



Federal Facilities Toxic Release and Reduction Initiatives Fact Sheet

Background

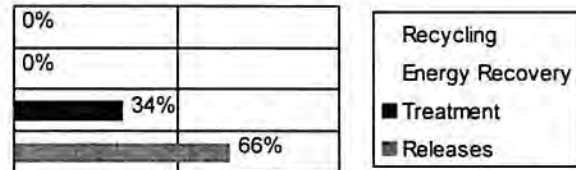
Executive Order 12856, entitled "Federal Compliance with Right-To-Know Laws and Pollution Prevention Requirements", was signed by President Clinton on August 3, 1993. The primary objectives of EO 12856 are to encourage Federal facilities to:

- Develop pollution prevention plans to reduce toxic releases by 50%;
- Collect and report data on the quantity of hazardous materials stored, used, and released at the facility;
- Ensure public access to use and release information.

Federal facilities are required to submit annual TRI reports starting in 1995 for data collected in 1994.

HYDROCHLORIC ACID

1995 Waste Management Distribution



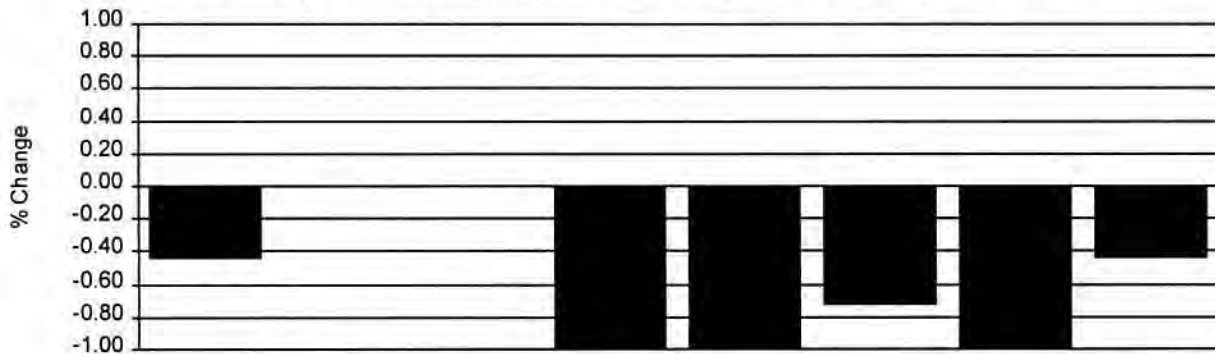
Approach

A study was undertaken to analyze Federal facility TRI data for 1994 and 1995 to: 1) determine the most commonly used and released chemicals; 2) identify currently used pollution prevention (P2) approaches and on-going pollution prevention research and development to lower or substitute the use of a chemical; and 3) identify potential RD/transition needs. As of January 1998, fifteen chemical Fact Sheets have been developed. Please refer to the back page to order Fact Sheets for other chemicals.

This Fact Sheet contains two charts and four main sections:

- The charts represent the waste management distribution and percent change of TRI reported quantities.
- Chemical Profile section.
- Identified and used P2 approaches section.
- On-going P2 research and development section.
- P2 research and development/transition needs section.

TRI Reported Quantities - Percent Change 1994 and 1995



TRI Reporting	Releases	Recycling		Energy Recovery		Treatment		Releases plus Off-site Treatment
		On-Site	Off-Site	On-Site	Off-Site	On-Site	Off-Site	
1994 (lbs)	377,398	0	0	2,417,075	475	398,556	4,320	381,718
1995 (lbs)	210,350	0	0	0	0	106,100	0	210,350
% Change	-44%	0%	0%	-100%	-100%	-73%	-100%	-45%

SYNONYMS

MURIATIC ACID

CHLOROHYDRIC ACID

HYDROGEN CHLORIDE

COMMON USES IN THE U.S.

- www.epa.gov/ttn/uatw#http://www.epa.gov/ttn/uatw#
- Twenty-one Federal facilities reported hydrochloric acid in their 1994 and/or 1995 TRI reports. The largest releases were reported by Wright Patterson AFB (31% of the total releases for 1994), and US DOE Naval Petroleum, Tupman, CA (33%). The three remaining largest releases were from Anniston Army Depot, Rock Island Arsenal, and US Marine Corp, Cherry Point, NC. Hydrochloric acid is a by-product of coal combustion from the power plant at Wright Patterson and the US Marine Corp facilities. The Naval Petroleum facility may use hydrochloric acid to remove blockages encountered when drilling oil and encourage the flow of crude oil or gas to the well (source: Kirk-Othmer. Encyclopedia of Chemical Technology. 4th edition. John Wiley & Sons. 1995). The facility may also burn coal in its power plant. The two Army facilities use hydrochloric acid in their metal plating and finishing maintenance and manufacturing operations. Hydrochloric acid may also be used in laboratory operations.
 - Hydrochloric acid is used in many applications. Aqueous hydrochloric acid is used in metal cleaning operations, chemical manufacturing, petroleum well acidification and hydraulic fracturation, and in the production of food and synthetic rubber. (Kirk-Othmer. Encyclopedia of Chemical Technology. 4th edition. John Wiley & Sons. 1995).

ACUTE HEALTH HAZARDS

- www.epa.gov/ttn/uatw#http://www.epa.gov/ttn/uatw#
- Contact can cause severe skin burns and severe burns of the eyes leading to permanent damage with loss of sight. Breathing the vapors can irritate the mouth, nose, and throat. High levels may irritate the lungs, causing coughing and/or shortness of breath. Higher exposures can cause a buildup of fluid in the lungs, a medical emergency (source: <http://mail.odsnet.com/TRIFacts>).

CHRONIC HEALTH HAZARDS

- www.epa.gov/ttn/uatw#http://www.epa.gov/ttn/uatw#
- There is limited evidence that workers who are manufacturing hydrochloric acid have an increase of respiratory cancers. Other long term effects: hydrogen chloride can cause erosion of the teeth, skin rashes, and lung damage.

COMMON P2 INITIATIVES

- www.epa.gov/ttn/uatw#http://www.epa.gov/ttn/uatw#
- Petroleum Exploration and Production
Reuse of hydrochloric acids.
 - Power Generation
Alternative fuels. Convert to natural gas.
 - Metal Plating
Recycling. Install waste acid detoxification and recovery equipment.

Additional information regarding chemical hazards and access to Material Safety Data Sheets can be reached through the Agency for Toxic Substances and Disease Registry web page: <http://atsdr1.atsdr.cdc.gov.8080/> - refer to ToxFAQs.

FEDERAL FACILITIES REPORTING

COMMON USES OF: HYDROCHLORIC ACID

Federal Facilities Reporting in both 1994 and 1995	5	PETROLEUM AND NATURAL GAS PR	PLATING
Federal Facilities Reporting Only in 1994	15	POWER PRODUCTION	
Federal Facilities Reporting Only in 1995	1		

POLLUTION PREVENTION APPROACHES CURRENTLY IN USE

PETROLEUM AND NATURAL GAS PRODUCTION

- Hydrochloric acid is injected under high pressure into the well head to remove blockages caused by sand, stones, and other debris. Two processes can be carried out, acidification, or hydraulic fracturation. The waste acid can be segregated into components and reused on-site or off-site (source: American Petroleum Institute. Waste Minimization in the Petroleum Industry. API Publication. 1991).

PLATING

POLLUTION PREVENTION APPROACHES CURRENTLY IN USE

PLATING

- Watervliet Arsenal (WVA) has a project underway to test and evaluate Viatic Recovery Systems, Inc.'s waste acid detoxification and recovery system (WADR). The equipment combines vacuum distillation technology with advanced materials to concentrate metal contaminants and recover clean acid and water. The technology was developed at Pacific Northwest Laboratory which is operated by Battelle Memorial Institute for the US Department of Energy. Typical waste acid streams include: hydrochloric acid, nitric acid, hydrofluoric acid, and phosphoric acid. The Army POC is Phil Darcy, 518-266-4534, the POC at Viatic is Evan Jones (or Nta Johnson), 509-943-5327. WVA is planning on purchasing a second system. Several Army facilities are waiting for the results of WVA's project prior to purchasing the equipment. Benet Labs is also in the process of installing a WADR system.

POWER PRODUCTION

- Many Federal facilities have converted to natural gas.

ON-GOING POLLUTION PREVENTION RESEARCH AND DEVELOPMENT

PLATING

Transition to Alternative Plating Technologies

The transition to alternative plating technologies may reduce the need for hydrochloric acid used in conventional plating baths. No R&D projects were identified specifically for hydrochloric acid substitutes or recovery systems.

POLLUTION PREVENTION RESEARCH AND DEVELOPMENT / TRANSITION NEEDS

PETROLEUM AND NATURAL GAS PRODUCTION

- Existing commercial off-the-shelf technology solutions are adequately addressing the pollution prevention needs for petroleum exploration and production.

PLATING

- On-going R&D and existing commercial off-the-shelf technology solutions are adequately addressing the pollution prevention needs for this use.

POWER PRODUCTION

- On-going R&D and existing commercial off-the-shelf technology solutions are adequately addressing the pollution prevention needs for this use.

Federal Facilities Which Reported for Both 1994 and 1995

Facility	1994 Release+ Off-site Treatment	1995 Release+ Off-site Treatment	Percent Change
U.S. DOE OAK RIDGE K-25 SITE, OAK RIDGE, TN	81	69	-15%
U.S. AIR FORCE, WRIGHT-PATTERSON AFB, OH	120,079	0	-100%
U.S. AIR FORCE FLIGHT TEST, EDWARDS, CA	38,914	0	-100%
U.S. AIR FORCE PLANT 44 AZ, TUCSON, AZ	980	0	-100%
U.S. AIR FORCE UTAH TEST, GRANTSVILLE, UT	0	170,000	100%
U.S. ARMY, ANNISTON, AL	20,482	0	-100%
U.S. ARMY, KINGSPORT, TN	17	0	-100%
U.S. ARMY ROCK ISLAND ARSENAL, ROCK ISLAND, IL	15,000	0	-100%
U.S. DOE, OAK RIDGE, TN	202	81	-60%
U.S. AIR FORCE, KELLY AFB, TX	1,760	0	-100%
U.S. DOE NAVAL PETROLEUM, TUPMAN, CA	127,214	0	-100%
U.S. NAVY NAVAL SURFACE, CRANE, IN	588	0	-100%
U.S. DOE OAK RIDGE Y-12 PLANT, OAK RIDGE, TN	1,000	1,170	17%
U.S. DOE PINELLAS PLANT, LARGO, FL	361	0	-100%
U.S. DOE ROCKY FLATS, GOLDEN, CO	1,017	0	-100%
U.S. DOE SANDIA NATL. LAB, ALBUQUERQUE, NM	67	30	-55%
U.S. DOE WELDON SPRING SITE, SAINT CHARLES, MO	0	0	0%
U.S. MARINE CORPS, CHERRY POINT, NC	52,000	39,000	-25%

Federal Facilities Which Reported for Both 1994 and 1995

Facility	1994 Release+ Off-site Treatment	1995 Release+ Off-site Treatment	Percent Change
U.S. MINT, SAN FRANCISCO, CA	1	0	-100%
U.S. NAVY, NORFOLK, VA	1,505	0	-100%
U.S. DOE FERMILAB, BATAVIA, IL	450	0	-100%

If you have additional information regarding an identified or used P2 approach, on-going P2 research and development, or any P2 research and development/transition needs, please notify Will Garvey, US EPA, 1200 Pennsylvania Avenue, NW, Ariel Rios Building, 3rd Floor, Washington, DC 20004-2403, or fax (202) 501-0069.