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## *Governor's Pollution Prevention Award, 1999 Recipient* **Neaton Auto Products Manufacturing, Inc.**

The Governor's Awards for Outstanding Achievement in Pollution Prevention have been presented annually since 1986. Neaton Auto Products Manufacturing, Inc. 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.

### **Neaton Auto Products Manufacturing, Inc.**

Neaton Auto Products Manufacturing (Neaton) is a manufacturer of aluminum, steel and magnesium steering wheels, plastic injected airbag covers, instrument panel components, interior trim parts and ventilators. Production capabilities include the reaction injection molding (RIM), injection, vacuum forming, welding, die casting and assembly. The facility is approximately 400,000 square feet, and employs 700 associates.

### **Pollution Prevention Program**

Since incorporation in 1984, Neaton has developed a proactive and successful pollution prevention program including hazardous material reduction, energy conservation, recycling and problem-solving techniques that have improved every area of its manufacturing facility. As examples of hazardous material reduction, in 1994 Neaton successfully implemented a new RIM process that eliminated the use of CFC R-11 in favor of a proprietary water-based process. In 1996, Neaton began recycling the hydraulic oil in all

**Neaton Auto Products  
Manufacturing is  
recognized for:**



- **reducing hazardous waste, conserving energy, and implementing recycling and problem-solving techniques to reduce pollution;**
- **reclaiming 100 percent of the thinner used in the cleanup process with new automatic cleaning units in the reaction injection molding process instead of a manual gun cleaning process;**
- **upgrading its office and plant lighting fixtures to use energy-efficient lighting systems; and**
- **reducing its landfilled solid waste by 1,966.93 tons in 1998 through the company's waste minimization, regrinding and recycling efforts.**

its injection machines through an on-line purification process, reducing the need to drain, replace and dispose of waste oil. In 1998, color substrates were added to one product line, eliminating approximately 26,000 pounds per year volatile organic compounds (VOCs) by reducing the amount of paint needed for various color parts. In 1999, a new system was implemented in the RIM department, replacing manual gun cleaning with automatic cleaning units. This allowed the company to reclaim 100 percent of the thinner used in the clean-up process.

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Regarding energy conservation, Neaton completely retrofitted its office and plant lighting to include energy efficient T-4 ballasts, occupancy sensors and high efficiency plant lighting. Through work with Dayton Power & Light, a monitoring system also controls the energy used during peak and non-peak periods, and regulates peak power usage accordingly. Electric motors are being replaced with energy efficient models, and injection machine injection barrel heater bands are being evaluated for substitution by energy-efficient ceramic bands.

The commitment to recycling and solid waste reduction has steadily grown since 1985. Neaton initiated a bulk feed and regrind department to improve collection and expand the types of material reground. The department also provides the capacity to increase the percentage of regrind material used, as requests for higher content are approved. This philosophy resulted in 532.44 tons of material reused in its products in 1998. Neaton also recycles its corrugated cardboard, office paper, pallets and aluminum cans, scrap plastic, urethane, aluminum and magnesium scrap, and other recyclable materials. Along with other waste minimization, regrinding and recycling efforts, Neaton reduced its landfilled solid waste by 1,966.93 tons in 1998.

The most common method of problem solving employed at Neaton is to form issue-specific Kaizen groups. One successful example occurred in the Air Bag department. Initial scrap figures were unacceptably high, but a diverse group employing Kaizen principles implemented improve-

<b>Total Savings (1998)</b>
<b>Internal Scrap Reduction</b> <b>\$124,454</b>
<b>Plastic Recycling Project</b> <b>\$66,785</b>
<b>Paint Line Improvement</b> <b>\$333,000</b>
<b>Total = \$524,239</b>

ments that reduced scrap plastic waste by 47,000 pounds in the first year. The group also modified jigs, implemented line changes and robotic reprogramming to eliminate approximately 8.9 tons per year of VOCs. Several other countermeasures from that group also were implemented for continuous improvement.

The foundation for these accomplishments has been long-standing management support. In 1993, an ongoing associate recycling involvement team was started, which in turn has sponsored annual Earth Week activities since 1997. Commitment to pollution prevention (P2) was formalized in 1998 with the creation of a resource recovery administrator position. This position was followed in early 1999 with a pollution prevention program, a P2 Team, associate surveys and frequent contact with Ohio EPA's Office of Pollution Prevention. Management and the P2 program associates fully intend to accomplish continuous improvement in pollution prevention and sustainable waste practices through long-term commitment and effort.

In addition to the following specific P2 projects, Neaton has several ongoing pollution preven-

tion projects to addressing some of its existing situation with proposed improvements. Contact Neaton directly for further information.

## **R-11 Freon (CFC) Material Substitution**

In 1994 Neaton introduced a water-based blowing agent into its steering wheel manufacturing. This substitution replaced R-11 Freon. The project was a joint effort between Neaton and its parent company from Japan. The change was implemented two years prior to Clean Air Act requirements.

Neaton was the first steering wheel manufacturer in North America to adopt this technology. This project eliminated CFC emissions (106,000 pounds per year) from the steering wheel process. The costs of using and disposing of Freon were eliminated. A hazardous chemical was removed from Neaton's chemical inventory. This improved associate and community safety by reducing the potential for a release of bulk material.

## **Automatic Gun Cleaning**

The traditional method of cleaning paint guns was to disassemble the units and manually clean them with brushes and thinner. In 1998 the process of manually cleaning paint guns was replaced by four self-enclosed cleaning units. This virtually eliminated the need to clean guns by hand. The addition of the cleaning units eliminated five manual cleaning stations consisting of gallon containers of thinner.

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The change to self-cleaning paint gun stations has greatly reduced the amount of cleanup thinner used in the process. The useful life of the thinner has almost doubled with the implementation of the four units. The use of the units has reduced waste thinner generation by approximately 165 gallons per month. The use of the units also decreases incidental VOC emissions as well as eliminates the use of the gallon containers and potential violations due to open lids on the containers.

The gun cleaners have greatly reduced associate exposure to the cleanup solvent. Associates no longer have to clean guns in open containers. This decreases potential inhalation hazards as well as absorption hazards that are associated with the thinner.

Neaton is saving approximately \$1,677 a month in reduced thinner usage. Waste disposal costs have decreased by approximately \$335 per month. Neaton achieved a return on investment within seven months after purchasing the units.

The gun system is an “off the shelf” item purchased through a vendor. The technology can easily be applied to similar situations.

## **Solvent Distillation Unit**

Past practice at Neaton’s RIM Department was to clean paint guns and paint cups in solvent dip containers. The cleanup solvent was being disposed of as a hazardous waste after the solvent became contaminated with paint. In 1998 the RIM Department purchased a solvent distillation unit to reclaim thinner.

The reclaim unit has greatly reduced the amount of solvent waste that is generated. The company estimates that in 1999 Neaton will reduce thinner waste generation by more than 4,000 gallons. Production Management is tracking results through streamlining record keeping and through waste disposal records. The reuse of the thinner has decreased the area needed to store hazardous waste as well as decreased the amount of virgin thinner that must be kept on hand at Neaton.

Neaton estimates saving \$1,500 a month or approximately \$18,000 dollars a year from reduced waste cost as well as reduced solvent usage. Neaton received a return of investment from this project in less than six months.

## **Color Resin Substrate Substitution**

This project was implemented through a Kaizen team activity (continuous improvement). Neaton had to provide extensive testing to the customer to gain approval for the color change.

The reduction in paint usage reduced VOC emissions for this production line by an estimated 13 tons per year. This allowed Neaton to increase production (at the customer’s request) without the fear of exceeding air permit limits. The change to color substrates also helped to reduce internal scrap due to light paint.

The savings and VOC reductions were tracked by the department manager as part of the Kaizen activities.

## **Paint Line Improvement**

In late 1996 a quality team from production, engineering and maintenance was established to investigate scrap rates in Neaton’s air bag cover production. This team tackled various problems with the production process that ultimately led to the reduction of scrap parts generated as well as a significant decrease in VOC emissions. Projects included redesigning the robotic paint program, adding blow-off stations to the booth prior to part painting, and installing humidity control systems.

Team activities have helped to decrease VOC emissions and reduced the amount of solid waste entering Neaton’s local landfill. Other activities included increasing lighting in the assembly inspection area and redesigning assembly stations, benefitting the health and safety of Neaton associates.

Neaton saved an estimated \$333,000 dollars in reduced paint usage during 1998. This figure is based on 1995 grams per part usage verses 1999 grams per part usage.

## **Internal Scrap Reduction**

In 1997 Neaton began production of the IP Upper (dash panel). At that time, the mold manufacturer recommended that the injection mold be cleaned once a shift and after cleaning, the first 20 parts be scrapped. This was to protect against plastic delamination of the part. Due to this preventative maintenance, Neaton was discarding 60 parts a day (1,260 a month) as scrap. In 1998 Production tried

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cleaning the mold once a day to save 40 rejected parts. The change had to be approved through Neaton's quality department to ensure that part delamination would not occur due to the lack of mold cleaning. Testing was negative for delamination and the cleaning procedure was changed from once a shift to once a day.

Due to this process change Neaton eliminated the generation of 5,376 pounds of scrap plastic (Noryl) a month. In 1998 Neaton reduced scrap Noryl by 59,136 pounds. This savings is significant for several reasons. First, it was a project that was undertaken by the department supervisor. But most important this project eliminated waste at the source. Waste material of 29.57 tons is no longer generated. The production supervisor tracked savings through streamlining activities.

Neaton recouped a savings of \$124,454 in material cost alone by this reduction of the scrap production.

## **Plastic Recycling Project**

Prior to 1995 approximately 50 percent of all plastic scrap parts, runners, and gates were disposed of as solid waste. Since 1995 Neaton has instituted systems to regrind scrap plastics. The regrind material is now either reused in the process or is sold to be recycled. Through the P2 team, Neaton is currently reviewing parts made in-house and attempting to increase the percentages of regrind that can be used in the process.

In 1998 Neaton diverted 1,185.05 tons of scrap from the local landfill. Included in that number is 1,064,877 pounds (532.44 tons) of plastic regrind that was reused in the process.

In 1998 Neaton saved \$66,785 in disposal cost and landfill fees. \$171,127 dollars were also generated in resale revenue. Total economic benefit amounted to \$237,913 through this activity.

## **IP Upper Kaizen Activities**

In 1998 Neaton established a Kaizen team to investigate the cause of high rejects. The team addressed many system problems that were attributed to the high scrap rate. The paint line conveyor was modified to eliminate

line jamming that caused parts to be nicked or scratched. The group also redesigned the paint jigs for better paint application and also reworked the paint robots spray program to eliminate unnecessary over-spray.

These activities reduced the total number of reject parts by approximately 5,800 parts per year. There was also a reduction in paint usage. However, that amount is already reflected in page 3, *Color Resin Substrate Substitution*.

Neaton realized a materials cost savings of \$101,934 in addition to a 25 percent manpower reduction in the department.

## **For more information**

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***[www.epa.state.oh.us/opp](http://www.epa.state.oh.us/opp)***

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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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