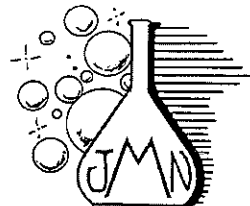


JMN SPECIALTIES, INC.

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PRODUCT BULLETIN

BPL® 5111 Heavy Metal Precipitant

- Precipitates chelated and complexed metals
- Removes metal cost effectively
- Has lower aquatic toxicity than some dithiocarbamates
- Forms easily dewatered, high solid sludge
- Functions over broad pH range
- Can be monitored by ORP

BPL 5111 is a trithiocarbonate used to remove metals from wastewater streams. It is particularly useful in the treatment of wastewater from plating operations. The product is effective over a wide pH range and, when used as recommended, provides nearly complete precipitation of metals, even in the presence of other chelating or sequestering agents.

The sludge cake produced from its use as a heavy-metal precipitant is compact, highly insoluble, and easily dewatered. Its low solubility means that it is less susceptible to leaching and is more likely to pass leaching tests, such as those required by the U.S. Environmental Protection Agency.

Table 1

BPL 5111/Metal Ion Stoichiometric Equivalents

Metal ion	BPL 5111
	Equivalent Concentration # active / # metal
Cd ⁺²	1.4
Co ⁺²	2.6
Cr ⁺³	4.4
Cu ⁺²	2.4
Fe ⁺²	2.8
Hg ⁺²	0.8
Hg ⁺¹	0.4
Mn ⁺²	8.0
Ni ⁺²	2.6
Pb ⁺²	0.7
Zn ⁺²	2.6
Ag ⁺¹	0.72

Application

Table 1 shows the concentration of BPL 5111 equivalent to 1.0 mg/L (1 ppm) of various metal ions. The recommended dosage for complete precipitation of a metal is 10%–30% in excess of the stoichiometric equivalent. For example, the equivalent for Cu⁺² is 2.4# of Na₂CS₃ / 1.0# of Cu⁺², but about 2.8 parts of BPL 5111 would be needed for complete precipitation. For best results, the required concentration for a given application should be determined by laboratory tests. If practical, adjustment of the pH to values between 7 and 9 can often help improve the effectiveness of the precipitant.

BPL 5111 can be added continuously or batchwise as required. The treated effluent should be agitated, usually for at least one hour, and then allowed to settle. Cationic polyelectrolyte flocculants can be used to improve the efficiency of the separation of the precipitate from the liquid.

Packaging and Handling

BPL 5111 is a water-soluble liquid packed in nonreturnable drums and in bulk. Contact of BPL 5111 with copper alloys should be avoided.

Improper handling of this product can be injurious to workers. **Observe all safety precautions shown on the label and in the Material Safety Data Sheet.**

Typical Product Characteristics

Active ingredient	
Sodium trithiocarbonate	25%
Appearance	Orange liquid
Density at 25°C (77°F)	1.20 g/cm ³
Weight per U.S. gallon	9.8 lb
Volume per pound	390 mL
Volume per kilogram	855 mL
pH	12.7
Flash point	> 100°C (212°F)

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