



# EPA's 33/50 Program Company Profile

## *Acme Metals Incorporated*



## 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.

# Acme Metals Incorporated

Acme Metals Incorporated reduced its releases and transfers of 33/50 Program chemicals by more than 833,000 pounds from 1988 to 1992, a reduction of 89%. These reductions far surpass Acme's 33/50 Program goal of a 70% reduction by 1995.

## I. CORPORATE BACKGROUND

Acme Metals Incorporated, based in Riverdale, Illinois, is the parent company of an integrated steelmaker and three steel fabricating subsidiaries. Although interrelated, each subsidiary is responsible for its own environmental programs. Two of these subsidiaries, Acme Steel Company and Acme Packaging Corporation, currently participate in the 33/50 Program.

Acme Steel Company, an integrated producer of steel products, operates coke and ironmaking facilities in Chicago, IL and a steelmaking plant in Riverdale, IL. Acme Packaging Corporation, a manufacturer of steel strapping tools, operates facilities located in Riverdale, IL, Leeds, AL, New Britain, CT, and Pittsburg, CA. These two subsidiaries are responsible for virtually all releases and transfers of 33/50 chemicals and are the focus of this profile.

Table I, at the end of this profile, presents the company's data on releases and transfers of TRI chemicals from these two subsidiaries. The facilities currently report releases and transfers of six 33/50 Program chemicals: benzene, chromium compounds, cyanide compounds, lead compounds, toluene, and xylene. The company reported total releases and transfers of 934,825 pounds of 33/50 Program chemicals to the TRI in 1988.

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*Acme Metals Incorporated reduced annual releases and transfers of 33/50 Program chemicals by more than 833,000 pounds by 1992 from 1988 levels.*

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Table II provides Acme's data on releases and transfers of TRI chemicals for selected facilities. Acme's Chicago Coke plant accounts for all of the releases and transfers of benzene, toluene, cyanide, and xylene, while its two Riverdale operations

### Releases and Transfers of TRI Chemicals Reported by Acme Metals Incorporated<sup>1</sup> (1000 lbs)

	<u>1988</u>	<u>1992</u>
<i>33/50 Chemicals</i>		
Benzene	189	17
Chromium compounds	14	4
Cyanide compounds	279	3
Lead compounds	406	73
Nickel compounds	6	NR
Toluene	33	3
Xylene (mixed isomers)	7	1
<i>33/50 Subtotal<sup>2</sup></i>	935	102
<i>Other TRI chemicals</i>	3,464	864
<i>Total<sup>2</sup></i>	4,399	966

NR = Not reported to TRI, use below reporting threshold.

<sup>1</sup> Includes only facilities participating in the 33/50 Program.

<sup>2</sup> Columns do not sum to totals due to rounding.

account for most of the releases and transfers of lead.

Benzene, toluene, cyanide, and xylene are generated during the production of coke. Coke production involves the use of heat to drive off these constituent chemicals, among others, from coal. The raw gases from the coking operations (including benzene, toluene, xylene, and cyanide) pass through recovery systems that cool the gases and recover the constituent byproducts. These recovery systems include gas absorbers, decanters, scrubbers, and cooling systems. The byproducts are recovered and sold, and the clean gas is reused as fuel in the coke and iron production processes.

Lead is used in the production of steel strapping both as a surface preparation agent and as an electrical contact medium in the processes that produce steel strapping. There are also trace amounts of lead in the non-hazardous sludges generated from pollution control activities in the steelmaking areas.

## II. 33/50 PROGRAM GOALS AND POLLUTION REDUCTION ACTIVITIES

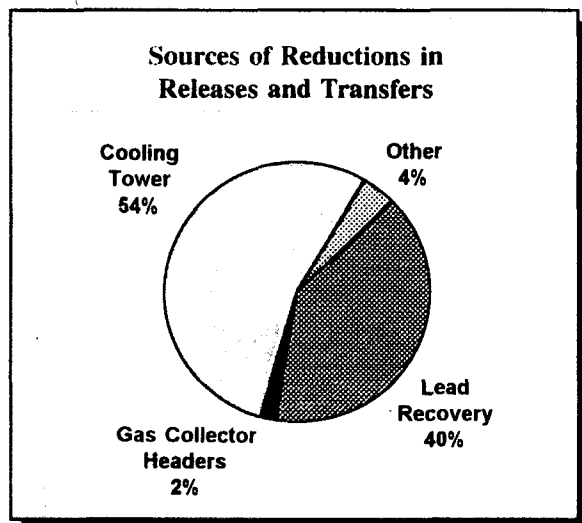
Acme Metals Incorporated pledged to reduce releases and transfers of 33/50 Program chemicals by 70% by 1995, using its 1988 TRI reports as the baseline. As part of this pledge, the company projected a reduction of 470,000 pounds of benzene, toluene, xylene, and cyanide from projects at its Chicago Coke plant.

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*Acme achieved an 89% reduction in releases and transfers of 33/50 Program chemicals from 1988 to 1992, surpassing its pledged reduction of 70% by 1995.*

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In 1986, before TRI reporting was required, Acme installed a scrubber in the light oil condenser vent at the Chicago Coke plant to capture benzene and toluene. This resulted in annual reductions of air releases of benzene and toluene of 68,000 pounds and 3,000 pounds respectively.



Since 1988, Acme has implemented several programs aimed at further reducing releases and transfers of 33/50 Program chemicals. Acme has completed the following projects at its Chicago Coke plant:

- **Replace cooling system.** Acme replaced its contact gas cooling system with a non-contact, wet surface air cooler in the coke byproducts recovery process. The replacement of the

cooling system resulted in reductions of releases of approximately 143,000 pounds of benzene, 276,000 pounds of cyanide, 28,000 pounds of toluene, and 6,000 pounds of xylene, as well as 1,450,000 pounds of ammonia, and 10,000 pounds of naphthalene.

- **Install emission collector headers.** Acme installed emission collector headers to remove volatile chemicals, such as benzene, toluene, and xylene, from the headspaces of process units and storage tanks. This process uses steam moving under negative pressure to sweep the volatile chemicals into the byproduct recovery system. Emission collector headers were installed at the light oil storage tank, the wash oil decanter, and the wash oil circulation tank and resulted in a 14,000 pound reduction in releases of benzene, as well as smaller reductions of toluene and xylene.

In addition, at Acme Packaging's Riverdale facility, spent lead dross from the steel strapping production process is now sent to an off-site recycler. The increased recycling of lead resulted in a reduction of approximately 333,000 pounds of releases and transfers of lead.

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*Acme reduced releases and transfers of non-33/50 TRI chemicals by nearly 2,600,000 pounds (75%) between 1988 and 1992.*

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Although not part of the company's 33/50 efforts, Acme significantly reduced releases and transfers of non-33/50 chemicals between 1988 and 1992 through the following activities:

- **Upgrade pickling exhaust scrubber.** The steel pickling operation uses hydrochloric acid to remove oxides from the surface of steel strip. The scrubber upgrade project resulted in a reduction of approximately 338,000 pounds of hydrochloric acid emissions at the Riverdale Steel facility.
- **Install a wastewater treatment plant.** By installing a wastewater treatment plant to treat the blowdown from the water recycle system at its Chicago Furnace Plant, the company re-

duced releases and transfers of manganese by 2,000 pounds and zinc by 1,400 pounds.

- **Reduce VOC and chromium content of steel strapping coating.** Volatile organic compound (VOC) emissions from steel strapping production processes were significantly reduced through reductions in the VOC content of the coatings used. Also, chromium releases were eliminated from this application by switching to non-chromium-containing paints.

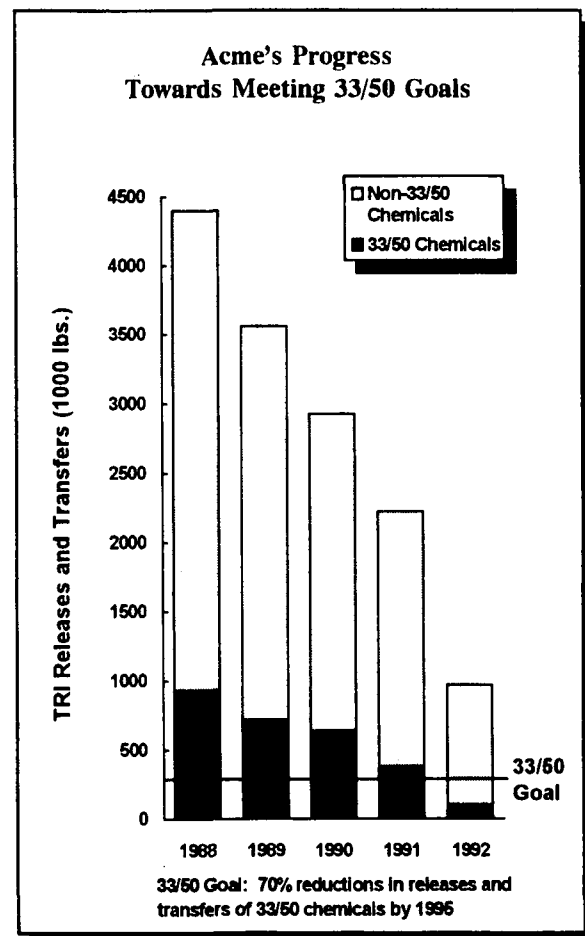
### III. PROGRESS TOWARDS 33/50 REDUCTION GOALS

Acme's releases and transfers of 33/50 Program chemicals were reduced 89% between 1988 and 1992, from 934,825 pounds to 101,759 pounds at its facilities participating in the 33/50 Program. The majority of these reductions were due to the replacement of the contact cooling system at Acme's Chicago Coke Plant (54% of the reductions), and the recycling of lead from Acme's Riverdale strapping facility (40% of the reductions).

In addition to reducing releases and transfers of 33/50 chemicals, Acme has achieved a 75% reduction in releases and transfers of non-33/50 chemicals.

### IV. SUMMARY OF ACME'S EXPERIENCE

Acme Metals Incorporated has had great success in meeting its 33/50 Program goals. The company pledged to reduce its releases and transfers of 33/50 Program chemicals by 70% by 1995 (compared to 1988 levels), and has surpassed this goal by achieving a reduction of 89% by 1992.



Acme has realized its largest reductions in releases and transfers of 33/50 Program chemicals by implementing a number of projects that focus on benzene, toluene, cyanide, xylene, and lead. In addition to its outstanding reductions for 33/50 Program chemicals, Acme has also reduced releases and transfers of non-33/50 TRI chemicals. These reductions, which have so far amounted to nearly 2,600,000 pounds, demonstrate Acme's commitment to environmental protection.

**Table I**  
**Acme Metals Incorporated (1)**  
**Releases and Transfers of TRI Chemicals, 1988-1992**

Chemical	Year	Total Air Emissions (pounds)	Surface Water Discharges (pounds)	Transfers to POTW (pounds)	Transfers	Total Releases and Transfers (pounds) (2)	Percent Change 1988-1992
					Off-site for Treatment/ Disposal/Other (pounds)		Total Releases and Transfers
Benzene	1988	175,926	0	13,047	0	188,973	
	1989	177,444	0	13,047	0	190,491	
	1990	171,613	0	1,862	0	173,475	
	1991	118,300	5	1,600	0	119,905	
	1992	14,900	5	1,800	0	16,705	-91%
Chromium compounds	1988	750	0	250	12,900	13,900	
	1989	110	0	164	7,070	7,344	
	1990	182	0	143	8,621	8,946	
	1991	113	0	180	3,860	4,153	
	1992	500	0	133	3,748	4,381	-68%
Cyanide compounds	1988	277,229	288	1,804	0	279,321	
	1989	277,722	51	2,564	0	280,337	
	1990	277,199	85	2,768	0	280,052	
	1991	140,420	250	2,800	0	143,470	
	1992	570	250	2,400	0	3,220	-99%
Lead compounds	1988	5,026	3,100	1,039	397,216	406,381	
	1989	8,362	3,650	528	185,171	197,711	
	1990	4,898	0	283	126,164	131,345	
	1991	5,022	0	167	77,920	83,109	
	1992	5,880	250	286	66,141	72,557	-82%
Nickel compounds	1988	750	0	250	5,150	6,150	
	1989	33	0	436	2,249	2,718	
	1990	42	0	381	3,934	4,357	
	1991	15	0	146	1,180	1,341	-100%
Toluene	1988	31,606	0	998	0	32,604	
	1989	32,154	0	998	0	33,152	
	1990	32,329	0	119	0	32,448	
	1991	23,300	5	99	0	23,404	
	1992	3,350	5	120	0	3,475	-89%
Xylene (mixed isomers)	1988	7,404	0	92	0	7,496	
	1989	7,438	0	92	0	7,530	
	1990	8,010	0	68	0	8,078	
	1991	5,890	5	58	0	5,953	
	1992	1,390	5	26	0	1,421	-81%

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Releases and Transfers of TRI Chemicals, 1988-1992

Chemical	Year	Total Air Emissions (pounds)	Surface Water Discharges (pounds)	Transfers to POTW (pounds)	Transfers Off-site for Treatment/ Disposal/Other (pounds)	Total Releases and Transfers (pounds) (2)	Percent Change 1988-1992 Total Releases and Transfers
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<u>33/50 Program Chemicals</u>	1988	498,691	3,388	17,480	415,266	934,825	
	1989	503,263	3,701	17,829	194,490	719,283	
	1990	494,273	85	5,624	138,719	638,701	
	1991	293,060	265	5,050	82,960	381,335	
	1992	26,590	515	4,765	69,889	101,759	-89%
Non 33/50 Program Chemicals	1988	1,891,256	14,200	130,772	1,427,583	3,463,811	
	1989	1,893,126	30,856	157,518	759,389	2,840,889	
	1990	1,647,138	14,279	243,958	381,092	2,286,462	
	1991	1,057,425	15,759	256,295	508,200	1,837,679	
	1992	175,500	8,546	162,387	517,884	864,317	-75%
All TRI Chemicals	1988	2,389,947	17,588	148,252	1,842,849	4,398,636	
	1989	2,396,389	34,557	175,347	953,879	3,560,172	
	1990	2,141,411	14,364	249,582	519,811	2,925,163	
	1991	1,350,485	16,024	261,345	591,160	2,219,014	
	1992	202,090	9,061	167,152	587,773	966,076	-78%
<u>Percent Change, 1988-1992</u>							
33/50 Program Chemicals		-95%	-85%	-73%	-83%	-89%	
Non 33/50 Program chemicals		-91%	-40%	24%	-64%	-75%	
All TRI Chemicals		-92%	-48%	13%	-68%	-78%	

(1) Includes only facilities participating in the 33/50 Program.

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

Table II  
Acme Metals Incorporated (Selected Facilities)  
Releases and Transfers of TRI Chemicals, 1988-1992

Chemical	Year	Total Air Emissions (pounds)	Surface Water Discharges (pounds)	Transfers to POTW (pounds)	Transfers	Total Releases and Transfers (pounds) (1)
					Off-site for Treatment/ Disposal/Other (pounds)	
<u>Chicago Coke - Torrence Ave., Chicago, IL</u>						
Benzene	1988	175,926	0	13,047	0	188,973
	1989	177,444	0	13,047	0	190,491
	1990	171,613	0	1,862	0	173,475
	1991	118,300	5	1,600	0	119,905
	1992	14,900	5	1,800	0	16,705
Cyanide compounds	1988	277,229	288	1,804	0	279,321
	1989	277,722	51	2,564	0	280,337
	1990	277,199	85	2,768	0	280,052
	1991	140,420	250	2,800	0	143,470
	1992	570	250	2,400	0	3,220
Toluene	1988	31,606	0	998	0	32,604
	1989	32,154	0	998	0	33,152
	1990	32,329	0	119	0	32,448
	1991	23,300	5	99	0	23,404
	1992	3,350	5	120	0	3,475
Xylene (mixed isomers)	1988	7,404	0	92	0	7,496
	1989	7,438	0	92	0	7,530
	1990	8,010	0	68	0	8,078
	1991	5,890	5	58	0	5,953
	1992	1,390	5	26	0	1,421
<u>33/50 Program Chemicals</u>	1988	492,165	288	15,941	0	508,394
	1989	494,758	51	16,701	0	511,510
	1990	489,151	85	4,817	0	494,053
	1991	287,910	265	4,557	0	292,732
	1992	20,210	265	4,346	0	24,821



Table II  
Acme Metals Incorporated (Selected Facilities)  
Releases and Transfers of TRI Chemicals, 1988-1992

Chemical	Year	Total Air Emissions (pounds)	Surface Water Discharges (pounds)	Transfers to POTW (pounds)	Transfers Off-site for Treatment/ Disposal/Other (pounds)	Total Releases and Transfers (pounds) (1)
Non 33/50 Program Chemicals	1988	1,503,368	0	123,810	0	1,627,178
	1989	1,521,147	127	147,380	0	1,668,654
	1990	1,614,376	3,674	238,521	0	1,856,571
	1991	1,035,435	1,020	251,700	0	1,288,155
	1992	145,928	770	158,915	0	305,613
All TRI Chemicals	1988	1,995,533	288	139,751	0	2,135,572
	1989	2,015,905	178	164,081	0	2,180,164
	1990	2,103,527	3,759	243,338	0	2,350,624
	1991	1,323,345	1,285	256,257	0	1,580,887
	1992	166,138	1,035	163,261	0	330,434
<u>Riverdale (Steel &amp; Packaging) - Perry Ave., Chicago, IL (2)</u>						
Chromium compounds	1988	500	0	250	12,900	13,650
	1989	82	0	89	7,070	7,241
	1990	137	0	72	8,621	8,830
	1991	77	0	109	3,860	4,046
	1992	500	0	133	3,748	4,381
Lead compounds	1988	4,195	3,100	750	326,900	334,945
	1989	2,705	3,650	523	24,751	31,629
	1990	1,153	0	282	16,164	17,599
	1991	1,307	0	152	32,520	33,979
	1992	1,755	0	266	32,541	34,562
Nickel compounds	1988	500	0	250	5,150	5,900
	1989	9	0	286	2,249	2,544
	1990	22	0	239	3,934	4,195
	1991	15	0	146	1,180	1,341

**Table II**  
**Acme Metals Incorporated (Selected Facilities)**  
**Releases and Transfers of TRI Chemicals, 1988-1992**

Chemical	Year	Total Air Emissions (pounds)	Surface Water Discharges (pounds)	Transfers to POTW (pounds)	Transfers	Total Releases and Transfers (pounds) (1)
					Off-site for Treatment/ Disposal/Other (pounds)	
<u>33/50 Program Chemicals</u>	1988	5,195	3,100	1,250	344,950	354,495
	1989	2,796	3,650	898	34,070	41,414
	1990	1,312	0	593	28,719	30,624
	1991	1,399	0	407	37,560	39,366
	1992	2,255	0	399	36,289	38,943
Non 33/50 Program Chemicals	1988	387,388	14,200	4,228	1,427,583	1,833,399
	1989	371,546	30,729	6,234	759,389	1,167,898
	1990	31,046	10,605	4,727	381,092	427,470
	1991	20,800	14,469	4,055	508,200	547,524
	1992	28,316	7,526	3,042	517,884	556,768
All TRI Chemicals	1988	392,583	17,300	5,478	1,772,533	2,187,894
	1989	374,342	34,379	7,132	793,459	1,209,312
	1990	32,358	10,605	5,320	409,811	458,094
	1991	22,199	14,469	4,462	545,760	586,890
	1992	30,571	7,526	3,441	554,173	595,711

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

(2) In 1992, the Riverdale Packaging facility began reporting to TRI as a separate facility from the Riverdale Steel facility. The two facilities are reported as one on this table.