Toronto Region Sustainability Program

TRSP P2

Metal Finishing » Pollution Prevention Case Study

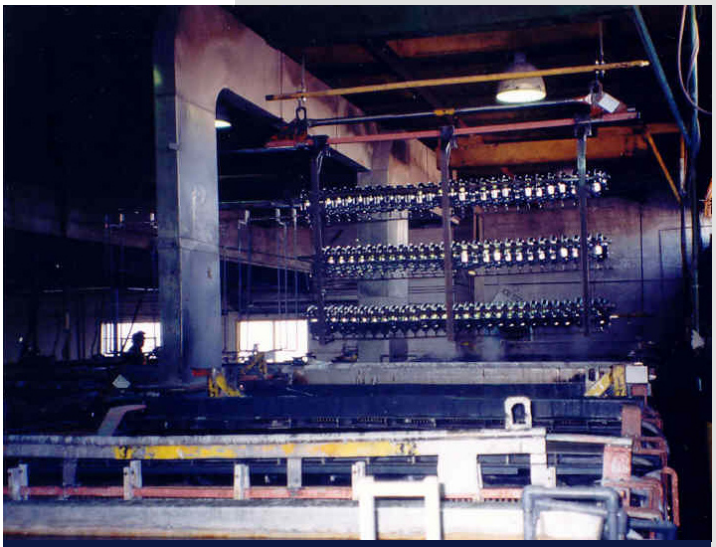
Brimac Anodizing

Company Overview

Brimac Anodizing (1985) Limited is a small-medium sized enterprise, with approximately 40 employees, whose primary service is anodizing of aluminum parts for industrial use. Brimac Anodizing is committed to protecting the environment and to incorporating environmental considerations into their daily operations. They are committed to complying with applicable environmental regulatory requirements, and continually improving their operation.

P2 Assessment Process

To meet the objectives of the Toronto Region Sustainability Program, Brimac underwent a pollution prevention assessment by a consulting firm, Cotter Associates. This review mapped all processes in the Brimac facility for the first time, and from this process and management pollution prevention solutions were developed.



During the anodizing process, pieces are moved from one tank to another using a conveyor system

Summary of Findings

The anodizing process consists of: aqueous cleaning, a phosbrite process, a chemical etch process, the anodizing step, a dye process, and oven curing. In each of these processes, various different wastes are generated.

The first pollution prevention opportunity was related to waste alkaline cleaner from the aqueous cleaning step. The tank must be pumped out and spent cleaner is hauled off-site for treatment and disposal twice annually. When the cleaner is changed there is approximately 6000L of waste each time.

In one of the dye process options, a black dye is used. During the pollution prevention assessment, it was noted that the black dye contains trivalent chromium. The Brimac facility is aiming to be heavy metal free, and in turn wishes to eliminate this trivalent chromium. As with the alkaline cleaner, the tanks that contain the black dye are pumped out and treated off-site twice a year.

In addition, rinsing operations are used between all process steps, and the consumption of rinse water was identified as another opportunity for improvement.

"It was a pleasure to work with OCETA and Cotter Associates to fine-tune our environmental system and wastewater streams."

Andrew Blakelock, General Manager

P2 Solutions, Environmental Results and Related Cost Savings

The table below summarizes P2 projects being undertaken by Brimac from the list of P2 recommendations outlined in the assessment report. When implementation is complete, the P2 measures at Brimac are projected to reduce annually:

- 19 kilograms metals
- 1.8 tonnes hazardous waste
- 5,460 tonnes water

With annual savings of **$8,000** and an overall payback of **3 months**.

Process	P2 Solutions	Environmental Reductions	Cost Savings & Payback
Aqueous Cleaning Targeted Pollutants: Alkaline Cleaner, Hazardous Waste	Installation of membrane filtration system to remove alkaline bath contaminants	50% reduction in offsite hazardous waste transfer (1.8 tonnes/yr) and 25% reduction in alkaline cleaner consumption	Annual savings of $2.8 K Payback of 5.3 years
Black Dye Targeted Pollutants: Chromium	Product substitution: Replacement of black dye with alternative chromium-free product (requires supplier and customer validation	100% elimination of chromium (19 kg/yr)	Cost neutral
Rinsing Targeted Pollutants/Waste Streams: Wastewater	Staff training to reduce drag out from rinse water tanks	10% reduction of water consumption (5,460 tonnes/yr) and a 10% savings in chemical consumption	Annual savings of $5 K Immediate payback

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