CARUS REMEDIATION



CAS Registry No. 7722-64-7 EINECS No. 231-760-3

CAS Registry No. 64742-51-4 EINECS No. 265-154-5

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

REMEDIATION GRADE

RemOx SR is manufactured with RemOx® S ISCO reagent. RemOx S meets Carus specifications and a certificate of analysis is available upon request for the RemOx S product used to manufacture RemOx SR.

CHEMICAL/PHYSICAL DATA

Formula KMnO, in paraffin wax Formula Weight KMnO₄: 158.0 g/mol Wax: not determined Extruded solid of granular crystalline inside wax Form Decomposition of KMnO₄ may start at 150° C/ 302° F Congealing point of wax is 54-57° C/ 129-134° F Paraffin wax will start to melt at 55° C/ 132° F

DESCRIPTION

Potassium permanganate crystals or granules are dark purple encapsulated in a clear wax.

Standard sizes are 1.35 in (3.4 cm) or 2.5 in (6.4 cm) diameter by 18 in (45.7 cm) long with 77-83% by weight KMnO,

APPLICATIONS

RemOx SR was developed to provide a sustained release of potassium permanganate for soil and groundwater treatment of: chlorinated ethenes, phenolic compounds, polyaromatic hydrocarbons, RDX, HMX, and various pesticides. RemOx SR can be emplaced in the subsurface using direct push technology or suspended into existing wells. This technology can be used for source treatment as well as barrier applications.

RemOx[®] SR ISCO Reagent

FACT SHEET

SHIPPING CONTAINERS

RemOx SR 1.35 in (3.4 cm) by 18 in (45.7 cm) cylinders - Qty 12/box Corrugated box that is 12.5 in (31.75 cm) by 10.625 in (26.987 cm) by 22 in (55.88 cm) with foam insert. Weight of box is 3.383 lbs (1.534 kg). Weight per cylinder is 1.931 lbs (0.875 kg) or 23.172 lbs (10.510 kg) per box. Total weight of box and cylinders is 26.555 lbs (12.045 kg). (Domestic and international)

RemOx SR 2.5 in (6.4 cm) by 18 in (45.7 cm) cylinder - Qty 6/box Corrugated box that is 12.5 in (31.75 cm) by 10.625 in (26.987 cm) by 22 in (55.88 cm) with foam insert. Weight of box is 3.303 lbs (1.498 kg). Weight per cylinder is 6.348 lbs (2.879 kg) or 38.088 lbs (17.276 kg) per box. Total weight of box and cylinders is 41.391 lbs (18.774 kg). (Domestic and international)

Specialty packaging above was designed to insure delivery of cylinders without breakage.

Orders can only be placed as full boxes in multiples of 6 or 12 depending on the cylinder dimensions.

Packaging meets UN performance-oriented packaging requirements.

SHIPPING

RemOx SR is classified as an oxidizer in accordance with the classification requirements of the Hazardous Materials Transportation regulations. It is shipped under Interstate Commerce Commission's (ICC) Tariff 19.

Proper Shipping Name: Oxidizing solid, n.o.s.

| | (potassium permanganate) |
|-------------------------|---------------------------|
| | (RQ-100) |
| Hazard Class: | Oxidizer |
| Identification Number: | UN 1479 |
| Label Requirements: | Oxidizer |
| Packaging Requirements: | 49 CFR Parts 100 to 199 |
| Sections: | 173.152, 173.153, 173.194 |
| Shipping Limitations: | |
| Minimum auantities: | |

Rail car: See Tariff for destination

Truck: No minimum

Postal regulations:

Information applicable to packaging of oxidizers for shipment by the U.S. Postal Service to domestic and foreign destinations is readily available from the local postmaster. United Parcel Service accepts 25 lbs as largest unit quantity properly packaged; (consult United Parcel Service). Regulations concerning shipping and packing should be consulted regularly due to frequent changes.

CARUS CORPORATION

ONE COMPANY, ENDLESS SOLUTIONS

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CAS Registry No. 7722-64-7 EINECS No. 231-760-3 CAS Registry No. 64742-51-4 EINECS No. 265-154-5 RemOx[®] SR ISCO Reagent

FACT SHEET

CORROSIVE PROPERTIES

RemOx[®] SR ISCO reagent 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 must be compatible with either the acid or alkali also being used.

In neutral and alkaline solutions, RemOx SR is not corrosive to iron, mild steel, or stainless steel; however, chloride corrosion of metals may be accelerated when an oxidant such as permanganate is present in solution. Plastics such as polypropylene, polyvinyl chloride Type I (PVC I), epoxy resins, fiberglass reinforced plastic (FRP), Penton, Lucite, Viton A, and Hypalon are suitable. Teflon FEP and TFE, and Tefzel ETFE are best. Refer to Material Compatibility Chart.

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

HANDLING, STORAGE, AND INCOMAPTIBILITY

Protect containers against physical damage. Eye protection should also be worn when handling RemOx SR as a solid or in solution. Avoid breathing vapors or mists of the wax. Exposure or inhalation may cause irritation.

RemOx SR is stable and will keep indefinitely if stored in a cool, dry area in closed containers. Concrete floors are preferred to wooden decks. To clean up spills and leaks, follow the steps recommended in the MSDS or eSDS. Be sure to use goggles, rubber gloves, and respirator when cleaning up a spill or leak.

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. Avoid heating wax to 200° C (392° F) in the presence of potassium permanganate. RemOx SR is not combustible, but it will support combustion. It may decompose if exposed to intense heat. <u>Fires may be controlled and extinguished by using large quantities of water. Refer to the MSDS or eSDS for more information.</u>

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