



EPA's 33/50 Program Company Profile

Johnson & Johnson



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.

Johnson & Johnson

Johnson & Johnson reduced releases and transfers of 33/50 Program chemicals by 77% (575,047 pounds) between 1988 and 1992. Most of these reductions were achieved through source reduction activities, such as process redesign to eliminate use of toxic chemicals.

I. CORPORATE BACKGROUND

Johnson & Johnson is the world's largest health care company, with over 80,000 employees and manufacturing and sales locations in more than 50 countries. The company manufactures toiletries and baby care products, medical supplies, and pharmaceutical products. In the United States, Johnson & Johnson operates six companies that report releases and transfers of 33/50 Program chemicals to TRI.

- Johnson & Johnson Consumer Products manufactures skin care, toiletries, and wound care products;
- Janssen Pharmaceutica and Noramco, Inc. produce pharmaceutical preparations;

Johnson & Johnson implemented a Product/Process Development approach that strives to make pollution prevention an integral part of both new and existing manufacturing processes.

- Ethicon, Inc., and Johnson & Johnson Advanced Materials manufacture medical products and surgical sutures;
- Vistakon, Inc. produces contact lenses.

Among Johnson & Johnson's more familiar consumer products are Band-Aid™ Brand adhesive strips, Tylenol™ pain reliever, and Stayfree™ sanitary protection.

Collectively, these six companies operate nine facilities that reported releases and transfers of seven of the 33/50 Program chemicals: chloroform, dichloromethane, methyl ethyl ketone, methyl isobutyl ketone, toluene, 1,1,1-trichloroethane, and xylene. The company releases and transfers of these chemicals totalled 743,880 pounds in 1988.

Releases and Transfers of TRI Chemicals by Johnson & Johnson (1000 pounds)

	<u>1988</u>	<u>1992</u>
<i>33/50 Program Chemicals</i>		
Chloroform	15	8
Dichloromethane	204	77
Methyl ethyl ketone	23	5
Methyl isobutyl ketone	36	11
Toluene	40	19
1,1,1-Trichloroethane	91	24
Xylene (mixed isomers)	336	25
33/50 Program Subtotal*	744	169
<i>Other TRI Chemicals</i>	795	886
Total*	1,538	1,055

* Columns do not sum to totals due to rounding.

Chloroform is used as a carrier solvent in pharmaceutical manufacturing. The remaining six chemicals are solvents which find a wide variety of uses such as cleaning and degreasing metal parts and machinery, as carriers for pressure-sensitive adhesives, and as solvents in processes for manufacturing products containing polymers.

Data for releases and transfers of 33/50 Program and other TRI chemicals on a company-wide basis are shown at the end of this profile in Table I, while Table II details the same data for selected Johnson & Johnson facilities.

II. CORPORATE ENVIRONMENTAL STRATEGY

In 1987, Johnson & Johnson released its "Worldwide Statement on the Environment," which made environmental responsibility a measure of performance for management. In 1989, the company implemented a Product/Process Development approach that strives to make pollution prevention an integral part of both new and existing manufacturing processes.

The company's approach is illustrated by its establishment of a worldwide comprehensive goal to reduce releases of toxic chemicals by 90%, when

indexed to production or sales, based on 1987 levels. This is approximately equivalent to a 75% decrease on an absolute scale.

The company has also endorsed and adopted the goals of the Montreal Protocol for reducing the use of CFCs and other ozone depleting chemicals, and plans to eliminate all uses of these chemicals well in advance of the Protocol's January 1, 1996 elimination date. This reduction pledge specifically includes carbon tetrachloride and 1,1,1-trichloroethane, two of the 33/50 Program's priority chemicals.

Johnson & Johnson's 33/50 Program objectives were to implement achievable reductions of releases and transfers of 33/50 chemicals as early as possible during the 1988-1995 goal period

Johnson & Johnson has demonstrated its commitment to the environment by releasing public communications such as a corporate environmental report and cooperating with governments and civic groups in the areas in which the company operates facilities to highlight environmental issues.

III. 33/50 PROGRAM GOALS AND POLLUTION REDUCTION ACTIVITIES

Johnson & Johnson's 33/50 Program objectives were to implement achievable reductions of releases and transfers of 33/50 chemicals as early as possible during the 1988-1995 goal period. Johnson & Johnson has also begun informing its suppliers about its corporate environmental strategy and will continue this process in the future.

To reduce releases and transfers of 33/50 Program chemicals, Johnson & Johnson has undertaken several projects at its various facilities:

- Eliminating the use of methyl ethyl ketone, methyl isobutyl ketone, and xylene at the Consumer Products plant in North Brunswick, NJ. These chemicals were used in the manufacturing process for the company's Band-Aid™ Brand adhesive bandages. Vinyl extrusion and a water-based emulsion have been substituted in the manufacturing process, resulting in a

decrease of over 380,000 pounds in releases and transfers of these three 33/50 Program solvents between 1988 and 1992.

- Equipment and procedure changes in several processes at the Noramco facility in Wilmington, DE, resulting in a reduction in releases and transfers of dichloromethane and toluene of over 131,000 pounds between 1988 and 1992. These changes include:
 - using dichloromethane and toluene instead of water as the seal fluid in liquid ring vacuum pumps on processes that use these two solvents, thereby reducing the previous wastewater transfers of mixed water and process solvent;
 - implementing a leak detection and repair program to reduce fugitive emissions; and,
 - eliminating one product recovery step, further reducing dichloromethane transfers in wastewater.

This facility has achieved reductions of 52% in releases and transfers of all 33/50 Program chemicals between 1988 and 1992.

- Material substitution at Ethicon plants in Somerville, NJ and San Angelo, TX, as well as the Advanced Materials facility in Gainesville, GA and the Vistakon plant in Jacksonville, FL, resulting in a decrease of over 66,500 pounds (74%) in releases and transfers of 1,1,1-trichloroethane between 1988 and 1992. A biodegradable cleaner was substituted for 1,1,1-trichloroethane.

In addition to these reductions, the company has undertaken source reduction efforts with non-33/50 Program chemicals, such as the replacement of methanol with water as a carrier agent in the preparation of many pharmaceutical products.

IV. PROGRESS TOWARD 33/50 REDUCTION GOALS

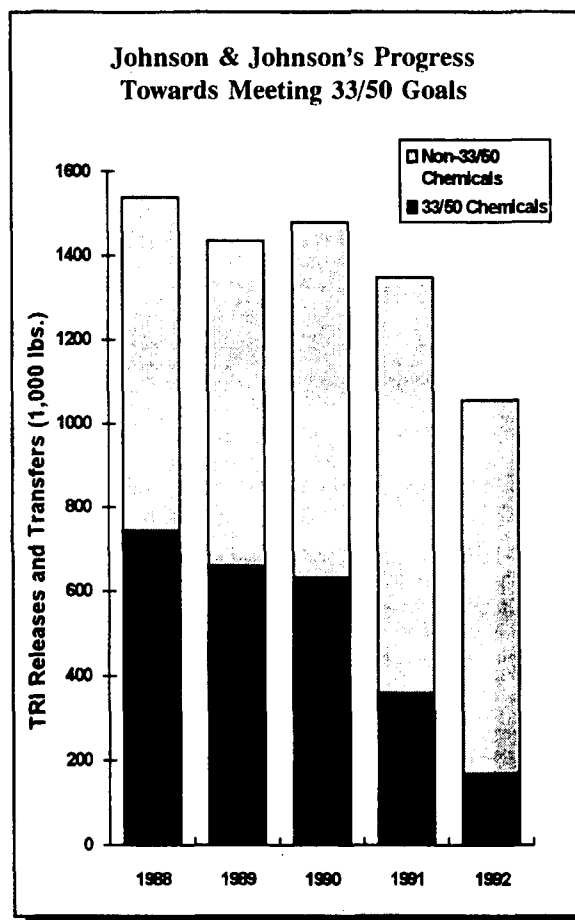
As a result of its pollution reduction efforts, Johnson & Johnson has reduced releases and transfers of 33/50 Program chemicals by 77% (575,047 pounds) between 1988 and 1992. The largest reductions contributing to this achievement were for xylene and methyl ethyl ketone, which de-

creased by 93% and 80% respectively. These reductions were due principally to the conversion of the adhesive carrier to aqueous emulsion in the Band-Aid™ manufacturing process. Releases and transfers of 1,1,1-trichloroethane also fell by 74% (66,580 pounds), in conjunction with the company's goal of eliminating the use of this chemical and other ozone depleting substances. The company remains committed to further reductions in releases and transfers of 33/50 Program chemicals in the future.

V. SUMMARY OF JOHNSON & JOHNSON'S EXPERIENCE

Johnson & Johnson has successfully met its 33/50 Program objectives, primarily through implementation of source reduction measures. The company's commitment to further reductions will be achieved through a "continuous improvement" process.

Johnson & Johnson has stated that participation in the 33/50 Program has helped significantly in formulating reduction initiatives and in obtaining corporate support for their implementation. The requirement of reporting releases and transfers of hazardous chemicals to TRI initially made the company aware of the extent of its emissions and off-site transfers. The company began to develop strategies for reducing releases and transfers of hazardous chemicals as figures were first compiled company-wide. The 33/50 Program's



focus on a distinct set of chemicals then helped Johnson & Johnson to develop and choose among specific source reduction projects for the Program's targeted chemicals.

Table I
Johnson & Johnson Company
Releases and Transfers of TRI Chemicals, 1988-1992

Chemical	Year	Total Air Emissions (pounds)	Transfers to POTW (pounds)	Transfers Off-site for Treatment/ Disposal/Other (pounds)	Total Releases and Transfers (1) (pounds)	Percent Change 1988-1992 Total Releases and Transfers
Chloroform	1988	14,556	148	32	14,736	
	1989	11,659	0	0	11,659	
	1990	8,782	5	750	9,537	
	1991	7,902	5	1,178	9,085	
	1992	7,329	5	950	8,284	-44%
Dichloromethane	1988	46,887	156,872	0	203,759	
	1989	32,867	114,080	0	146,947	
	1990	31,177	137,659	0	168,836	
	1991	33,000	110,000	0	143,000	
	1992	20,000	56,000	1,460	77,460	-62%
Methyl ethyl ketone	1988	20,050	0	3,048	23,098	
	1989	22,044	0	367	22,411	
	1990	25,268	0	1,426	26,694	
	1991	7,940	0	0	7,940	
	1992	4,640	0	0	4,640	-80%
Methyl isobutyl ketone	1988	33,371	0	3,048	36,419	
	1989	33,332	0	815	34,147	
	1990	32,081	250	1,663	33,994	
	1991	578	5	589	1,172	
	1992	1,959	8,605	475	11,039	-70%
Toluene	1988	18,567	21,028	0	39,595	
	1989	16,186	25,256	0	41,442	
	1990	16,274	23,506	0	39,780	
	1991	10,904	18,005	1,734	30,643	
	1992	6,870	11,005	1,035	18,910	-52%
1,1,1-Trichloroethane	1988	71,310	0	19,270	90,580	
	1989	70,332	0	7,580	77,912	
	1990	87,096	0	35	87,131	
	1991	60,362	0	18	60,380	
	1992	24,000	0	0	24,000	-74%
Xylene (mixed isomers)	1988	212,143	3,100	120,450	335,693	
	1989	189,833	2,700	133,717	326,250	
	1990	165,331	2,829	98,655	266,815	
	1991	41,857	130	64,180	106,167	
	1992	24,350	150	0	24,500	-93%

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Chemical	Year	Total Air Emissions (pounds)	Transfers to POTW (pounds)	Transfers Off-site for Treatment/ Disposal/Other (pounds)	Total Releases and Transfers (1) (pounds)	Percent Change 1988-1992 Total Releases and Transfers
<u>33/50 Program Chemicals</u>	1988	416,884	181,148	145,848	743,880	
	1989	376,253	142,036	142,479	660,768	
	1990	366,009	164,249	102,529	632,787	
	1991	162,543	128,145	67,699	358,387	
	1992	89,148	75,765	3,920	168,833	-77%
Non 33/50 Program Chemicals (17 chemicals reported)	1988	270,027	373,613	150,876	794,516	
	1989	244,247	321,960	209,356	775,563	
	1990	241,644	420,781	184,593	847,018	
	1991	413,148	340,188	237,867	991,203	
	1992	410,747	288,541	186,536	885,824	11%
All TRI Chemicals	1988	686,911	554,761	296,724	1,538,396	
	1989	620,500	463,996	351,835	1,436,331	
	1990	607,653	585,030	287,122	1,479,805	
	1991	575,691	468,333	305,566	1,349,590	
	1992	499,895	364,306	190,456	1,054,657	-31%
<u>Percent Change from 1988-1992</u>						
33/50 Program Chemicals		-79%	-58%	-97%	-77%	
Non 33/50 Program Chemicals		52%	-23%	24%	11%	
All TRI Chemicals		-27%	-34%	-36%	-31%	

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

Table II
Johnson & Johnson, Selected Facilities
Releases and Transfers of TRI Chemicals, 1988-1992

Chemical	Year	Total Air Emissions (pounds)	Transfers to POTW (pounds)	Transfers Off-site for Treatment/ Disposal/Other (1) (pounds)	Total Releases and Transfers (pounds)
<u>Johnson & Johnson Consumer, North Brunswick, NJ</u>					
Methyl ethyl ketone	1988	18,050	0	3,048	21,098
	1989	17,942	0	367	18,309
	1990	15,478	0	1,426	16,904
Methyl isobutyl ketone	1988	33,371	0	3,048	36,419
	1989	29,914	0	815	30,729
	1990	29,561	0	1,413	30,974
Xylene (mixed isomers)	1988	208,343	0	120,450	328,793
	1989	164,783	0	133,717	298,500
	1990	137,481	0	98,655	236,136
	1991	14,957	0	64,180	79,137
<u>33/50 Program Chemicals</u>	1988	259,764	0	126,546	386,310
	1989	212,639	0	134,899	347,538
	1990	182,520	0	101,494	284,014
	1991	14,957	0	64,180	79,137
<u>Noramco of Delaware Inc., Wilmington, DE</u>					
Dichloromethane	1988	46,887	156,872	0	203,759
	1989	32,867	114,080	0	146,947
	1990	31,177	137,659	0	168,836
	1991	33,000	110,000	0	143,000
	1992	20,000	56,000	1,460	77,460
Methyl isobutyl ketone	1992	1,600	8,600	0	10,200
Toluene	1988	8,605	19,823	0	28,428
	1989	5,063	25,006	0	30,069
	1990	4,635	23,256	0	27,891
	1991	4,800	18,000	670	23,470
	1992	1,100	11,000	180	12,280
<u>33/50 Program Chemicals</u>	1988	55,492	176,695	0	232,187
	1989	37,930	139,086	0	177,016
	1990	35,812	160,915	0	196,727
	1991	37,800	128,000	670	166,470
	1992	22,700	86,600	1,640	110,940

Table II
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Releases and Transfers of TRI Chemicals, 1988-1992

Chemical	Year	Total Air Emissions (pounds)	Transfers to POTW (pounds)	Transfers Off-site for Treatment/ Disposal/Other (1) (pounds)	Total Releases and Transfers (pounds)
<u>Ethicon Inc., San Angelo, TX</u>					
1,1,1-Trichloroethane	1988	39,460	0	7,200	46,660
(Only 33/50 chemical reported)	1989	41,032	0	0	41,032
	1990	37,800	0	0	37,800
	1991	36,000	0	0	36,000
	1992	24,000	0	0	24,000
<u>Advanced Materials, Gainseville, GA</u>					
1,1,1-Trichloroethane	1988	11,600	0	0	11,600
(Only 33/50 chemical reported)					
<u>Vistakon Inc., Jacksonville, FL</u>					
1,1,1-Trichloroethane	1988	18,750	0	12,070	30,820
(Only 33/50 chemical reported)	1989	24,750	0	7,580	32,330
	1990	39,750	0	35	39,785
	1991	15,862	0	18	15,880

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