

HMP Heavy Metal Precipitant

HMP is a heavy metal precipitant 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 provides nearly complete precipitation of metals, even in the presence of other chelating or sequestering agents.

The sludge cake produced from using HPM 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.

Application – The weight of HMP equivalent to a unit weight of metal ion is approximately 358 times the metal ion valence divided by the atomic weight of the metal. The table shows the concentration of HMP equivalent to 1.0 mg/L (1 ppm) of various metal ions. The recommended dosage for complete precipitation 10 to 30% in excess of the stoichiometric equivalent.

For example, the equivalent for Cu^{+2} is 11.3 parts by weight of HMP per 1.0 part of Cu^{+2} , but about 13 parts of HMP would be needed for complete precipitation. For best results, the required concentration for a given application should be determined by laboratory tests. If practical, adjusting the pH to values between 7 and 9 can often help improve the effectiveness of the precipitant. Starting dilution should be 60 ml per 100 gal of tank volume.

HMP can be added continuously or batch wise as required. The treated effluent

Metal Ion	HMP Equivalent Concentration (%)
Silver (Ag^{+1})	3.3
Gold (Au^{+1})	1.8
Gold (Au^{+2})	3.6
Gold (Au^{+3})	5.4
Cadmium (Cd^{+2})	6.4
Cobalt (Co^{+2})	12.1
Chromium (Cr^{+3})	20.7
Copper (Cu^{+2})	11.3
Iron (Fe^{+2})	12.8
Mercury (Hg^{+2})	3.6
Mercury (Hg^{+1})	1.8
Manganese (Mn^{+2})	13.0
Nickel (Ni^{+2})	12.2
Lead (Pb^{+2})	3.5
Zinc (Zn^{+2})	11.0

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 separating the precipitate from the liquid.

Typical Properties

Density at 25°C (77°F)	1.17 g/cm ³
Weight per U.S. Gallon	9.7 lb
Volume per lb	390 mL
Volume per kg	855 mL
pH	11
pH (100 ppm in water)	7-8
Flash Point	212°F

Packaging and Handling – HMP is a liquid packed in non-returnable drums and in bulk. Avoid contact copper alloys avoided. Improper handling can be injurious to workers. Refer to the Material Safety Data Sheet for suitable materials of construction, for handling, and storing of this product. Observe all safety precautions shown on the label and in the Material Safety Data Sheet.

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