

RemOx® L ISCO Reagent
CAS Registry No. 10101-50-5
EINECS No. 233-251-1



FACT SHEET

RemOx® L ISCO reagent has been specifically manufactured for environmental applications such as remediation of soils and associated groundwater. This product can be used to degrade a variety of contaminants including chlorinated solvents, polyaromatic hydrocarbons, phenolics, organo-pesticides, and substituted aromatics. RemOx L is shipped with a certificate of analysis (COA).

PRODUCT SPECIFICATIONS

Assay

39.5-41.0% as NaMnO₄

pH

5.0-8.0

Trace Metals

(see Table I)

CHEMICAL/PHYSICAL DATA

Formula NaMnO₄

Formula Weight 141.93 g/mol

Appearance Dark Purple Solution

Specific Gravity 1.365-1.385

Shelf Life 18 months

Freezing Point -15° C/ 5° F

Solubility in Water Miscible with water in all proportions.

Material will pass through a 10 micron filter.

APPLICATIONS

RemOx L is used for soil and groundwater remediation by *in situ* or *ex situ* chemical oxidation and as an active agent in subsurface reactive barriers for treatment of:

Chlorinated Ethenes - PCE, TCE, Vinyl Chloride, etc.
Phenolics, PCP, p-Cresol, 2,3 dichlorophenol, etc.
Polyaromatic Hydrocarbons, - Naphthalene, Phenanthrene, Benzo (a) Pyrene, etc.
TNT, RDX, HMX, etc.

SHIPPING CONTAINERS

5-gallon (20-L) HDPE Jerrican

(UN Specification: UN3H1/Y1.8/100) Made of high-density polyethylene (HDPE). Weighs 3.5-lb (1.6-kg). The net weight is 57-lbs (25.7-kg). The jerrican stands approximately 13.4 in. tall, 9.4 in. wide, and 13.0 in. deep (33.9 cm high, 23.8 cm wide, and 33.0 cm deep).

55-gallon (208-L) HDPE Tighthead Drum

(UN Specification: UN1H1/Y1.1/150) Made of high-density polyethylene (HDPE). Weighs 22-lbs (10-kg). The net weight is 550-lbs (250-kg). The drum stands approximately 34.5 in. tall, has an outside diameter of 23.4 in. (89.1 cm tall, OD 59.4 cm).

275-gallon (1040-L) IBC (Intermediate Bulk Container)

(UN Specification: UN31HA1/Y1.9/100) They are also marked "MX" for multi-trip. IBC weighs 139-lbs (65-kg). The net weight is 3000-lbs (1360-kg). The IBC contains 263-gallons (1000-L) of product. The IBC dimensions are 45.4 in. high, 48 in. long, and 40 in. wide. The IBC has a 2" butterfly valve with NPT threads in bottom sump. (Domestic)

Bulk Shipping - Quantities up to 4000-gallons are available.

HANDLING, STORAGE, AND INCOMPATIBILITY

Like any strong oxidizer RemOx L should be handled with care. Protective equipment during handling should include face shields and/or goggles, rubber or plastic gloves, and rubber or plastic apron. If clothing becomes spotted, wash off immediately; spontaneous ignition can occur with cloth or paper. In cases where significant exposure exists use the appropriate NIOSH-MSHA dust or mist respirator.

Store in accordance with NFPA (National Fire Protection Association) Code 430 requirements for Class II oxidizers. The product should be stored in a cool, dry area in closed containers. Concrete floors are preferred. Avoid wooden decks. Spillage should be collected and disposed of properly. To clean up spills and leaks follow the steps recommended in our MSDS.

Avoid contact with acids, peroxides, and all combustible organic or readily oxidizable materials including inorganic oxidizable materials and metal powders. With hydrochloric acid, chlorine gas is liberated. RemOx L is not combustible, but will support combustion. It may decompose if exposed to intense heat. Fires may be controlled and extinguished by using large quantities of water. Refer to the MSDS for more information.





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SHIPPING

RemOx[®] L ISCO reagent is classified as an oxidizer for both domestic and international transportation. Liquid permanganate is shipped domestically as Freight Class 70.

Proper Shipping Name: Permanganates, inorganic, aqueous solution n.o.s. (contains sodium permanganate).

- Hazard Class:** 5.1
- Identification Number:** UN 3214
- Label Requirements:** Oxidizer, 5.1
- Packaging Group:** II
- Packaging Requirements:** 49 CFR Parts 171 to 180
- Sections:** 173.152, 173.202, 173.242
- Quantity Limitations:**

- 1 liter net for passenger aircraft or railcar:
- 5 liters net for cargo aircraft.

Vessel Stowage:

D-material must be stowed “ on-deck” on a cargo vessel, but is prohibited on a passenger vessel. Other provisions: stow separately from ammonium compounds, hydrogen peroxide, peroxides, super-oxides, cyanide compounds, and powdered metal.

CORROSIVE PROPERTIES

RemOx L is compatible with many metals and synthetic materials. Natural rubbers and fibers are often incompatible. Solution pH and temperature are also important factors. The material selected for use with liquid permanganate must be compatible with any kind of acid or alkali being used.

In neutral and alkaline solutions, RemOx L is not corrosive to carbon steel and 316 stainless steel. However, chloride corrosion of metals may be accelerated when an oxidant such as liquid permanganate is present in solution. Plastics such as Teflon, polypropylene, and HDPE are also compatible with liquid permanganate.

Aluminum, zinc, copper, lead, and alloys containing these metals may be (slightly) affected by RemOx L. Actual corrosion or compatibility studies should be made under the conditions in which RemOx L will be used.

Table I: Typical Trace Metal Content and Specifications

Element	Typical Analysis (mg/kg)	Specifications (mg/kg)	DL* (mg/kg)	Element	Typical Analysis (mg/kg)	Specifications (mg/kg)	DL* (mg/kg)
Ag	BDL	0.15	0.034	Fe	BDL	2.00	0.053
Al	BDL	2.00	0.24	Hg	BDL	0.03	0.003
As	BDL	4.00	0.006	Ni	BDL	0.1	0.03
Ba	2.96	5.00	0.016	Pb	BDL	0.70	0.16
Be	BDL	0.50	0.08	Sb	BDL	0.70	0.16
Cd	BDL	0.10	0.016	Se	0.0034	0.50	0.0003
Cr	2.71	5.00	0.031	Tl	BDL	3.50	0.80
Cu	BDL	0.10	0.022	Zn	0.034	0.40	0.011

DL* is detection limit
BDL is below detection limit

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