



EPA's 33/50 Program Company Profile

Aladdin Industries Inc.



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THE 33/50 PROGRAM

This Company Profile is part of a series of reports being developed by EPA to highlight the accomplishments of companies participating in the 33/50 Program. The 33/50 Program is an EPA voluntary pollution reduction initiative that promotes reductions in direct environmental releases and offsite transfers of 17 high-priority toxic chemicals. The program derives its name from its overall goals -- an interim goal of a 33% reduction by 1992 and an ultimate goal of a 50% reduction by 1995. The program uses 1988 Toxics Release Inventory (TRI) reporting as a baseline. In February, 1991, EPA began contacting the parent companies of TRI facilities that reported using 33/50 Program chemicals since 1988 to request their participation in the 33/50 Program. As of April, 1994, a total of 1,216 companies had elected to participate in the Program, pledging to reduce emissions of the 17 target chemicals by more than 355 million pounds by 1995. Companies are encouraged to set their own reduction targets, which may vary from the Program's national 33% and 50% reduction goals. Company commitments and reduction pledges continue to be received by EPA on a daily basis.

The 1992 TRI data revealed that releases and transfers of 33/50 Program chemicals declined by 40% between 1988 and 1992, surpassing the Program's 1992 interim reduction goal by more than 100 million pounds. This accomplishment, together with evidence from analysis of facilities' projected releases and transfers of the 17 priority chemicals, reported to TRI under the Pollution Prevention Act, offers strong encouragement that the 33/50 Program's ultimate goal of a 50% reduction by 1995 will be achieved.

EPA is committed to recognizing companies for their participation in the 33/50 Program and for the emissions reductions they achieve. The Program issues periodic Progress Reports, in which participating companies are listed and highlighted. In addition, Company Profiles, such as this one, are being prepared to provide more detailed information about companies that have written to EPA describing significant emissions reduction initiatives. Information presented in these profiles is drawn primarily from the company's written 33/50 Program communications and the annual TRI reports submitted by their facilities (including Pollution Prevention Act data reported to TRI in Section 8 of Form R). All company communications to EPA regarding the 33/50 Program are available to the public upon request.

EPA does not endorse the performance, worker safety, or environmental acceptability of any of the technical options discussed in this Profile. Mention of any product or procedure in this document is for informational purposes only, and does not constitute a recommendation of any such product or procedure, either express or implied, by EPA.

17 PRIORITY CHEMICALS TARGETED BY THE 33/50 PROGRAM

BENZENE
CADMIUM & COMPOUNDS
CARBON TETRACHLORIDE
CHLOROFORM
CHROMIUM & COMPOUNDS
CYANIDES
DICHLOROMETHANE*
LEAD & COMPOUNDS
MERCURY & COMPOUNDS
METHYL ETHYL KETONE
METHYL ISOBUTYL KETONE
NICKEL & COMPOUNDS
TETRACHLOROETHYLENE
TOLUENE
1,1,1-TRICHLOROETHANE
TRICHLOROETHYLENE
XYLENES

* Also referred to as methylene chloride

For information on the 33/50 Program, contact the TSCA Hotline at (202) 554-1404 or contact 33/50 Program staff directly by phone at (202) 260-6907 or by mail at Mail Code 7408, Office of Pollution Prevention and Toxics, U.S. EPA, 401 M Street, SW, Washington, D.C. 20460.

Aladdin Industries Inc.

Aladdin Industries Inc. reduced its releases and transfers of 33/50 Program chemicals by almost 70,000 pounds (38%) from 1988 to 1992. Moreover, according to company officials, significant additional reductions were achieved in 1993 and the company has nearly achieved its program goal of an 80.7% reduction. In addition to reductions in 33/50 Program chemicals, Aladdin achieved a 99.8% reduction in releases and transfers of non-33/50 TRI chemicals from 1988 to 1992. This has moved the company close to achieving its other goal of a 91.1% reduction in releases and transfers of all TRI chemicals from a 1988 baseline.

I. CORPORATE BACKGROUND

Aladdin Industries Inc. is a manufacturer of metal and plastic hardware for consumer and industrial use. Located in Nashville Tennessee, Aladdin produces a wide variety of products such as lunch kits, thermos bottles, hospital trays, coffee cups, lamps, and coolers.

Although Aladdin is a relatively small generator of toxic chemical emissions, the company feels an obligation as a corporate citizen to reduce any emissions generated.

Aladdin has used six 33/50 Program chemicals in quantities reportable to TRI: chromium, dichloromethane, methyl isobutyl ketone, toluene, 1,1,1-trichloroethane, and trichloroethylene. These chemicals have been used in the following applications at Aladdin:

- Chromium is a component of a phosphoric/sulfuric acid solution used in the manufacture of vacuum bottle thermoses.
- Dichloromethane is used to join polystyrene sheets in the production of hospital trays, as well as to remove blemishes from the surface of the tray. Dichloromethane reacts with the polystyrene and softens the end of each sheet. Two sheets are then joined end-to-end and, when the polystyrene hardens, a single sheet is formed.

Releases and Transfers of TRI Chemicals by Aladdin Industries Inc. (1000 pounds)

	1988	1992
<i>33/50 Chemicals</i>		
Chromium*	0	0
Dichloromethane	9	0
Methyl isobutyl ketone	3	0
Toluene	29	0
1,1,1-Trichloroethane*	0	42
Trichloroethylene	142	71
33/50 Subtotal	183	113
<i>Other TRI Chemicals</i>	283	1
Total**	467	114

* Chemical was first reported to TRI in 1989.

** Columns do not sum to totals due to rounding.

- Methyl isobutyl ketone, toluene, and 1,1,1-trichloroethane are used in a solvent blend for the cleaning of silk screens. These silk screens are used primarily to decorate plastic drinking mugs.
- Trichloroethylene is used to remove petroleum oils from the surface of metal parts prior to welding and painting.

Aladdin reported 466,554 pounds of releases and transfers of TRI chemicals in 1988, of which 183,216 pounds represented 33/50 Program chemicals. In addition, Aladdin used lead and associated compounds and xylenes in quantities below the TRI reporting threshold. Table I, at the end of this profile, presents Aladdin's 1988-1992 data on releases and transfers of TRI chemicals.

II. CORPORATE ENVIRONMENTAL STRATEGY

Although Aladdin is a relatively small generator of toxic chemical emissions, the company has stated that, as a corporate citizen, it feels an obligation to reduce *any* emissions generated. Aladdin's ultimate objective is to eliminate the emissions of toxic chemicals completely, primarily

through source reduction methods. However, in cases where source reduction is not possible, Aladdin is looking to other means of reducing emissions such as treatment and recycling.

III. 33/50 PROGRAM GOALS AND POLLUTION REDUCTION ACTIVITIES

Aladdin initially set a goal of reducing total releases and transfers of 33/50 Program chemicals by 32.5% from 1988 levels by 1995. This translates into a reduction of 59,545 pounds. Aladdin's goal was later revised to a reduction of 80.7% for 33/50 Program chemicals by 1995. This revised goal used a 1989 baseline for some chemicals first used by Aladdin in 1989 and translates into a reduction of 193,854 pounds.

33/50 Program Goals for Aladdin Industries Inc.		
Reductions in releases and transfers of 33/50 Program chemicals by 1995 from base year		
Chemical	Base Year	Percent Change from Baseline
Chromium	1989	100%
Dichloromethane	1988	100%
Methyl isobutyl ketone	1988	100%
Toluene	1988	100%
1,1,1-Trichloroethane	1989	42%
Trichloroethylene	1988	90%

In addition to these goals for 33/50 Program chemicals, Aladdin also set a target for an overall reduction in releases and transfers of all TRI chemicals of 91.1%. Aladdin hoped to achieve many of these reductions by eliminating the use of chemicals, rather than chemical substitution or recycling programs.

In order to meet its goals, Aladdin designed in-house projects focusing on each of the chemicals to be eliminated, controlled, or replaced. For each of these projects, one staff member was appointed

project leader and had primary responsibility for ensuring the project's completion. For each project, a goal, target implementation date, base year, and method for completion were articulated.

Aladdin identified discrete projects and appointed project leaders to oversee its program to reduce releases and transfers of 33/50 Program chemicals.

To date, Aladdin has completed the following projects:

- All trichloroethylene usage was eliminated during 1993. Trichloroethylene was required to remove petroleum oils from metal parts during metal forming processes. Synthetic lubricants are now used in place of petroleum oils and are removed from parts with an aqueous alkaline cleaner. The water from the alkaline cleaning process is treated on-site.
- Dichloromethane use was completely eliminated from the facility as of 1993 by replacing the polystyrene used in trays with polypropylene. Previously, the polystyrene trays were cut from a sheet and blemishes around the edges were removed using dichloromethane. Since the polypropylene trays are now injection molded, there are no blemishes to remove.
- Toluene and methyl isobutyl ketone were completely eliminated from the Aladdin facility as of 1993 by replacing a thinner containing toluene and methyl isobutyl ketone with a thinner containing 25% toluene and 75% 1,1,1-trichloroethane. This thinner was later replaced with a thinner containing acetone in place of the toluene. The company is currently investigating options to eliminate the 1,1,1-trichloroethane from this formulation.
- Aladdin eliminated all releases and transfers of chromium, along with two non-33/50 TRI chemicals -- phosphoric acid and sulfuric acid - as of 1992. Using a newly installed on-site waste treatment facility, Aladdin removes toxic materials from a water mixture containing chromium, phosphoric acid, and sulfuric acid. Fifty percent of the water is recycled, while the

remainder is of sufficient quality to discharge to the sanitary sewer. The sludge is of sufficient quality to be considered nonhazardous and is disposed of in a landfill. Prior to the installation of the on-site treatment facility, all of these wastes were transferred off-site for treatment or disposal.

In addition to its reduction of releases and transfers of 33/50 program chemicals, Aladdin has achieved reductions of 99.8% for non-33/50 TRI chemicals.

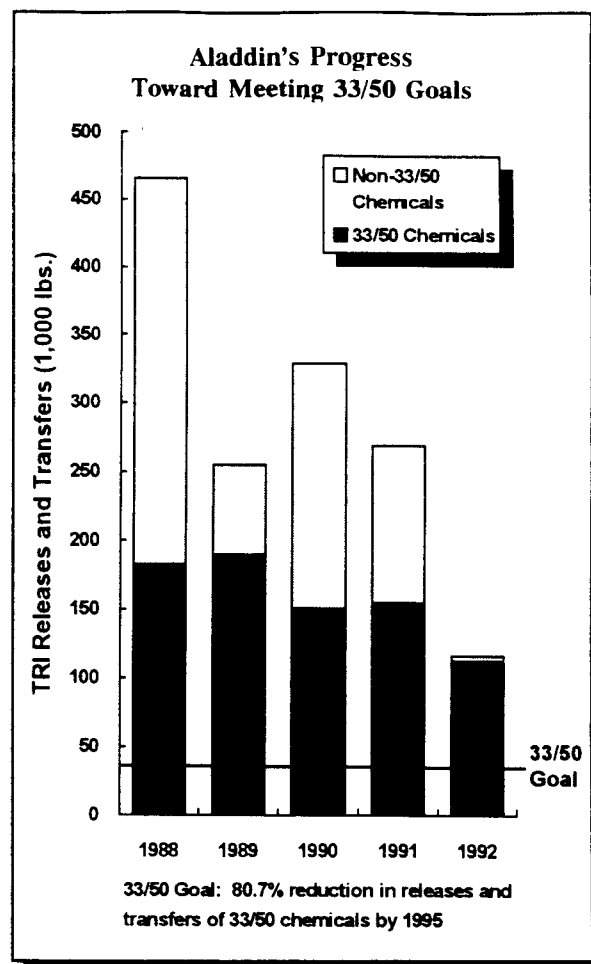
- Aladdin eliminated its lacquer painting process by switching to a dry powder coating, thereby eliminating the use of lead, xylenes, and ketones. Small quantities (not reportable to TRI) of lead, xylenes, and ketones were previously used at Aladdin in its painting process for thermos bottles.

In addition to the completed projects described above, Aladdin is planning two additional activities to further reduce the releases and transfers of 33/50 Program chemicals:

- Fully automate a cup decorating process that uses a thinner comprised of 25% acetone and 75% 1,1,1-trichloroethane. By switching the process from semi-automatic to fully automatic, a significant decrease in the amount of thinner used should result, thereby reducing emissions of 1,1,1-trichloroethane.
- Replace the thinner containing 1,1,1-trichloroethane with a formula containing no 33/50 Program chemicals. Aladdin is attempting to completely eliminate its use of 1,1,1-trichloroethane in part because of the 1996 phaseout of the chemical under the Clean Air Act. Aladdin is currently working with several local chemical companies in an attempt to identify an alternative formulation.

IV. PROGRESS TOWARDS 33/50 REDUCTION GOALS

As a result of these efforts, Aladdin is well on its way to meeting its 33/50 goals. As of the end of 1992, releases and transfers of 33/50 Program



chemicals had been reduced 38% from the 1988 baseline. Aladdin has also achieved a reduction of 99.8% in releases and transfers of non-33/50 TRI chemicals, primarily by eliminating discharges of phosphoric and sulfuric acids. Overall reductions of releases and transfers of TRI chemicals were 76% for the period 1988 to 1992.

Significant additional reductions were achieved in 1993. Releases and transfers of all 33/50 Program chemicals except for 1,1,1-trichloroethane have been eliminated completely. These reductions were projected in the company's Pollution Prevention Act data (see Table II) and company officials confirmed that the actions were completed in 1993. These reductions have occurred despite a significant increase in production.

With the completion of the 1993 projects, Aladdin has nearly achieved its 1995 goals. The company's Pollution Prevention Act data for 1994 indicate that Aladdin intends to maintain its low emission levels.

V. SUMMARY OF ALADDIN'S EXPERIENCE

Aladdin Industries has made dramatic progress in reducing releases and transfers of 33/50 Program chemicals. This effort has been supplemented with a reduction of releases and transfers for non 33/50 TRI chemicals of 99.5%, primarily through the elimination of discharges of phosphoric and sulfuric acids. These achievements are especially noteworthy in light of the fact that, during this time, Aladdin has experienced a sharp increase in production.

Aladdin has completely eliminated all releases and transfers of chromium, dichloromethane, methyl isobutyl ketone, toluene, and trichloroethylene. Furthermore, they are collaborating with several chemical manufacturers to identify a method for eliminating use of their only other 33/50 chemical -- 1,1,1-trichloroethane. Through these continued efforts, Aladdin has virtually met its goals of an 80.7% reduction in releases and transfers of 33/50 Program chemicals, and a 91.1% reduction of all TRI chemicals.

Table I
Aladdin Industries Incorporated
Releases and Transfers of TRI Chemicals, 1988-1992
(all data from TRI unless otherwise noted)

Chemical	Year	Total Air Emissions (pounds)	Transfers to POTWs (pounds)	Transfers Off-site for Treatment/Disposal/Other (pounds)	Total Releases and Transfers (1) (pounds)	Percent Change Base-1992 Total Releases and Transfers (2)
Chromium	1989	0	0	426	426	
	1990	0	0	1,160	1,160	
	1991	0	0	664	664	
	1992	0	0	0	0	-100%
Dichloromethane	1988	8,570 (3)	0	0	8,570 (3)	-100%
Methyl Isobutyl Ketone	1988	2,948 (3)	0	0	2,948 (3)	-100%
Toluene	1988	29,483	0	0	29,483	
	1989	10,400	0	0	10,400	
	1990	5,412	0	0	5,412	
	1991	4,850	0	0	4,850	-100%
1,1,1-Trichloroethane	1989	57,000	0	0	57,000	
	1990	26,708	0	0	26,708	
	1991	31,790	0	0	31,790	
	1992	42,428	0	0	42,428	-26%
Trichloroethylene	1988	142,215	0	0	142,215	
	1989	121,964	0	0	121,964	
	1990	117,354	0	0	117,354	
	1991	117,772	0	0	117,772	
	1992	70,905	0	0	70,905	-50%
<u>33/50 Program Chemicals</u>	1988	183,216 (3)	0	0	183,216 (3)	
	1989	189,364	0	426	189,790	
	1990	149,474	0	1,160	150,634	
	1991	154,412	0	664	155,076	
	1992	113,333	0	0	113,333	-38%
Non-33/50 Chemicals	1988	0	133,118	150,220	283,338	
	1989	0	0	65,435	65,435	
	1990	0	0	178,406	178,406	
	1991	1	0	113,602	113,603	
	1992	1	0	500	501	-100%
All TRI Chemicals	1988	183,216 (3)	133,118	150,220	466,554 (3)	
	1989	189,364	0	65,861	255,225	
	1990	149,474	0	179,566	329,040	
	1991	154,413	0	114,266	268,679	
	1992	113,334	0	500	113,834	-76%
<u>Percent Change, 1988-1992</u>						
33/50 Program Chemicals		-38%	--	--	-38%	
Non-33/50 Program TRI Chemicals		--	-100%	-100%	-100%	
All TRI Chemicals		-38%	-100%	-100%	-76%	

Notes: (1) 1991 and 1992 Total Releases and Transfers do not include on- or off-site recycling or energy recovery.

(2) Base year is first year that chemical was reported to TRI.

(3) Includes data provided to the 33/50 Program in company Progress Reports.

Table II
Aladdin Industries Inc.
Pollution Prevention Act Reporting (1)

Chemical	Year	Recycled Off-site (pounds)	Treated On-site (pounds)	Treated Off-site (pounds)	Quantity Released (pounds)	Percent Change 1991-1994 Quantity Released	Total Production Related Wastes (pounds)	Percent Change 1991-1994 Production Related Waste
Chromium	1991	0	0	664	0		664	
	1992	0	0	0	0		0	
	1994	0	0	0	0		0	-100%
Toluene	1991	0	0	0	4,850		4,850	
1,1,1-Trichloroethane	1991	0	0	0	31,790		31,790	
	1992	0	0	0	42,428		42,428	
	1994	0	0	0	43,280	36%	43,280	36%
Trichloroethylene	1991	52,520	0	0	117,772		170,292	
	1992	39,122	0	0	70,905		110,027	
	1994	0	0	0	0	-100%	0	-100%
<u>33/50 Program Chemicals</u>	1991	52,520	0	664	154,412		207,596	
	1992	39,122	0	0	113,333		152,455	
	1994	0	0	0	43,280	-72%	43,280	-79%
Non-33/50 Chemicals	1991	0	57,975	113,831	1		171,807	
	1992	0	167,301	555	1		167,857	
	1994	0	178,685	537	1	0%	179,223	4%
All TRI Chemicals	1991	52,520	57,975	114,495	154,413		379,403	
	1992	39,122	167,301	555	113,334		320,312	
	1994	0	178,685	537	43,281	-72%	222,503	-41%

Notes: (1) Actual data for 1991 and 1992, projections for 1994.

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