

**WATER SPECIALISTS TECHNOLOGIES LLC**

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**WST-35 PRECIPITANT**

WST-35 is a precipitant formulated of polythiocarbonate with alkali sulfite salts that can be used to remove metals in wastewater streams over a wide pH range. The greatest reduction of metals occurs in slightly alkaline wastewater, but the chemistry is designed to eliminate H<sub>2</sub>S odor even in acid solutions as low as a pH of 3.

**Principal Uses:**

WST-35 is a liquid heavy metal removal product, which has a strong affinity for metal ions such as Mercury, Silver, Cadmium, Copper, Lead, Nickel, Zinc, Cobalt II Nickel, Iron and Manganese II. This product is unique in that the structure of the product provides both metal removal as well as some coagulation of the insoluble metal particles. Applications include:

- Ash Ponds
- Automotive
- Chemical Manufacture
- Contaminated Groundwater
- Contaminated Soils
- Electronic Manufacturing
- Electroless Plating
- Flue Gas Waters
- Hazardous Waste Landfills
- Hazardous Waste Treatments
- Incinerators
- Metal Fabrication
- Metal Finishing
- Metal Plating
- Military Bases
- Municipal Landfills
- Nuclear Waste
- Petroleum Drilling
- Petroleum Refiners
- Printed Circuit Board Manufacturers
- Sludge Stabilization
- Waste Oil

**Product dosages:**

WST-35 dosages will vary depending upon the:

1. Level of metals in the water
2. Types of metals to be removed
3. Chelators present
4. Required reduction
5. Oxidizers in the water

**Competitive Comparisons:**

There are a number of advantages of the WST-35 chemistry over the following competitive products:

1. DTC (Dimethyldithiocarbamate)
2. TMT
3. TTC
4. Sodium Sulfide

**Advantages:**

1. Low Hydrogen Sulfide Generation: Sulfur compounds can generate hydrogen sulfide in less than neutral pH conditions. WST-35 is especially formulated to prevent hydrogen sulfide emissions from exceeding H<sub>2</sub>S allowable limits.
2. Mixed Wastes: WST-35 products are effective in precipitation of mixed metal wastewater in the presence of chelating agents, surfactants and high solids waste streams.
3. Low Toxicity: WST-35 is 10-30 times less toxic than other organic metal precipitants such as DTC compounds, and therefore less toxic to employees and the environment.
4. Wide pH Range: WST-35 can be used over a wide pH range of 3-14 without generating harmful levels of H<sub>2</sub>S.
5. High Filterability: WST-35 precipitates a dense particle that is easily separated and filtered.
6. Sludge Reduction: With WST-35 a reduction in sludge generated from the removal of metals is normally quite noticeable.
7. Low Level Removal: WST-35 removes metals to trace levels. In most cases ppb levels are achievable.

**WST-35 will go after metals in the following order, when no chelators/oxidizers are in the water:**

<u>Element</u>	<u>Symbol</u>	<u>WST-35 *</u>
Mercury	Hg	4 ppm
Silver	Ag	3 ppm
Cadmium	Cd	6 ppm
Copper	Cu	11 ppm
Lead	Pb	4 ppm
Nickel	Ni	12 ppm
Zinc	Zn	11 ppm
Cobalt II	CoII	12 ppm
Iron II	FeII	13 ppm
Manganese	MnII	13 ppm

\*WST-35 dosage needed for metal removal

**Materials of Compatibility:**

<u>Compatible</u>	<u>Non-compatible</u>
304SS	Mild Steel
316SS	Copper
Fiberglass	Brass
PVC	Galvanized
Polyethylene	
Neoprene	
Polypropylene	
Hypalon	
Teflon	