

EnviroBlend[®] has extensive knowledge of the fate and transport of heavy metal contamination, as well as remedial action experience. Our scientists have spent years developing cost-effective chemistries for rendering lead, cadmium, and other heavy metal contaminants non-hazardous. This research has resulted in a number of patented products that have been widely applied for heavy metal remediation sites across the country.

In dealing with acid gas and heavy metal wastes at secondary aluminum smelters/refineries, EnviroBlend reagents have been employed as a more cost effective, one-step solution over alternative methods and reagents.

EnviroBlend personnel have helped secondary aluminum smelters with heavy metal concerns in their baghouse dust for decades. Our products stabilize these heavy metals by forming insoluble compounds as well as controlling the pH of the environment, reducing leaching in all disposal settings. This treatment meets standards based on the Toxicity Characteristic Leaching procedure (TCLP), the Synthetic Precipitation Leaching Procedure (SPLP) and the Multiple Extraction Procedure (MEP) for RCRA metals including, but not limited to, lead, copper, cadmium, zinc, arsenic and hexavalent chromium.

In addition, we have provided product solutions that are used to meet regulatory requirements for acid gas emissions. The injection of halogens such as chlorine, and fluorine, or sulfides for metal refining can generate salts and acid gasses that need to be addressed. The use of EnviroBlend products in treatment reduces the deleterious effects of acid gases on dust collection equipment while reducing harm to the environment.

We address the HCl, HF, and H₂SO₃/H₂SO₄ acid gases formed from demagging and hydrogen degassing processes while stabilizing heavy metals in the same inline treatment process.

We can minimize these kinds of issues by tailoring a single unique blend that stabilizes heavy metal wastes and treats acid gas emissions, all within the ductwork of your dust collector system.

Secondary Aluminum Smelter

A secondary aluminum smelter in the US has found the use of EnviroBlend[®] for *in-situ* treatment of heavy metal wastes has allowed them to save cost on raw material inputs via the use of lower value scrap while still maintaining the metallurgical properties demanded by their customers.

The high cost of hazardous heavy metal waste disposal associated with the use of lower value aluminum scrap had been a disincentive for the smelter. Higher purity scrap had been the alternative until EnviroBlend use was investigated. EnviroBlend utilization with *in-situ* heavy metal treatment of furnace dust allowed for the use of less pure scrap without the added cost of hazardous waste generation and disposal. This allowed the smelter to dispose of the now non-hazardous waste in a local landfill thereby greatly reducing the costs of tipping fees.

The bulking of the waste stream with reagent addition was minimal. The cost of the minimally bulked waste disposal in a non-hazardous landfill was favored over the elimination of a costly hazardous waste alternative and the liabilities associated with its disposal in hazardous materials landfills.

Secondary Aluminum Smelter – Northeast U.S.

A secondary aluminum smelter in the Northeast U.S. found cost savings by using EnviroBlend AG as a replacement for straight hydrated lime. This allowed them to source less pure old scrap metal for the smelting operation at the same time remaining in compliance in both acid gas emissions and heavy metals TCLP testing.

Secondary Aluminum Smelter – Western U.S.

Another western U.S. smelter has enjoyed cost savings by switching away from hydrated lime to magnesia-based chemistries. This allowed for acid gas emissions treatment and reduced flammability concerns with their solid wastes due to a lower pH reagent not causing free hydrogen gas formation in the baghouse. This allows for easy transport to a local landfill without violating DOT 4.3 regulations.

Secondary Aluminum Smelter – California

A secondary aluminum smelter in California, makes use of an EnviroBlend multifaceted product allowing for both the acid gas and toxic heavy metals to be rendered environmentally safe for nonhazardous class disposal. The proprietary blend of mineral based EnviroBlend compounds is used inline via an EPA compliant Totally Enclosed Treatment System (TETS) to address the hydrochloric acid and lead dust from the process.

The result has been the reduction of costs on both the reagents used and the disposal of the waste generated. It has also reduced the amount of capital expenditure on the equipment needed to stay in compliance with their regulatory requirements. The baghouse used for dust and reagent capture is now under less attack by the harmful gases and the efficiency of filtration system has much improved.

Northeast Primary Aluminum Smelter

An aluminum smelter facility manufacturing aluminum ingots has been using EnviroBlend AG20 for over 20 years. EnviroBlend helps treat the facility's rotary smelting furnace waste through baghouse duct injection at roughly 900 tons annually. The metals treated are lead and hydrogen chloride gas. This facility is regulated by the state.

Western Aluminum Smelter

An aluminum smelter facility in the Western US has been using EnviroBlend for the past five years to annually treat 500 tons of lead-contaminated dust on their smelting furnace. The EnviroBlend is added in-line as part of their process by using a duct injection method at a low dosage rate which renders their baghouse dust non-hazardous according to the EPA Toxicity Characteristic Leaching Procedure (TCLP). This facility manufactures aluminum ingots.

Aluminum Smelting Plant – Western U.S.

An aluminum smelting plant in the western US recently started using EnviroBlend Emag 33 to treat roughly forty-five annual tons of lead-contaminated dust and hydrogen chloride gas. EnviroBlend is applied via a duct injection method for acid gas and metals control. This facility manufactures aluminum ingots.

Aluminum Smelter – Southern U.S.

An aluminum smelter in the southern US uses EnviroBlend 90/10 CS to treat cadmium and lead-contaminated aluminum dust. EnviroBlend treats the 1500 tons of dust annually via a duct injection method at a rate of 200 lb./hr. This facility produces Aluminum ingots and is regulated by the state.



Secondary Aluminum Smelters Acid Gas and Metals

Premier Magnesia, LLC's EnviroBlend division was able to tailor a unique blend that stabilized the heavy metals while neutralizing the acid gas inline via duct work injection at a minimal investment of a low-cost feed system.

These case studies are examples of the extensive work EnviroBlend has completed across the United States. For more information on our project experience please contact us.

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