

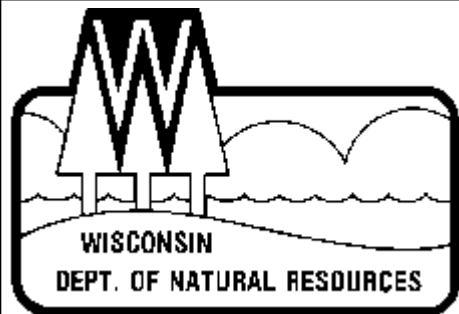


Case Corporation

Eliminating the Use of a Vapor Degreaser Containing 1,1,1-Trichloroethane

Standard Industrial Classification (SIC)	Transmissions for Agricultural and Construction Equipment/3568																													
Type of Waste	Cleaning solvent containing 1,1,1-trichloroethane																													
Strategy	Material substitution and process modification																													
Company Background	Founded in 1842 Case Corporation is headquartered in Racine. It operates three Wisconsin manufacturing facilities with approximately 17,000 employees worldwide. Case is now the second largest producer of agricultural equipment in North America and the world's largest manufacturer and distributor of light and medium-sized construction equipment. Case Corporation products are sold in approximately 150 countries through a network of approximately 4,100 independent dealers and distributors.																													
Original Process	A vapor degreaser containing 1,1,1-trichloroethane was used to remove lubricants (rust preventatives) applied by the manufacturer to various parts used at the Case Corporation transmission plant.																													
Motivation	To improve worker safety by eliminating solvent cleaners and to eliminate the use of an ozone-depleting solvent																													
Pollution Prevention Process	Case Corporation worked with their supplier to modify the rust preventative lubricant so that it could be removed by aqueous cleaning solutions. The cleaning schedule for critical parts was also modified so that it would coincide with operator breaks and lunch periods. This extended the time that the parts could be retained within the cleaning equipment, but did not increase the cleaning cycle time. These changes permitted use of an existing aqueous cleaning process to achieve the required cleaning performance																													
Material/Energy Balance	<p>The following table shows the reduction of 1,1,1-trichloroethane wastes from the cleaning process. It includes both air releases (as reported on Form R reports) and waste shipped off-site (as documented on hazardous waste manifests):</p> <table border="1"> <thead> <tr> <th rowspan="2">Year</th> <th colspan="2">Waste Type</th> </tr> <tr> <th>Air releases (lbs)</th> <th>Waste shipped (lbs)</th> </tr> </thead> <tbody> <tr> <td>1987</td> <td>28,616</td> <td>1,987</td> </tr> <tr> <td>1988</td> <td>14,000</td> <td>2,420</td> </tr> <tr> <td>1989</td> <td>10,350</td> <td>1,210</td> </tr> <tr> <td>1990</td> <td>16,685</td> <td>1,815</td> </tr> <tr> <td>1991</td> <td>11,495</td> <td>1,210</td> </tr> <tr> <td>1992</td> <td>0</td> <td>605</td> </tr> <tr> <td>1993</td> <td>0</td> <td>1,210</td> </tr> <tr> <td>1994</td> <td>0</td> <td>0</td> </tr> </tbody> </table>	Year	Waste Type		Air releases (lbs)	Waste shipped (lbs)	1987	28,616	1,987	1988	14,000	2,420	1989	10,350	1,210	1990	16,685	1,815	1991	11,495	1,210	1992	0	605	1993	0	1,210	1994	0	0
Year	Waste Type																													
	Air releases (lbs)	Waste shipped (lbs)																												
1987	28,616	1,987																												
1988	14,000	2,420																												
1989	10,350	1,210																												
1990	16,685	1,815																												
1991	11,495	1,210																												
1992	0	605																												
1993	0	1,210																												
1994	0	0																												
Economics	<p>Capital Costs None</p> <p>Operation/Maintenance Costs</p>																													

	<p>No significant additional operating costs were necessary.</p> <p>Payback Period Immediate. Based on average annual solvent use and disposal, annual cost savings are roughly \$11,000.</p>
Benefits	<p>This project has eliminated of waste solvent and toxic chemical air releases by eliminating 1,1,1-trichloroethane (or methyl chloroform), a stratospheric ozone-depleting compound. As a result, the facility is no longer required to submit Form R toxic chemical release reports for this chemical, and has met the goals of the EPA 33/50 program.</p>
Obstacles	<p>The original rust preventative coating could not be removed by aqueous cleaning solutions. The facility worked with the supplier to modify the coating. Aqueous cleaning solutions generally require longer cleaning times which increase cycle times, however, schedule changes allowed the facility to accommodate the longer cleaning times.</p>
Technology Transfer	<p>Vapor degreasing with 1,1,1-trichloroethane was a common process. A number of alternative cleaning processes and alternative solvents to 1,1,1-trichloroethane are now available, as are many guidance documents through EPA's Pollution Prevention Information Clearinghouse at (202) 260-1023. However, cleaning applications can still be very specific and some companies have not identified suitable alternatives.</p>
Other Pollution Prevention Activities	<p>Other pollution prevention activities at the Case Corporation transmission plant include eliminating ignitable parts washer solvent, and operating a central coolant recycling system</p>
Company Address	<p>Case Corporation 7000 Durand Avenue Racine, WI 53406</p>
Contact Person	<p>Fred Alverson, Facilities Engineer 414/636-7925 414/636-5550 (FAX)</p>
Pollution Prevention Resources	<p>Free, On-site Technical Assistance University of Wisconsin Extension Solid and Hazardous Waste Education Center Milwaukee area: 414/475-2845 Remainder of state: 608/262-0385</p> <p>Pollution Prevention Information Clearinghouse Wisconsin Department of Natural Resources Cooperative Environmental Assistance 608/267-9700 or e-mail: cea@dnr.state.wi.us</p>



Bureau of Cooperative Environmental Assistance
Wisconsin Department of Natural Resources
P.O. Box 7921
Madison, WI 53707
608/267-9700