

COMPANY BACKGROUND



Alcoa is a global company that produces 13 percent of the world's aluminum metal including aluminum, fabricated aluminum, and alumina. From the industrial market to aerospace, Alcoa remains competitive with its dedication to innovation, growth, and excellence. Specifically, at Davenport Works (DPW) in Bettendorf, Iowa, Alcoa produces a wide spectrum of aluminum products: Aerospace and armored car skins, sheet and plate, and tread. The aluminum products made at DPW are bought by other manufacturers who then make cookware and appliance trim, railroad and marine applications, and much more.



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PROJECT BACKGROUND

With a commitment to reducing their environmental footprint, DPW has set a goal to eliminate all aerosol ink and paint by the end of 2007's third quarter. Spray ink and paint are used in every department of the 321-acre plant to label the alloy and process steps of the aluminum. Oils, lubricants, degreasers and other aerosols account for an additional 15 percent of aerosol consumption.

INCENTIVES TO CHANGE

Alcoa's participation in the Pollution Prevention Program was driven by their dedication to "operate sustainably in the communities and ecosystems in which (they) do business" as well as their zero non-compliance policy. Aerosol consumption at Alcoa has tallied 40,000 cans in one year — releasing nearly 100 tons of greenhouse gases and conventional air pollutants. Aerosol cans, defined by the Resource Conservation Recovery Act as a hazardous waste stream, threaten environmental non-compliance. Aerosol cans are the largest hazardous waste stream at DPW.

RESULTS

Aerosol Recycling Equipment

A manufacture specializing in recycling equipment for aerosol cans was identified. Equipment will be purchased and installed in the Solid Waste Accumulation Building by the end of 2007. The equipment will puncture and crush the aerosol cans as well as separate and filter their contents. Once processed, the crushed cans will be sold for scrap. Generators of hazardous material are bound, per the Compensation Environmental Response Compensation and Liability Act (CERCLA), to their waste from the time it is generated until the time it no longer exists. Processing aerosol cans onsite will reduce the risk of an environmental release offsite and reduce the liability along with it. Savings after a three-year payback will stem from the reduction in disposal costs. Annual disposal costs for aerosol cans have ranged between \$20,000 and \$40,000 in the past ten years — roughly \$1.30/can. Processing the cans in-house will reduce the disposal costs to less than 2¢/can, with a cost savings of 98 percent.

Material Substitution

Where onsite processing is the foundation for solving the aerosol can problem, source reduction is the cornerstone. Without limiting consumption, no emissions would be completely eliminated and Alcoa's environmental impact would remain constant. Aerosol ink and paint account for 85 percent of aerosol can use. By substituting liquid paint markers for all cold metal marking in each department and providing refillable paint brushes for areas where a larger font is necessary, aerosol usage can be reduced by more than 60 percent by the end of the



Air Pollutants Diverted in Tons

	Total for all sectors
SO2	0.38
CO	0.60
NOX	0.40
VOC	0.19
PM	0.006

Green House Gases Diverted in Tons (CO2 Equivalent)

	Total for all sectors
CO2	74.5
CH4	9.2
N2O	6.4
CFC	3.2

third quarter, 2007. This reduction will eliminate up to 50 tons of greenhouse gases and conventional air pollutants from aerosol cans each year at DPW. Aerosol waste can also be minimized with housekeeping and inventory adjustments. Limitless access to aerosol cans conveys a message that aerosol can use is inconsequential. If employees are made more aware of the impacts of hazardous waste streams such as aerosol cans, they may be more conscious of their consumption. Inventory limitations will also help reduce excess waste due to overstocking.

Project	Annual Cost Savings	Environmental Results	Status
AEROSOL RECYCLING EQUIPMENT	\$24,000	95 TONS OF EMISSIONS DIVERTED FROM ATMOSPHERE	IN PROGRESS
MATERIALS SUBSTITUTION	N/A	50 TONS OF REDUCED EMISSIONS	IN PROGRESS