

Governor's Pollution Prevention Award, 1999 Recipient **Core Materials Corporation**

The Governor's Awards for Outstanding Achievement in Pollution Prevention have been presented since 1986. Core Materials Corporation was one of nine recipients to receive the award in 1999. These awards recognize outstanding commitments to improve Ohio's environment through pollution prevention. Evaluation criteria for the awards include: the reduction of waste at the source, recycling or recovery of materials, cost-effectiveness, ability of the program to serve as a model for others, and effectiveness in promoting pollution prevention as the preferred long-term approach for environmental management.

Core Materials Corporation

Core Materials Corporation (CMC) is a compounder and compression molder of sheet molding composites (SMC). The company markets, manufactures, and sells both compound and fiberglass reinforced plastic products for a variety of applications. Major applications of SMC include truck hoods for heavy-duty trucks, body parts for personal water craft, and body parts for agricultural equipment and residential doors. CMC also performs assembly and prime painting of some parts.

The Columbus facility of Core Materials Corporation currently employs approximately 500 associates. The SIC code for the facility is 3089.



Core Materials Corporation is recognized for:

- **eliminating the use of chlorinated solvents in its process;**
- **eliminating a hazardous air pollutant (HAP) from being emitted, reducing the plant's HAP emissions by 79,000 pounds per year; and**
- **saving \$50,000 in hazardous waste disposal costs from 1996 to 1997 through the company's pollution prevention efforts.**

Commitment to Pollution Prevention

All levels of management at CMC promote and encourage pollution prevention, waste minimization, process improvements, and safety. Several objectives in the company's business plan involve the reduction of wastes, pollutants and risks. These objectives have to be completed each year by members of management.

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To remind the employees of the importance of the environment, employee-designed T-shirts are passed out annually on Earth Day. The company has a contest for the best T-shirt design. The winner is given a prize, and the winning design is used on the Earth Day T-shirts.

New employees are provided with training regarding processes, safety and environmental awareness. In addition, they are encouraged to think about ways to improve the processes they are learning. All employees are rewarded for good safety records with free steak dinners, baseball caps and T-shirts.

Elimination of Chlorinated Solvent Use

During the past several years, CMC has eliminated the use of chlorinated solvents. Many departments used a product called Vanblend in their daily cleaning routine. Vanblend contained 85 percent methylene chloride and 15 percent methanol. The environmental engineers worked with each department that used Vanblend to find a replacement cleaning solvent. In addition, a product called Yellow Wipe was used for surface preparation before application of a two-part bond. Yellow Wipe was also eliminated because it contained methylene chloride.

It took several years to remove the materials containing methylene chloride from the plant. The last

Summary of Pollution Prevention Activities at Core Materials Corporation

Activities

- Removal of chlorinated cleaning solvents and chlorinated surface preparation material
- Reduction of methanol and elimination of methylene chloride used in plant
- Xylene removed from mold release
- Wooden pallets return program
- Plant-wide recycling
- Reuse of oil

Benefits

- reduced air emissions by 79,000 pounds per year and eliminated a Hazardous Air Pollutant (HAP)
- reduced amount of a listed hazardous waste; \$500,000 annual savings in health & safety physicals.
- reduced air emissions by 3.17 tons per year and eliminated a HAP
- received more than \$2,700 for returning pallets to supplier in 1999
- received more than \$270 for recycled cardboard in 1999
- recycled and reused 21,700 gallons of oil and saved \$18,879 in 1998

drum of waste containing methylene chloride, which weighed 551 pounds, was shipped out in June 1998. This was a considerable decrease in material considering that in 1992 approximately 78,000 pounds of methylene chloride containing wastes was shipped from the plant.

By replacing or eliminating both uses, the company eliminated a Hazardous Air Pollutant (HAP) from its air emissions, reduced the amount and toxicity of its hazardous waste, and reduced employees' exposure to hazardous materials. Community safety also

improved by reducing air emissions and toxicity of the company's hazardous waste.

Methylene Chloride in Cleaning Materials

Methylene chloride was commonly used throughout the plant as a cleaning material. It was used by several production departments to clean equipment; the molding department to flush out lines; and the maintenance department to clean almost everything. Department by department, the company replaced the methylene chloride with alternative materials. This

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was a very long process, spanning nearly five years.

Eventually a replacement material was found for every operation. Some of the replacements include methyl amyl ketone, dibasic ester, n-methyl pyrrolidone, and diacetone alcohol. Several of the new cleaning materials work better than the methylene chloride. All of the replacement chemicals are less hazardous to human health and the overall environment.

Methylene Chloride in Surface Preparation

The last place methylene chloride was used was as a surface preparation material. Yellow Wipe was used on some hoods to increase the porosity of the hood surface in order to bond pieces more effectively. Due to the unique nature of this process, CMC decided to find a replacement for the bonding material that did not require the surface preparation step.

CMC worked with its adhesive supplier and eventually developed a new type of bond that did not need the surface preparation step. This process was finished May 8, 1997. The project was considered a huge success because CMC had finally eliminated the last regular use of methylene chloride and it was able to increase production slightly because a step was removed from the process.

Environmental Benefits

There are two environmental benefits of eliminating methylene chloride from the plant. First, a Hazardous Air Pollutant (HAP) was completely eliminated from the production process, which reduced CMC's HAP emissions by 79,000 pounds per year. Second, the volume and toxicity of CMC's hazardous waste were reduced. Because methylene chloride is a listed hazardous material, all of the rags that were used with the material had to be disposed of as hazardous waste. This averaged about two drums per year of rags alone. There were also drums of waste methylene chloride to be disposed. Using volumes obtained from CMC's annual hazardous waste generators' reports, CMC concluded that the total pounds of material containing methylene chloride which were shipped out of the plant decreased from 78,000 pounds in 1992 to 18,000 pounds in 1997. The final drum of waste methylene chloride was shipped out in June 1998.

Health and Safety Benefits

Methylene chloride can affect the body if it is inhaled or if it comes in contact with the eyes or skin. Inhaling the vapor may cause mental confusion, lightheadedness, nausea, vomiting, and headache. Continued exposure may cause increased lightheadedness, staggering,

unconsciousness, and death. High vapor concentrations may also cause irritation to the eyes and respiratory tract.

By eliminating the use of methylene chloride in the plant these potential health problems were eliminated.

Economic Benefits

The methylene chloride project was undertaken primarily to eliminate a HAP and reduce employee exposure to a hazardous material. A small economic benefit was seen in the elimination of the Yellow Wipe before bonding hoods. The cost of cleaning solutions was virtually unchanged. The largest benefit came in hazardous waste disposal costs. Since all of CMC's wastes were fuel-blended, anything containing methylene chloride was very expensive to dispose of because it has no fuel value. By switching to other cleaners that did have a significant fuel value, CMC was able to take average drum disposal costs from \$360 per drum to \$92 per drum. This was a major contributor to a \$50,000 savings in disposal costs from 1996 to 1997.

Since CMC had been working on eliminating methylene chloride for several years, it was able to avoid potentially serious costs arising from the new Occupational Safety and Health Administration (OSHA) standard covering methylene chloride. This standard

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requires all exposed employees to undergo physicals when they first have exposure, when they leave a job with exposure, and annually in between. The physicals had to include lung capacity tests, x-rays, EKG's and a number of other expensive tests. If CMC had not already eliminated most of its methylene chloride use, it could have had to spend close to \$500,000 annually to test all affected employees.

Other Pollution Prevention Activities

Xylene removal from mold release — This reduced the air emissions by 3.17 tons per year and eliminated a Hazardous Air Pollutant from the production process.

In 1998, CMC sent 31,000 gallons of used oil to a contractor for recycling. Of this amount, 21,700 gallons (70 percent) were reused by CMC. By using the recycled oil instead of virgin oil, CMC saved \$18,879.

CMC worked with its fiberglass supplier to have wooden pallets sent back to the supplier. In addition to savings from not sending the pallets to a landfill for disposal, the company is paid \$1.50 for every reusable pallet returned. In 1999, at the time of submission of its Governor's Award nomination, CMC received \$2,701.00 from this supplier.

Plant wide recycling of aluminum cans, paper and cardboard — For the first half of 1999 CMC received \$270 for recycled cardboard.

For more information

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The Office of Pollution Prevention was created to encourage multi-media pollution prevention activities in Ohio to reduce risk to public health, safety, welfare and the environment. Pollution prevention stresses source reduction and, as a second choice, environmentally sound recycling while avoiding cross media transfers. The Office develops information related to pollution prevention, increases awareness of pollution prevention opportunities, and can offer technical assistance to business, government, and the public.



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