



# PREVENTION *quarterly*



Office of  
Pollution Prevention

## Winter 2002

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On September 20, 2001, International Truck and Engine Corp. - Springfield Operations was awarded the National Pollution Prevention Roundtable's **PBT-Cup** at the Stewart Mott House in Washington, D.C.

### International Truck and Engine Corporation - Springfield Operations Lead Reductions

*Taken from International Truck and Engine Corporation, "The Green Report." Volume 6, Issue 1, November 2001.*

The Springfield Operations is constantly striving to reduce pollution at its facilities. One area that has improved is in the reduction of lead in its processes. Because of these reductions, Springfield Operations won the 2001 PBT-Cup which is awarded by the National Pollution Prevention Roundtable. The PBT-Cup is awarded to private industries that reduce persistent, bioaccumulative and toxic chemicals (PBT) in their operations. Since the early 1990s, they have been able to reduce lead use and lead by-products from more than 100,000 pounds to less than 200 pounds per year. This reduction resulted in more than \$125,000 saved annually. The following details two of the most recent reduction activities that led to the PBT-Cup award.



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### 2001 Reduction of Lead in Cab Repair

In the old cab and stamping facility, damage occurred to cabs regardless of the care taken during the manufacturing process. Damage to cabs range from minor scratches to dents the size of golf balls. The main causes of the damage includes impact between cabs on conveyors and in storage, die marks, and the movement of people with welders or tools in and out of cabs. In order to salvage the damaged cabs, a method used throughout the truck industry known as "lead soldering" is performed. Lead solder is heated until it is workable or soft. It is then smoothed into shape to cover up the dents in the cab. This creates a smooth surface for paint that is not subject to rust and is more durable than plastic putty.

A team was formed at the Springfield Operations, and given the task of finding replacements for the two types of lead solder currently used to repair

PBT-Cup continued on page 2



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truck cabs. This required the creation of a cross-functional team with diverse backgrounds. The knowledge and experience of staff, management and employees was vital to the success of implementing any process change. The team consisted of representatives from Quality, Engineering, Management, Environmental, Safety and the United Auto Workers Local 402 members. The team was allowed to think out-of-the-box, and not just look at alternative solders or putty. The easy solution was to replace the lead bars with a lead-free solder. The innovative solution was to find a way to reduce or even remove the solder application all together. After searching and evaluating alternatives, the team found their answer in the LP-1000 Lenco Pull. The LP-1000 is a portable device used to pull dents out of metal. With the dents removed, solder is not required to fill in the defects. The LP-1000 pulls dents without drilling and without draw pins that must be ground out. Also, because of the low operating temperature, there is less deformation of the metal. The \$1,700 investment in the LP-1000 has saved Springfield Operations time, money, and energy, and eliminated the disposal of used lead solder.

Two examples from a past production month illustrate typical savings. Twelve cab back panels with a similar defect required repair. Using the LP-1000, the dents were pulled and the cabs repaired online in four to five minutes apiece. Without the dent puller, the cabs would have been moved off-line to the repair department for two hours of repair using lead solder. With an average hourly wage in excess of \$40, the savings on this job was more than \$900. Seven roof sections with die marks were fixed online in 30 minutes a section. Without the dent puller, each roof section would have required three hours of repair. The value of seven roof sections is about \$210 plus repair labor. The savings on this job was more than \$900 including labor and materials. In this case, no lead solder would have been used. However, this demonstrates technology purchased specifically to eliminate lead solder has already found beneficial uses elsewhere.

In the few short months since the unit was purchased, it already returned its investment. The production department has embraced the new technology since it reduces repair time and ensures on-time delivery to the next department on the assembly line. Employees like the ease of use and the reduced potential for breathing in lead emitted from the soldering method. Some damage cannot be repaired with the LP-1000. This damage is now repaired with a lead-free solder. The Body Plant reduced the amount of lead used to repair cabs from 30 pounds a month to zero by switching to LP-1000 and the lead-free solder.

### **2000 Battery Cable Ends**

Late in 1999 the battery cable assembly process moved to Springfield Operations. The ends of the battery cables were dipped in solder for electrical conductivity. In 2000, a project team was formed to evaluate alternative materials to eliminate lead from the process. This team included truck engineering, production operators, environmental and safety professionals, and production supervision. Two materials were eventually approved after extensive testing for performance. The result was a decrease in the lead content from 45 percent to 0.5 percent by weight. Approximately 16,000 pounds of lead solder was used each year before this change.

For more information regarding lead reductions at Springfield Operations and the PBT-Cup, contact:

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The National Pollution Prevention Roundtable  
**[www.p2.org](http://www.p2.org)**

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## Office of Pollution Prevention (OPP) Web Site Information & Updates

### Deicing Alternatives for Pollution Prevention

Deicing chemicals and methods can be a significant source of air particulates, as well as surface and ground water pollutants. Coarse “rock salt” often contains metals such as lead, zinc, copper, chromium and magnesium. The possible adverse impacts of excessive deicing chemical applications include\*:



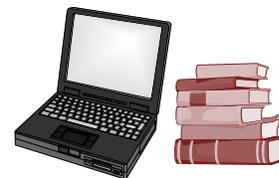
- contamination of drinking water supplies;
- corrosion of automobiles;
- corrosion of bridges and other infrastructure;
- damage to roadside vegetation;
- temporary reduction in soil microbes;
- sensitivity of various deciduous trees;
- attraction of deer to salts on roadways, increasing the risk of accidents;
- stratification of small lakes, hindering seasonal turnover; and
- secondary components (3-5 percent of road salt composition) may include nitrogen, phosphorus, and metals in concentrations exceeding those in natural waters.

\*Michigan Department of Transportation. 1993. The Use of Selected Deicing Materials on Michigan Roads: Environmental and Economic Impacts. Lansing, MI. Prep. by Public Sector Consultants, Inc.

Reducing the amount and toxicity of deicing chemicals applied is the primary means of reducing ice and snow removal wastes. Recent advances in remote sensing devices and monitoring networks allows for applying a minimum amount of deicing chemicals when conditions are optimal for preventing ice buildup. This practice is sometimes referred to as “Anti-icing.”

For more information, please see the **Deicing Options for Pollution Prevention Web site** at [www.epa.state.oh.us/opp/Deicing.html](http://www.epa.state.oh.us/opp/Deicing.html). *Alternative Deicing Chemical Vendors* and *Deicing Alternative Links* are available at this site.

### Electronic P2 Document Library



OPP recently added an electronic P2 document library to the OPP Web site. It consists of on-line P2 documents available from OPP. All documents are in portable document format (PDF) or HTML format for easy download and printing. Most of the documents require Adobe Acrobat Reader 4.0, which can be downloaded from this Web site.

The printable electronic pollution prevention documents have been indexed by subject area.

#### General Index:

- pollution prevention planning
- pollution prevention policy and programs
- case studies: Governor’s Pollution Prevention Award Recipients
- case studies: P2 integration and supplemental environmental projects
- pollution prevention for the home and office

#### Sectors Index:

- auto repair
- dry cleaning
- energy
- green building
- laboratories, research and educational institutions
- marinas
- mercury pollution prevention
- metal finishing and metalworking
- painting and coating
- recycling
- solvents and parts cleaning
- woodworking and refinishing

The electronic P2 document library is located at [www.epa.state.oh.us/opp/Available%20Online%20Docs.html](http://www.epa.state.oh.us/opp/Available%20Online%20Docs.html) or off OPP’s main Web site at [www.epa.state.oh.us/opp](http://www.epa.state.oh.us/opp).

## Sustainable Events, Conferences & Training Calendar

Sustainable design and construction activities are blossoming across the state. The Ohio Department of

Development is sponsoring sustainable high performance design training in partnership with the Cleveland Green Building Coalition and Hamilton County Environmental Services. OPP has created a statewide calendar of conferences, events and training opportunities for design and construction professionals. The purpose of this calendar is to encourage sustainable development activities. This calendar will assist the many small groups throughout the state to promote their efforts and form a centralized location to learn of opportunities to partner on projects and resources. The calendar is accessible at [www.epa.state.oh.us/opp/SustainBuildOhioCalendar2.html](http://www.epa.state.oh.us/opp/SustainBuildOhioCalendar2.html).

The market for high performance, energy efficient buildings is growing rapidly. Begin developing the tools to deliver them today.



### How You Can Make a Difference

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