

March 1998  
Number 53

*Governor's Pollution Prevention Award, 1997 Recipient*  
**American Tool Companies, Inc.,  
Wilmington Operations**



*American Tool is  
being recognized for*

- ◆ *reducing hazardous waste generation from over 40,000 gallons annually to less than 2000 gallons in 1997, a 95% reduction,*
- ◆ *saving \$750,000 in hazardous waste disposal costs,*
- ◆ *achieving this through material substitution, source reduction, process changes, better equipment maintenance, and employee education, and*
- ◆ *reducing the amount and toxicity of materials to which employees could be exposed.*

The Governor's Awards for Outstanding Achievement in Pollution Prevention have been presented since 1986. American Tool Companies, Inc. Wilmington Operations was one of seven recipients to receive the Award in 1997. 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.

### **American Tool Companies, Inc.**

American Tool Companies, Inc. (American Tool) manufactures hand and power tool accessories. The Wilmington Operations employ approximately 387 workers at two facilities. The plants in Wilmington receive steel and aluminum bars and ingots and make them into drill bits and chalk reels.

American Tool created a position for Health and Safety and Environmental Compliance in 1991 with the goal of reducing the volume and toxicity of hazardous materials used, advancing their interest by;

- ◆ reducing the opportunity for employee exposure,
- ◆ reducing the volume of hazardous waste generated thereby reducing the costs from storing, tracking, and disposing of these wastes, as well as reducing liability, and
- ◆ reducing the amount of paperwork and reporting to be done each year.



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The Health and Safety Officer inventoried the chemicals in use and collected a master file of Material Safety Data Sheets (MSDSs). This revealed that they had too many materials including dozens of redundant chemicals from different suppliers. Many materials were tried, but not completely consumed, then replaced, often at the suggestion of a vendor. American Tool adopted a policy of requiring approval of all incoming materials by the Health and Safety Officer.

Centralized materials review ensured that:

- ◆ the types and amounts of toxics could be known with more accuracy and therefore minimized or replaced,
- ◆ reporting requirements were known and acceptable,
- ◆ MSDSs for new materials were on file,
- ◆ new materials were necessary and not redundant.

## **Pollution Prevention Activities**

American Tool evaluated the processes that generated hazardous wastes. They modified numerous processes, reducing the volume and/or toxicity of the materials used and wastes generated.

## **Potassium Hydroxide Solution**

Wastewater generated from die sprays, oils, hydraulic fluids, mop water, coolants, and washwater was disposed of as hazardous waste due to the inclusion of potassium hydroxide solution (KOH). Process changes in the types of coolants and chemicals used in manufacturing lowered KOH use. An ultrafiltration system was purchased to filter and recycle washwater. The changes combined to reduce this hazardous waste stream from nearly 24,000 gallons in 1993 to zero gallons in 1995 and subsequent years.

## **Floor Dry**

Floor dry was used throughout the manufacturing area to absorb oil drips, leaks and small spills. Used floor dry was considered hazardous waste due to suspected lead content in the oil. A maintenance program to service and repair equipment reduced leaks and drips. Training raised the understanding of and means to reduce the occurrence of spills. In 1995 and 1996 American Tool switched from using absorbents to using floor mats which could be wrung out and cleaned. The mats were reused and the oil was recycled. Later, they substituted an oil that does not contain lead. Hazardous waste generation from this source is expected to reach zero and remain there.

## **Silk Screen Rags and Containers**

Silk screen rags were hazardous because they contained flammable UV silk screen paint. They had been disposed of with paint containers. American Tool began separating them in 1993. In 1995, they began having the rags cleaned and returned for reuse.

Silk screen containers also contained flammable liquid UV paint. The volume of the containers was reduced by crushing them. Beginning in 1997, the containers were scraped of all residue and the paint put back into the process. The containers are no longer hazardous. There is no longer a silk screen waste stream.

## **Non-Regulated Sludge**

When wastewater generated by cleaning the product was filtered for discharge, a sludge was left behind. Although it was not regulated, the sludge was disposed of as hazardous waste, at great expense, to assure satisfactory safety and compliance. A Wheelabrator tumbler was installed to replace this system. The new system cleans by tumbling the product through a reusable zinc media that generates only a small amount of dust as waste. American Tool is exploring ways to modify this process to eliminate even this dust.

# American Tool Companies Inc., Wilmington Operations

## Sodium Nitrate

Sodium nitrate waste was generated by a heat treating system. This process is now performed either by outside heat treating companies or with Austempering Process on-site. This process does not generate sodium nitrate.

## Safety Kleen Solvent

The amount of solvent used for cleaning was decreased by reducing the number of solvent tanks used and increasing the length of time solvent is used (within the 90 day storage limit) before being replaced and recycled. In the past, solvent was replaced at the convenience of the supplier rather than according to when it was required due to contaminants.

## Lab Packs

Materials identified as unnecessary were collected in lab packs for disposal. These efforts peaked in 1995. As employees became more educated about wastes and the need to eliminate hazardous materials that were no longer in use, more waste was collected and removed.

All new materials must now be pre-approved by reviewing the Material Safety Data Sheet for employee safety, environmental reporting and compliance, and disposal requirements. No further waste is expected to be generated through lab packs.

## Environmental Benefits

The amount of hazardous wastes from chemical materials used at American Tool has been greatly

reduced. This resulted in a corresponding reduction of hazardous waste disposed in landfills or incinerators and, by extension, released to soils, groundwater, or air. Furthermore, fewer chemicals were consumed in the manufacturing process.

## Economic Benefits

Hazardous waste generation has decreased by over 95% from 1990 to 1997 with disposal costs decreasing accordingly. Cumulative cost savings for waste disposal has totaled over \$750,000. Additional savings have been achieved through reduced material purchases. Also, savings have been realized through reduced labor costs for handling, storage, and disposal of hazardous wastes.

## Waste Minimization Results

Type of Waste	High Amount	1997 Amount	% Reduction	Savings
<b>Plant 1</b>	<b>Gallons (Year)</b>	<b>(near year end)</b>		
Liquid KOH	23,865 (1993)	0	100	\$38,820
Floor Dry	5,225 (1992)	495	91	\$132,500
Silk Screen Rags	2,225 (1992)	0	100	\$33,770
Silk Screen Containers	880 (1995)	110	88	\$17,400
Non-regulated Sludge	1,595 (1993)	0	100	\$22,220
Sodium Nitrate	2,970 (1992)	0	100	\$127,080
Cleaning Solvent	2,599 (1992)	172	93	\$77,820
Lab Packs	1,600 (1995)	0	100	\$12,760
<b>Plant 3</b>				
Floor Dry	3,195 (1992)	110	97	\$74,780
Cleaning Solvent	15,565 (1992)	900	94	\$218,790
<b>Totals</b>	<b>59,719</b>	<b>1787</b>	<b>97</b>	<b>\$755,160</b>

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## **Health and Safety Benefits**

The amount and toxicity of materials to which employees are exposed has been greatly reduced. This resulted in better employee health and morale. Education programs explaining the process and material changes, and modifications to reduce hazardous materials exposure ensure that employees are aware of the changes and benefits.

## **Management Commitment and Employee Involvement**

American Tool has waste minimization teams, which are part of a Cost Reduction Program. The waste minimization

teams meet monthly to discuss ideas about reducing the amount and toxicity of wastes generated at the Wilmington facilities. Management uses a Rewards and Recognition Program to encourage employees to participate. Rewards include cash certificates usable in the company store to purchase American Tool products. Ideas and new programs from the Waste Minimization teams are communicated to the rest of the employees in monthly staff meetings.

## **Transferability**

American Tool participates in the Industrial Safety and Environmental Support (ISES), a group that includes most of Clinton County industries. The

purpose of this group is to share information related to health and safety as well as environmental issues among the various industries in the area. American Tool has reported progress in waste minimization initiatives and has explained this success to others in the community. American Tool also shares this information through networking with other industries in the Wilmington area.

## **For More Information**

Jeffrey S. Curry, Health and Safety Manager  
American Tool Companies, Inc.  
Wilmington Operations  
Plant 1: 92 Grant St  
Plant 2: 160 Part Dr  
Wilmington, Ohio, 45177  
(937) 382-3811

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**This is one in a series of documents Ohio EPA has prepared on pollution prevention. For more information, call the Office of Pollution Prevention at (614) 644-3469.**

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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, secondarily, environmentally sound recycling while avoiding cross media transfers. The Office analyzes, develops, and publicizes information related to pollution prevention and increases awareness of pollution prevention opportunities via education, outreach, and technical assistance programs for business, government, and the public.*

**Office of Pollution Prevention WWW address: [www.epa.state.oh.us/opp](http://www.epa.state.oh.us/opp)**