

### REMOTOX®

#### A Precipitant for Removing Heavy Metals from Process Wastewater

### Product Description

Remotox is a sulfide based liquid, designed to bring practical and cost-saving advantages to wastewater treatment, while ensuring discharge limits on heavy metals are consistently met. This product has proven effective even when treating chelated and/or complexed metals. Its unique formulation also removes chromates and dichromates without preliminary reduction of the chromium to the trivalent state.

### Advantages

- High reactivity with heavy metal ions and extremely low solubility of resulting metal sulfides over a wide pH range, producing lower effluent concentrations.
- Ability to remove metals from chelated metal compounds by ligand exchange process.
- Selective metal precipitation allowing for recovery of valuable metals.
- Dissolved calcium ions form a coagulant aid ( $\text{Ca}(\text{OH})_2$ ).
- Better settling and dewatering aspects of the metal sulfides, resulting in a more compact solid sludge

### Operation

Remotox can be applied to either batch or continuous flow wastewater treatment systems. Dosage rates can be calculated based on the concentrations of heavy metal ions in the effluent, or by observing the ORP, and making adjustments on as-needed-basis to maintain a pre-determined ORP value.

While effective treatment can be obtained over a wide pH range, best results are achieved within pH 7-10.

**Important:** Remotox has proven most stable in systems with pH greater than 5.0, to avoid the possible formation of hydrogen sulfide gas.

Good mixing and sufficient contact time will optimize system performance. Dewatering the resulting precipitate can be expedited by applying a polymer flocculant.

General guidelines for use of the product are listed below:

- 1 Adjust the pH of the effluent to 7-10.
- 2 In batch treatment tanks and weir-type continuous flow clarifiers, add Remotox at the predetermined dosage rate. Assure chemical mixing and contact time is sufficient to optimize performance by periodically collecting a 200-300 ml sample of the treated effluent and adding a drop of Remotox to the solution. If precipitation is observed, more contact time is required.
- 3 Add a polymer flocculant to speed up settling of the precipitate. (In continuous flow clarifiers, the settling agent can be added concurrently with the precipitant.)
- 4 Segregate and dewater the resulting precipitate. A filter press or ultra-filtration membranes are typically used.
- 5 In some cases, excess sulfide in the final effluent must be oxidized to sulfate prior to discharge. A simple method is monitored addition of hydrogen peroxide to a positive ORP value.

## Dosage Guidelines

Generally 120% of the total metals is required to remove all of the metals of concern. However, dosage rates are affected by a number of parameters, such as the mix of metals and their concentrations, the reaction conditions, such as the pH of the system and the presence of other compounds that may inhibit the precipitation reaction. Therefore, we highly recommend that bench tests be performed to identify the optimum dosage for the removal of heavy metals based on your site-specific water chemistry. Please contact us for complimentary samples.

## Equipment Compatibilities

Materials of construction suitable for storing Remotox include stainless steel, polypropylene, high density polyethylene, fiberglass, lined carbon steel. Remotox may not be compatible with brass galvanized material, carbon steel, some elastomers, including natural rubbers and EPDM. Transfer pumps and valves coming in contact with Remotox should be stainless steel (304/316), Teflon or Teflon coated. Suitable material of construction for piping is PVC or stainless steel.

## Typical Physical Properties

Active Ingredient	:	29%
Specific Gravity	:	1.26
pH	:	10.5-12
Appearance	:	Reddish-yellow
Odor	:	Moderate sulfide odor
Water Solubility	:	Complete

**Remotox does not contain dithiocarbamate or its related salts.**

**Please request our Technical Data Sheet to obtain additional product properties and specifications on our Remotox formulation.**

## Packaging

Remotox is readily available in 5-gallon pails, 55-gallon drums, 265-gallon totes, and in tank truckload quantities. **Remotox is not DOT regulated.**

## Shelf Life

When containers are tightly sealed and stored at ambient temperature and out of direct sunlight, Remotox shelf life is **a minimum of 1 year.**

## Handling

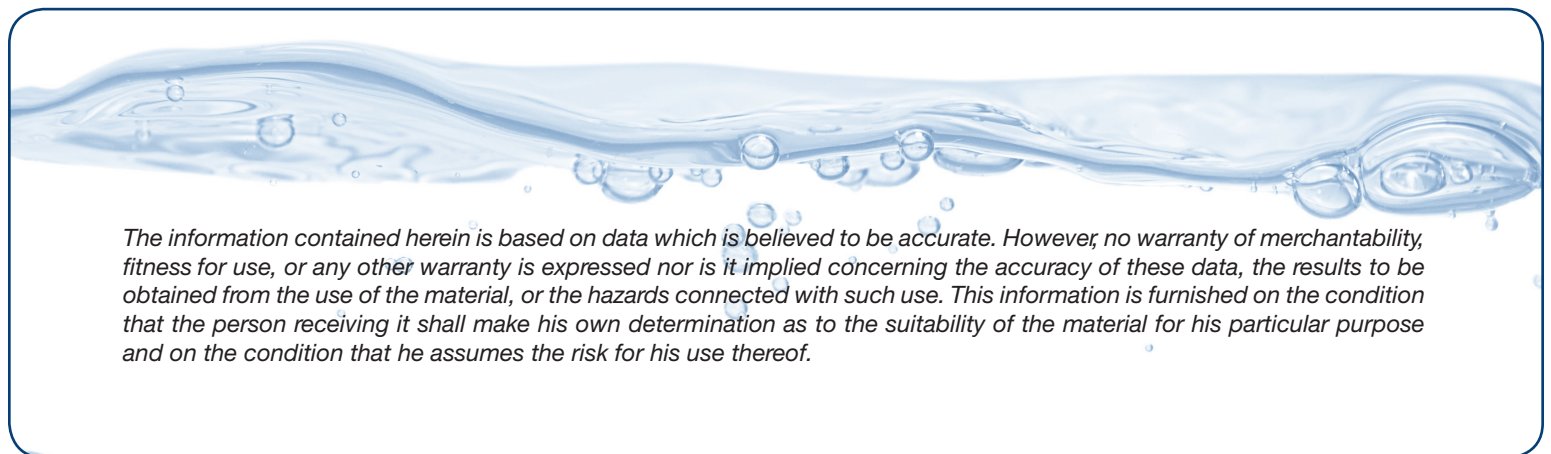
Minimize product exposure to excessive heat, acids or acidic materials to prevent the formation of hydrogen sulfide vapors. Use in a well-ventilated area. Remotox is corrosive due to its caustic nature. Workers are advised to wear personal protective equipment (PPE) to avoid exposure to the skin and eyes. Wash thoroughly after handling. Observe all safety precautions in the Safety Data Sheet.

## Releases

Remotox released to the environment is not listed as a waste nor does it exhibit any waste characteristic to cause it to be classified as a hazardous waste in accordance with 40 CFR 261. Avoid release to the environment – if this is not the intended use. Dike spills and stop leakage where practical. Use absorbent material to collect and contain for salvage or disposal.

## Disposal Considerations

Dispose of containers and unused contents in accordance with federal, state, and local requirements. Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options.



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