



RemOx[®] S ISCO REAGENT

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

RemOx S 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 S is shipped with a certificate of analysis to document assay and trace metals.

REMEDIATION GRADE

Assay: $\geq 98.8\%$ as KMnO_4
Trace Metals: (see Table 1)

CHEMICAL/PHYSICAL DATA

Form: KMnO_4
Formula Weight: 158.0 g/mol
Form: Granular Crystalline
Specific Gravity:
Solid: 2.703 g/cm³
3% Solution: 1.020 g/mL by weight, 20° C/ 4° C
Bulk Density: Approximately 100 lb/ft³
Decomposition may start at 150° C/ 302° F

SOLUBILITY IN DISTILLED WATER

TEMPERATURE		SOLUBILITY	
°C	°F	g/L	oz/gal
0	32	27.8	3.7
20	68	65.0	8.6
40	104	125.2	16.7
60	140	230.0	30.7
70	158	286.4	38.3
75	167	323.5	43.2

CORROSIVE PROPERTIES

RemOx S 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 S 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 (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 S solutions. Actual studies should be made under the conditions in which permanganate will be used.

DESCRIPTION

Crystals or granules are dark purple with a metallic sheen, sometimes with a dark bronze-like appearance. RemOx S is odorless.

HANDLING, STORAGE & COMPATIBILITY

Protect containers against physical damage. When handling RemOx S, European Community (CE) approved respirators should be worn to avoid irritation of, or damage to, mucous membranes. Eye protection should also be worn when handling RemOx S as a solid or in solution.

Store in accordance with NFPA 400 Hazardous Materials Code requirements in the United States or the European Fire Protection Association in Europe for Class II oxidizers. Additional regulations in Europe are REACH (Regulation for Registration, Evaluation, Authorization and Restriction of Chemicals), and CLP (Classification, Labeling, Packaging). REACH is a regulation that increases the responsibility of the industry to manage the risks that the chemical may pose. For REACH registration numbers, refer to the eSDS. Check local regulations to ensure proper storage.

RemOx S 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 SDS or eSDS. Be sure to use goggles, rubber gloves, and a 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. RemOx S ISCO reagent is not combustible, but it 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 Safety Data Sheet (SDS) or eSDS for more information.

SHIPPING

Potassium permanganate is classified according to the U.S. Department of Transportation (HMR 49 CFR Part 172) as an oxidizer. Potassium Permanganate is classified as an oxidizer according to International Maritime Dangerous Goods Code (IMDG Code), Agreement Concerning the International Carriage of Dangerous Goods by road (ADR) and the Regulations concerning the International Carriage of Dangerous Goods by Rail (RID).

Proper Shipping Name: Potassium Permanganate (RQ-100 lbs/45.4 kg)
Hazard Class: Oxidizer
Identification Number: UN 1490
Label Requirements: Oxidizer



SHIPPING CONTAINERS

25 kg pail (55.125 lbs.) net, with handle, made of high-density polyethylene (HDPE), weighs 2.9 lbs (1.3 kgs). It is tapered to allow nested storage of empty pails, stands approximately 15.9 inches (40.4 cm) high and has a maximum diameter of 12.4 inches (31.5 cm).

150 kg drum (330.75 lbs.) net, made of 12-gauge steel, weighs 25.3 lbs. (11.5 kg). It stands approximately 28.4 inches (72.2 cm) high and is approximately 19.7 inches (50.0 cm) in diameter.

1000 KG FIBC (Flexible Intermediate Bulk Container)
 100 x 100 x 65 CM high (39.4 x 39.4 x 25.6 inches)
 Spout diameter is 35.5 cm or 14 inches
 Spout length is 50 cm or 19.7 inches

Special packages will be considered upon request.

Packaging meets UN performance-oriented packaging requirements.

TABLE 1: TYPICAL TRACE METAL CONTENT & SPECIFICATIONS

Element	Typical analysis (mg/kg)	Specifications (mg/kg)	DL* (mg/kg)	Element	Typical analysis (mg/kg)	Specifications (mg/kg)	DL* (mg/kg)
Ag	<0.048	0.40	0.048	Hg	<0.004	0.05	0.004
Al	55.85	115.00	0.28	Na	205.3	750	0.069
As	0.54	4.00	0.006	Ni	0.78	5.00	0.048
Ba	10.60	50.00	0.016	Pb	<0.2	1.00	0.20
Be	<0.1	0.50	0.10	Sb	<0.2	1.00	0.20
Cd	<0.07	0.10	0.02	Se	<0.002	1.00	0.002
Cr	1.60	7.50	0.028	Tl	<1.0	5.00	1.00
Cu	<0.595	3.00	0.034	Zn	1.30	6.00	0.016
Fe	<0.066	100.0	0.066	DL* = detection limit BDL** = below detection limit			



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