decomposition Temperature</td>
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<td>Property</td>
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<td></td>
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<tr>
<td>Explosive Properties</td>
<td>Explosive in contact with sulfuric acid or peroxides, or readily oxidizable substance.</td>
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</tr>
<tr>
<td>Oxidizing Properties</td>
<td>Strong oxidizer. May ignite wood and clothing.</td>
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</tr>
<tr>
<td>VOC Content</td>
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</tbody>
</table>
10. STABILITY AND REACTIVITY

Reactivity
Not applicable.

Chemical Stability
Stable under recommended storage conditions.

Possibility of Hazardous Reactions
None under normal processing.

Conditions to Avoid
Contact with incompatible materials or heat (135ºC / 275ºF) could result in violent exothermic chemical reaction.

Incompatible Materials
Acids, peroxides, formaldehyde, anti-freeze, hydraulic fluids and all combustible organic or readily oxidizable inorganic materials including metal powders. With hydrochloric acid, chlorine gas is liberated.

Hazardous Decomposition Products
When involved in a fire, sodium permanganate may form corrosive fumes.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Inhalation
The product may be absorbed into the body by inhalation of the mist. Airborne concentrations of sodium permanganate in the form of mist may cause irritation to the respiratory tract for some. Major effects of exposure: possible respiratory disorder, cough.

Ingestion
Harmful, if swallowed. Ingestion may cause nausea, vomiting, sore throat, stomach-ache, and eventually lead to a perforation of the intestine. Liver and kidney injuries may occur.

Skin Contact
Momentary contact of solution at room temperature will leave brown stains and may be irritating to some who are more sensitive. Prolonged contact is damaging to the skin.

Eye Contact
Liquid permanganate may cause damage to the eye.

Acute Toxicity
LD50 value is not available for sodium permanganate, but is expected to be similar to that of potassium permanganate on a dry weight basis. The toxicity data for sodium permanganate (CAS# 10101-50-5) is given below:

LD 50 oral rat: 780 mg/kg male (14 days); 525 mg/kg female (14 days). Harmful if swallowed. ALD: 10g. Ingestion may cause nausea, vomiting, sore throat, stomach-ache and eventually lead to a perforation of the intestine. Liver and kidney injuries may occur.

Chronic Toxicity
No known cases of chronic poisoning due to permanganates have been reported. Prolonged exposure, usually over many years, to heavy concentrations of manganese oxides in the form of dust and fumes may lead to chronic manganese poisoning, chiefly involving the central nervous system.

Carcinogenicity
Sodium permanganate has not been classified as a carcinogen by ACGIH, NIOSH, OSHA, NTP, or IARC.
12. ECOLOGICAL INFORMATION

Ecotoxicity
No aquatic toxicity data is available for sodium permanganate

Persistence/Degradability
Permanganate has low estimated lifetime in the environment, being readily converted by oxidizable materials to insoluble MnO₂.

Bioaccumulation
In non-reducing and non-acidic environments, MnO₂ is insoluble and has a very low bioaccumulative potential.

Mobility
Miscible to water.

Other Adverse Effects
Harmful to aquatic organisms.

13. DISPOSAL CONSIDERATIONS

Waste Treatment Methods

Disposal of Wastes
Offer surplus and non-recyclable product or solutions to a licensed disposal company. Disposal of all materials shall be in full and strict compliance with all federal, state, and local regulations. This material and its container must be disposed of as hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. When it becomes a waste, potassium permanganate is considered a D001 hazardous (ignitable) waste. For disposal of potassium permanganate solutions, follow procedures in Section 6 and deactivate the permanganate to insoluble manganese dioxide. Dispose of it in a permitted landfill. Contact Carus Corporation for additional recommendations. Packaging materials must be triple rinsed to remove all residues prior to re-cycling or disposal as a

14. TRANSPORT INFORMATION

DOT

ID UN 3214
Proper Shipping Name Permanganates, inorganic, aqueous solution, n.o.s. (contains sodium permanganate)
Hazard Class Oxidizer
Packing Group II
Division 5.1

IATA

ID UN 3214
Proper Shipping Name Permanganates, inorganic, aqueous solution, n.o.s. (contains sodium permanganate)
Hazard Class Oxidizer
Packing Group II
Division 5.1

IMDG

ID UN 3214
Proper Shipping Name Permanganates, inorganic, aqueous solution, n.o.s. (contains sodium permanganate)
Hazard Class Oxidizer
Packing Group II
Division 5.1
15. REGULATORY INFORMATION

Markings According to EU Guidelines
The product has been classified and marked in accordance with EU directives/ordinances on hazardous materials.

US Federal Regulations

Chemical Inventory Status

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Cas-No</th>
<th>TSCA</th>
<th>EC</th>
<th>Japan</th>
<th>Australia</th>
<th>China</th>
<th>Korea</th>
<th>DSL</th>
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<th>New Zealand</th>
<th>PHIL</th>
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<tbody>
<tr>
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<td>10101-50-5</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<td>Yes</td>
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</table>

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulation (CPR, Canada) and the MSDS contains all of the information required by the CPR.

Federal, State and International Regulations

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Cas-No</th>
<th>CERCLA</th>
<th>RCRA</th>
<th>TSCA 8(d)</th>
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<table>
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<tr>
<td>Sodium permanganate</td>
<td>10101-50-5</td>
<td>No</td>
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<td>4545 Kg</td>
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<table>
<thead>
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<th>Pressure</th>
<th>Reactivity</th>
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<td>10101-50-5</td>
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<table>
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16. OTHER INFORMATION

NFPA

<table>
<thead>
<tr>
<th>Health Hazards</th>
<th>Flammability</th>
<th>Instability</th>
<th>Special Hazards</th>
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<tbody>
<tr>
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<td>0</td>
<td>0</td>
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HMIS

<table>
<thead>
<tr>
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<th>Flammability</th>
<th>Physical Hazards</th>
<th>Personal Protection</th>
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<tbody>
<tr>
<td>1</td>
<td>0</td>
<td>0</td>
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Issue Date: 31-Jan-2014
Revision Date: 08-Jun-2015
Revision Note: New format

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet