



**CASE HISTORY**  
**ARIES CHEMICAL MAGNESIUM HYDROXIDE**  
**FOR NEUTRALIZATION AND METALS REMOVAL**  
**IN THE METAL FINISHING INDUSTRY**

**New York – Metal on Metal Plating**

A New York State electrical equipment manufacturer doing in-house electroplating of steel parts added **Aries Magnesium Hydroxide** to its wastewater treatment process to lower their overall treatment costs and significantly reduce final effluent zinc concentrations. The primary heavy metal applied at the equipment manufacturer was zinc. The process wastewaters were treated in a flow-through wastewater treatment system utilizing metal hydroxide precipitation with caustic soda followed by gravity clarification. Periodic zinc violations forced the equipment manufacturer to evaluate alternative chemical treatment processes to improve heavy metal removal rates. Aries Magnesium Hydroxide in combination with caustic soda was selected after laboratory testing and plant trials. Aries Magnesium Hydroxide was chosen as the primary alkali for metal plating wastewater treatment, because it reduced overall sludge volume generation by 25%, total alkali usage by 15% and brought the final effluent into compliance. Moreover, the electrical equipment manufacturer's effluent discharge averages 0.25 mg/l zinc in spite of the very high system loading of 1,500 mg/l zinc.

**Tennessee – Metal on Metal Plating**

A Tennessee based job-shop metal plating firm added **Aries Magnesium Hydroxide** to its wastewater treatment process to lower chemical costs, reduce sludge volume and reduce final effluent heavy metals concentrations. This job-shop metal plating firm electroplates mild steel, stainless steel and copper with chrome, nickel, zinc, silver and tin. The plating firm utilizes two flow-through wastewater treatment systems to treat process wastewater: One system is for zinc process wastewater and the second for all other heavy metals process wastewater. Aries Magnesium Hydroxide was evaluated for application into both wastewater treatment processes. The use of Aries Magnesium Hydroxide was first implemented in the non-zinc wastewater treatment system, which has hexavalent chromium reduction and metal hydroxide precipitation followed by gravity clarification processes. The addition of Aries Magnesium Hydroxide into this wastewater treatment system achieved a 25% sludge volume reduction, a 20% chemical usage reduction and an increase in dewatered filter cake solids from 25 to 35% solids. Aries Magnesium Hydroxide was added to the zinc wastewater treatment process after a new alkaline zinc plating line was installed. The new alkaline zinc plating process produced an effluent that required Aries Magnesium Hydroxide for successful zinc removal. The use of Magnesium Hydroxide brought the zinc wastewater treatment system into compliance with a 15% chemical usage reduction and a 20% sludge volume reduction.

**For further product and technical assistance, contact your Aries Chemical Representative or the Beaver Falls office @ 315-346-1489.**

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