Canada Colors and Chemicals Limited

152 Kennedy Road South
Brampton, Ontario
Canada
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General Inquiry Number: (905) 459-1232

Material Safety Data Sheet Attached

RemOx® SR ISCO Reagent

This product is distributed by
Canada Colors and Chemicals Limited
General Inquiry: (905) 459-1232
24 Hour Emergency: (416) 444-2112
CCC: Product Code: 773460
CCC: Product Name: REMOX SR-ISCO 2.5"X 6 CANDLES

Material Safety Data Sheet

MSDS # CP-148 **Revision Date: August 2011** **Supercedes: None**

Section 1: Identification of the Substance/Preparation and of the Company/Undertaking

SUBSTANCE/PREPARATION NAME:	RemOx® SR ISCO Reagent
PRODUCT NAME:	RemOx® SR ISCO Reagent
TRADE NAME:	RemOx® SR ISCO Reagent
SYNONYMS:	Permanganic acid potassium salt, Chameleon mineral, Condy's crystal, Permanganate of potash

USES OF SUBSTANCE: RemOx® SR ISCO Reagent is an oxidant recommended for applications that require a strong oxidant.

COMPANY NAME (US): CARUS CORPORATION	**COMPANY ADDRESS:**	315 Fifth Street Peru, IL 61354, USA
	INFORMATION:	(815) 223-1500 (815) 224-6816 (FAX) www.caruscorporation.com (Web) salesmkt@caruscorporation.com (Email)
	EMERGENCY TELEPHONE:	(800) 435 –6856 (USA) (815) 223-1500 (Other countries) (800) 424-9300 (CHEMTREC®, USA) (703) 527-3887 (CHEMTREC®, Other countries)
COMPANY NAME (Europe): CARUS EUROPE	**COMPANY ADDRESS:**	C/ Secundino Roces, 3-Planta 1ª – Oficina 14, 33428 Cayes – Llanera, Asturias - Spain
	INFORMATION:	(34) 985-785-513
	EMERGENCY TELEPHONE:	(34) 985-785-513

Section 2: Hazards Identification

GLOBAL HARMONIZED SYSTEM (GHS) OF CLASSIFICATION OF THE SUBSTANCE

Oxidizing solid, Category 2
Acute toxicity, Category 4
Aquatic toxicity (acute), Category 1
Aquatic toxicity (chronic), Category 1
Carcinogen (chronic), Category 1
Repeated target Organ toxicity, Category 1

GHS LABEL ELEMENTS, INCLUDING PRECAUTIONARY STATEMENTS

Signal Word: DANGER
Label Codes: GHS03, GHS07, GHS09
Hazard Statements: H272, H302, H410

H272	May intensify fire, oxidizer
H302	Harmful, if swallowed
H410	Very toxic to aquatic life with long lasting effects

Section 2: Hazards Identification (contd)

P210	Keep away from heat/sparks/open flames/hot surfaces. – No smoking
P220	Keep/Store away from clothing/combustible materials.
P260	Do not breathe dust
P280	Wear protective gloves/protective clothing/eye protection/face protection
P370 + P378	In case of fire: Use water for extinction
P501	Dispose of contents/container to appropriate places
P273	Avoid release to the environment.

EU CLASSIFICATION
HAZARD SYMBOLS: **O, Xn, N**
RISK PHRASES
R 8: Contact with combustible material may cause fire.
R 22: Harmful if swallowed.
R 50/53: Very toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

HUMAN AND ENVIRONMENTAL HAZARDS

Contact with combustible material may cause fire.
Harmful if swallowed.
Very toxic to aquatic organisms may cause long-term adverse effects in the aquatic environment.

This substance is hazardous in the European Union according to the latest adaptations to Regulations (EC) No 1272/2008 and (EC) No 1907/2006.

OTHER HAZARDS

EYE CONTACT
RemOx® SR ISCO Reagent is damaging to eye tissue on contact. It may cause severe thermal burns that result in damage to the eye.

INHALATION
Acute inhalation toxicity data are not available. However, airborne concentrations of RemOx® SR ISCO Reagent in the form of dust or mist may cause damage to respiratory tract. Avoid breathing vapors or mists.

SKIN CONTACT
Contact at room temperature may be irritating to the skin, leaving brown stains. Concentrated solutions at elevated temperature are damaging to the skin and may cause thermal burns.

INGESTIONS
RemOx® SR ISCO Reagent, if swallowed, may cause severe burns to mucous membranes of the mouth, throat, esophagus and stomach.

Section 3: Composition/Information on Ingredients

HAZARDOUS COMPONENT	CAS NO.	EINECS	%	HAZARD DATA
Potassium Permanganate	7722-64-7	231-760-3	60-85	**PEL/C** 5 mg Mn per m^3 of air **TLV-TWA** 0.2 mg Mn per m^3 of air
Paraffin waxes, petroleum, Hydrotreated (CALWAX 130)	64742-51-4	265-154-5	15-40	N/A

Section 4: First Aid Measures

EYES
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 physician: Soluble decomposition products are alkaline. Insoluble decomposition product is manganese dioxide.

SKIN
Immediately wash contaminated areas with large amounts of water. Remove contaminated clothing and footwear. Wash clothing and decontaminate footwear before reuse. Seek medical attention immediately 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. Seek medical attention immediately.

Section 5 Fire Fighting Measures

NFPA*HAZARD SIGNAL

Health Hazard	1 = Materials under fire conditions would give off irritating combustion products. (less than 1 hour exposure) Materials on the skin could cause irritation.
Flammability Hazard	0 = Materials that will not burn.
Reactivity Hazard	0 = Materials in themselves are normally stable, even under fire exposure conditions, and which are not reactive with water.
Special Hazard	OX = Oxidizer

***National Fire Protection Association 704**

FIRST RESPONDERS
Wear protective gloves, boots, goggles, and respirator. In case of fire, wear positive pressure breathing apparatus. Approach site of incident with caution. Use 2000 Emergency Response Guide book (103-0RS-0), Research and Special Programs Administration U.S. Department of Transportation. Guide No. 140.

FLASHPOINT
None

FLAMMABLE OR EXPLOSIVE LIMITS
Lower: Nonflammable Upper: Nonflammable

EXTINGUISHING MEDIA
Use large quantities of water. Water will turn pink to purple if in contact with RemOx® SR ISCO Reagent. Dike to contain. Do not use dry chemicals, CO_2 or Halon®. Foam, water spray (fog) may also be suitable for extinguishing fires.

COMBUSTION PRODUCTS
Fumes, smoke, carbon monoxide and other decomposition products in the case of incomplete combustion.

Section 5: Fire Fighting Measures (contd.)

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 HAZARDS
Oxidizing material. May decompose spontaneously if exposed to intense heat (150ºC/302ºF) with evolution of gaseous oxygen. May undergo rapid exothermic reaction when in contact with certain other chemicals (Section 10). May react with finely divided and readily oxidizable substances. Increases burning rate of combustible material.

Section 6 Accidental Release Measures

PERSONAL PRECAUTIONS
Personnel should wear protective clothing suitable for the task. Remove all ignition sources and incompatible materials before attempting clean-up. Avoid dust formation.

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 TAKNE IF MATERIAL IS RELEASED OR SPILLED
Clean up spills immediately by wetting down the material. Do not return spilled material to the original container; transfer to a clean metal or plastic drum. To clean up potassium permanganate solutions, follow either of the following two options.

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.

An ingredient in this product may be classified as an oil under Section 311 of the Clean Water Act, and under the Oil Pollution Act. Discharges or spills into or leading to surface water that cause a sheen must be reported to the National Response Center (800-424-8802).

Section 7 Handling and Storage

WORK/HYGENIC PRACTICES
Wash hands thoroughly with soap and water after handling RemOx® SR ISCO Reagent, and before eating or smoking. Wear proper protective equipment. Remove contaminated clothing.

VENTILATION REQUIREMENTS
Avoid dust formation. Provide sufficient area or local exhaust to maintain exposure below the TLV-TWA for manganese. In case of insufficient ventilation, wear a NIOSH/MSHA dust respirator.

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

Section 8 Exposure Controls/Personal Protection

RESPIRATORY PROTECTION
In the case where overexposure may exist, the use of an approved NIOSH/MSHA dust respirator is advised. Engineering or administrative controls should be implemented to control dust.

EYE PROTECTION
Faceshield, goggles, or safety glasses with side shields should be worn. Provide eyewash in working area.

PROTECTIVE GLOVES
Rubber or plastic gloves and boots should be worn.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT
Regular work clothing covering arms and legs and a rubber or plastic apron should be worn.

MISCELLANEOUS
Remove wax-impregnated clothing and launder or dry-clean before re-use. Discard wax-impregnated shoes. Wash skin thoroughly with soap and water after handling.

Section 9 Physical/Chemical Characteristics

APPEARANCE AND ODOR:	Dark purple solid, slight bland petroleum odor
SPECIFIC GRAVITY:	N/A
BOILING POINT, 760 MM HG:	N/A
VAPOR PRESSURE (MM HG):	N/A
VAPOR DENSITY (AIR = 1):	N/A
SOLUBILITY IN % BY SOLUTION WATER:	Soluble in water at a controlled rate.
PERCENT VOLATILE BY VOLUME:	N/A
EVAPORATION RATE (BUTYL ACETATE = 1):	N/A
OXIDIZING PROPERTIES:	Oxidizer
MELTING POINT:	Starts to decompose with evolution of oxygen (O_2) at temperatures above 150ºC (302ºF). Once initiated, the decomposition may be exothermic and self-sustaining.

Section 10 Stability and Reactivity

SOLUBILITY
Under normal conditions, the material is stable.

CONDITIONS TO AVOID
Contact with incompatible materials or heat (>150ºC/302ºF). Contact with powerful oxidizing agents, such as hydrofluoric acid, fluorine, chlorine trifluoride and oxygen difluoride, may cause fires.

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

HAZARDOUS DECOMPOSITION PRODUCTS
When involved in fire, potassium permanganate may form corrosive fumes. Oxides of potassium and manganese may be formed.

CONDITIONS CONTRIBUTING TO HAZARDOUS POLYMERIZATION
Material is not known to polymerize.

Section 11 Health Hazard Data

EXPOSURE SYMPTOMS DESCRIPTION

INHALATION
The product may be absorbed into the body by inhalation. Major effects of exposure: respiratory disorder, cough.

INGESTION
Harmful, if swallowed. The estimated lethal human dose is 10 g. 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
The product may be absorbed into the body through the skin. Major effects of exposure: severe irritation, damage to the skin, and brown staining of skin. Prolonged of repeated skin contact with this product tends to remove skin oils, possibility of leading to irritation and dermatitis.

EYE CONTACT
Contact with eye is damaging to eye tissues. It may cause severe burns that result in damage to the eye.

ACUTE TOXICITY
LC 50 inhalation: No data available.
LD 50 dermal: No data available.
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
Potassium permanganate has not been classified as a carcinogen by ACGIH, NIOSH, OSHA, NTP, or IARC.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE
Potassium permanganate will cause further irritation of tissue, open wounds, burns or mucous membranes.

EFFECTS OF OVEREXPOSURE:
ACUTE OVEREXPOSURE
Irritating to body tissue with which it comes into contact.

CHRONIC OVEREXPOSURE
No known cases of chronic poisoning due to RemOx® SR ISCO Reagent 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.

Medical Conditions Generally Aggravated by Exposure
RemOx® SR ISCO Reagent will cause further irritation of tissue, open wounds, burns or mucous membranes.

Section 11 Health Hazard Data (contd)

Potassium Permanganate: Acute oral LD_{50} (rat) = 780 mg/kg Male (14 days); 525 mg/kg Female (14 days)
……...The fatal adult human dose by ingestion is estimated to be 10 grams. (Ref. Handbook of
……...……Poisoning: Prevention, Diagnosis & Treatment, Twelfth Edition)

Registry of Toxic Effects of Chemical Substances
RTECS #SD6476000 (Potassium Permanganate)

Section 12 Ecological Information

ENTRY TO THE ENVIRONMENT
RemOx® SR ISCO Reagent has a low estimated lifetime in the environment, being readily converted by oxidizable materials to insoluble MnO_2.

BIOCONCENTRATION POTENTIAL
In non-reducing and non-acidic environments MnO_2 is insoluble and has a very low bioaccumulative potential.

ECO TOXICITY
The aquatic toxicity data for potassium permanganate is given below:

Rainbow trout, 96 hour LC_{50} for potassium permanganate:	1.8 mg/L
Bluegill sunfish, 96 hour LC_{50} for potassium permanganate:	2.3 mg/L
Milk fish (Chanos Chanos)/ 96 hour LC_{50} for potassium permanganate:	>1.4mgl

Section 13 Disposal Consideration

WASTE DISPOSAL
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. Chemical waste generators must determine whether a discarded chemical is classified as a 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 RemOx® SR ISCO Reagent prior to re-cycling or disposal.

DEACTIVATION OF D001 IGNITABLE WASTE OXIDIZERS BY CHEMICAL REDUCTION
Reduce RemOx® SR ISCO Reagent in aqueous solutions with sodium thiosulfate (Hypo), or sodium bisulfite or ferrous salt solution. The bisulfate or ferrous salt may require some dilute sulfuric acid to promote rapid reduction. If acid was used, neutralize with sodium bicarbonate to neutral pH. Decant or filter, and mix the sludge with sodium carbonate and deposit in an approved landfill. Where permitted, the sludge can be drained into sewer with large quantities of water. Use caution when reacting chemicals.

RCRA P-Series: None listed. **RCRA U-Series:** None listed.

Section 14: Transport Information

USA (Land, DOT) and Canada (TDG)	**ID Number:**	UN 1479
	Proper Shipping Name:	Oxidizing solid, n.o.s. (potassium permanganate)
	Hazard Class:	Oxidizer
	Packing Group:	II
	Division:	5.1

Section 15: Regulatory Information

TSCA
Listed in the TSCA Chemical Substance Inventory (CAS# 7722-64-7, 64742-51-4)

CERCLA Hazardous Substance
Reportable Quantity: RQ – 100 lb (CAS # 7722-64-7)
40 CFR 116.4; 40 CFR 302.4

RCRA
Oxidizers such as RemOx® SR ISCO Reagent meet the criteria of ignitable waste. 40 CFR 261.21

SARA Title III Information
Section 302 Extremely hazardous substance: Not listed
Section 311/312 Hazard categories: Fire, acute and chronic toxicity
Section 303 RemOx® SR ISCO Reagent contains 75% Manganese Compound as part of the chemical structure (manganese compounds CAS Reg. No. N/A) and is subject to the reporting requirements of Section 303 of Title III, Superfund Amendments and Reauthorization Act of 1986 and 40 CFR 372.

State Lists
Michigan Critical Materials Register: Not listed
California Proposition 65: Not listed.
Massachusetts Substance List: 5 F8 (CAS # 7722-64-7) is listed.

Foreign Lists

Canadian Domestic Substances List (DSL)	Listed (CAS # 7722-64-7, 64742-51-4)
Canadian Ingredient Disclosure List	Listed (CAS # 7722-64-7)
European Inventory of Existing Chemical Substances	(EINECS) 2317603 (CAS # 7722-64-7)
Australian Inventory of Chemical Substances (AICS)	Listed for CAS# 64742-51-4

Section 16: Other Information

EINECS	Inventory of Existing Chemical Substances (European)
DOT	Department of Transportation
DSL/NDSL	The Domestic Substances and the Non-Domestic Substances List (Canada)
NIOSH	National Institute for Occupational Safety and Health
MSHA	Mine Safety and Health Administration
OSHA	Occupational Safety and Health Administration
NTP	National Toxicology Program
IARC	International Agency for Research on Cancer
TSCA	Toxic Substances Control Act
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act of 1980
RCRA	Resource Conservation and Recovery Act
SARA	Superfund Amendments and Reauthorization Act of 1986
PEL-C	OSHA Permissible Exposure Limit-OSHA Ceiling Exposure Limit
TLV-TWA	Threshold Limit Value – Time Weighted Average (American Conference of Governmental Industrial Hygienists)

The information contained herein is accurate to the best of our knowledge. However, data, safety standards and government regulations are subject to change and, therefore, holders and users should satisfy themselves that they are aware of all current data and regulations relevant to their particular use of product. CARUS CORPORATION DISCLAIMS ALL LIABILITY FOR RELIANCE ON THE COMPLETENESS OR ACCURACY OR THE INFORMATION INCLUDED HEREIN. CARUS CORPORATION MAKES NO WARRANTY, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY WARRANTIES OF MERCHANTIABILITY OR FITNESS FOR PARTICULAR USE OR PURPOSE OF THE PRODUCT DESCRIBED HEREIN. All conditions relating to storage, handling, and use of the product are beyond the control of Carus Corporation, and shall be the sole responsibility of the holder or user of the product.

This safety data sheet was reviewed according to Annex II of the regulation of the European Parliament and European Council (EC) No. 1907/2006-REACH and 1272/2008.

CARUS CORPORATION, 315 5TH STREET, PERU, ILLINOIS 61354, USA
CARUS EUROPE IS A DIVISION OF CARUS CORPORATION

Chithambarathanu Pillai (S.O.F.)
August 2011

RESPONSIBLE CARE®
OUR COMMITMENT TO SUSTAINABILITY