$uccess $tory # 9

COMMONWEALTH OF PENNSYLVANIA ● DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMPANY	Dopaco, Inc.
LOCATION	Chester County, DEP Southeast Region
PRODUCT/INDUSTRY	Manufactures fast food paperboard cartons and cups
WASTE STREAM/CHEMICAL	Parts cleaning solvent; isopropyl acetate & toluene
PROCESS	Printing is done using either (1) rotogravure printing presses with water-based or solvent-based inks or (2) flexographic printing presses with water-based inks
SAVINGS/OTHER BENEFITS	Eliminated 22 tons of hazardous liquid waste per year; reduced disposal costs (fuel blending) by approximately $11,000/year; improved the working conditions of the employees in the plant
POLLUTION PREVENTION METHOD	Process changes, materials substitutions, "green technology," pollution prevention planning

BACKGROUND

Located in Downingtown, Pa., since 1979, Dopaco, Inc. supplies printed and formed paperboard cartons and cups to the fast food industry. Printing is done using flexographic printing with water-based inks or rotogravure printing presses with water-based or solvent-based ink. As part of the printing process, Dopaco has historically cleaned press parts by hand in a solution primarily consisting of isopropyl acetate and toluene.

A review of the parts washing process revealed several potential environmental, health and safety issues which Dopaco was determined to resolve. The use of highly flammable solvents made it necessary for Dopaco employees to wear respirators while working in this area.

AUTOMATIC PARTS WASHING MACHINE AND SOLVENT SUBSTITUTE

In October 1995, Dopaco installed a closed-loop automatic parts washing machine. The cleaning solution contains no hazardous air pollutants and is combustible rather than flammable. Employees no longer need to wear respirators while working in the cleaning room.

The parts washing machine is similar to a household dishwasher. Parts are loaded onto a trolley that is pushed into the machine. The door is closed and locked. An operator pushes a button that starts the wash cycle. The machine automatically washes, rinses and dries the parts. The system is equipped with a vapor recovery system to minimize the amount of volatile organic compound (VOC) emissions released to the atmosphere.

SOLVENT RECOVERY DISTILLATION UNIT

A distillation unit is included as part of the system. A portion of the dirty cleaning solvent is removed from the parts washer into a holding tank at the end of each wash cycle. At intervals dictated by the usage of the parts washer, the dirty solvent is pumped from the holding tank into the distillation tank. This unit boils out the solvent and recovers it for reuse. It also separates out the water. Waste generated by this system is a sludge that is greatly reduced in quantity over the original hand washing. Due to the washing of parts soiled with solvent ink, the sludge is disposed as hazardous waste and measures only about two tons per year.

The combination of the closed-looped automatic parts washer, the non-hazardous low volatility solution, and distillation unit system may be referred to as a "green technology." It is manufactured and sold by Progressive Recovery, Inc. of Dupo, Ill.

POLLUTION PREVENTION PLANNING

While researching possible solutions to achieve its cleaning objectives, Dopaco asked the employees actually doing the cleaning many questions. Once the system was installed and the employees were trained on its use, they became very excited about it. They were particularly excited about the improvement in their working conditions and the ease with which the parts could now be cleaned. This led employees to review other areas of their jobs which might be candidates for the use of less hazardous materials. Dopaco management is continuing institution of previously identified pollution prevention plans and had replaced all solvent-based inks with water-based inks by the end of 1996.

COST SAVINGS

Financial Savings and Other Benefits

Disposal of the sludge waste from the distillation unit is now approximately $2,100 per year. This is an 84 percent reduction in disposal costs. Furthermore, new parts washer has enabled Dopaco to remove the fire suppression system previously used in the parts washing room and has eliminated the use of respirators by the employees.

ENVIRONMENTAL RESULTS

Reduced Raw Material Use and Reduced Waste Disposal

Dopaco's parts washing processing change reduced the use of the raw materials isopropyl acetate and toluene by approximately 87 tons. Dopaco will now purchase approximately 2.4 tons per year of the substitute solvent. In addition, through the use of the closed-loop parts washer and distillation unit, 24.5 tons of VOCs will no longer be emitted to the atmosphere. During recent years, Dopaco has emitted only about 50 percent of its permitted VOC emission limit. The installation of this automatic parts washer helped to further reduce actual VOC emissions during 1995 to approximately 35 percent of Dopaco's permitted VOC emission limit.

POLLUTION PREVENTION GOAL

Pollution prevention involves eliminating the potential to generate waste at the beginning of an industrial process rather than treating industrial waste after it is created. Pollution prevention planning can point out the areas in a company where changes can be made to raw materials or processes to result in both a cost saving and an environmental benefit. Through planning and implementing changes in its processes and raw materials, Dopaco has shown a strong commitment to improving conditions at its Downingtown facility. These efforts were recognized when the company won the DEP Southeast Regional Office's first Community Environmental Excellence Award. The company also is a 1996 winner of the Governor's Award for Environmental Excellence.

For more information about pollution prevention, contact:

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This fact sheet and related environmental information are available electronically via Internet.
Access the DEP Web Site at http://www.dep.state.pa.us
(choose Information by Environmental Subject/choose Pollution Prevention).

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