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Doc No.: 241-001-T-000

1.0 Headline: Production Modification at Metal Lab Furniture Manufacturer.

2.0 SIC Code: Office Furniture, Except Wood/SIC 2522

3.0 Name & Location of Company: Information not available.

4.0 Clean Technology Categories: material substitution

5.0 Case Study Summary

5.1 Process and Waste Information: The facility is a manufacturer of metal laboratory furniture, including base cabinetry, wall cases and fume hoods.

Production unit operations include: shearing of the raw steel plate to size, turret punch press punching, and forming to the desired shape on brake presses. Next, cleaning takes place in a series of baths, including sodium hydroxide, acid phosphatizing, and a rust inhibitor bath, interspersed with water rinses.

Waste streams generated by these processes include solvent waste and paint sludge.

The facility implemented a switch from solvent- to aqueous-base paint formulations to both minimize the volume of, and reduce the hazardous nature of, these waste streams. The acrylic enamel paints adopted for use are not only non-hazardous, but have a longer shelf life than conventional paints, thus providing additional waste minimization.

5.2 Scale of Operation: The facility makes 3,500 units of furniture per year, with revenues of $3 million.

5.3 State of Development: The technology is fully implemented.

5.4 Level of Commercialization: Information not available.

5.5 Balances and Substitutions

Quantity Quantity

Material Category	Before	After
Waste Generation (drums/year):	12	3
Feedstock Use:		
plate steel (tons/yr)	NA	30-40
Amclene 17 (NaOH)(lb/yr)	NA	1,000
No. 105 phosphatizer	NA	NA
Amseal final rinse	NA	NA
Water Use:	Information not available.	
Energy Use:	Information not available.	

NA: Not available.

6.0 Economics

6.1 Investment Costs: $4,500 for electrostatic spray equipment.

6.2 Operational and Maintenance Costs: Information not available.

6.3 Payback Time: Information not available.

7.0 Cleaner Production Benefits:

Environmental benefits include a 75% reduction in the amount of hazardous waste solvent generated, due to the switch in paint formulation (the remaining solvent is used in equipment cleaning operations). In addition, longer shelf life means less obsolete paint is thrown away, reducing waste production still further.

Economic benefits include reductions in waste disposal costs (unquantified).

8.0 Obstacles, Problems and/or Known Constraints: The water-base paints are slightly more expensive than the solvent-base, yet can be dried at lower temperatures, reducing energy costs. Also, initial investment for electrostatic spray equipment, plus training for operators, must be made.

9.0 Date Case Study Was Performed: Information not available.

10.0 Contacts and Citation

10.1 Type of Source Material: Case study collection

10.2 Citation: "Fabricated Metal Product Facility Assessments: Case Studies of Plants; Plant A", in Case Studies in Waste Minimization, Government Institutes, Inc., Rockville, MD. October 1991.

10.3 Level of Detail of the Source Material: Additional information is available in the text.

10.4 Industry/Program Contact and Address: Information not available.

11.0 Keywords

11.1 Waste Type: paint sludge, solvent wastes

11.2 Process Type/Waste Source: furniture painting

11.3 Waste Reduction Technique: production modification, material substitution

11.4 Other Keywords: SIC 2522

12.0 Assumptions: Information not available.

13.0 Peer review: Unknown

KEYWORDS: paint sludge, solvent wastes, furniture painting, production modification, material substitution, SIC 2522

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