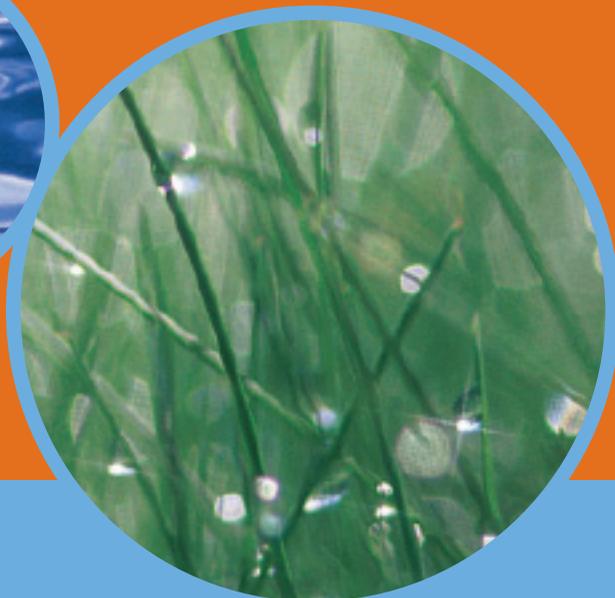




2008

Toxics Release Inventory (TRI) National Analysis



EPA 260-R-09-005

December 2009

What is the Toxics Release Inventory?

The Toxics Release Inventory (TRI) is a database that contains detailed information on nearly 650 chemicals and chemical categories that about 22,000 industrial and other facilities manage through disposal or other releases, recycling, energy recovery or treatment (see Figure 1). The data are collected from industries including manufacturing, metal and coal mining, electric utilities, commercial hazardous waste treatment, and other industrial sectors. Section 313 of the Emergency Planning and Community Right to Know Act (EPCRA) of 1986 was enacted to facilitate emergency planning, to minimize the effects of potential toxic chemical accidents, and to provide the public with information on releases of toxic chemicals in their communities. The Pollution Prevention Act (PPA) of 1990 mandates collection of data on toxic chemicals that are treated on-site, recycled, and combusted for energy recovery. Together, these laws require facilities in certain industries,

which manufacture, process, or use toxic chemicals above specified amounts, to report annually on disposal or other releases and other waste management activities related to these chemicals.

The U.S. Environmental Protection Agency (EPA) maintains this information in a national database called the Toxics Release Inventory, which is available to the public via the Internet (www.epa.gov/tri).

What are the benefits of TRI data?

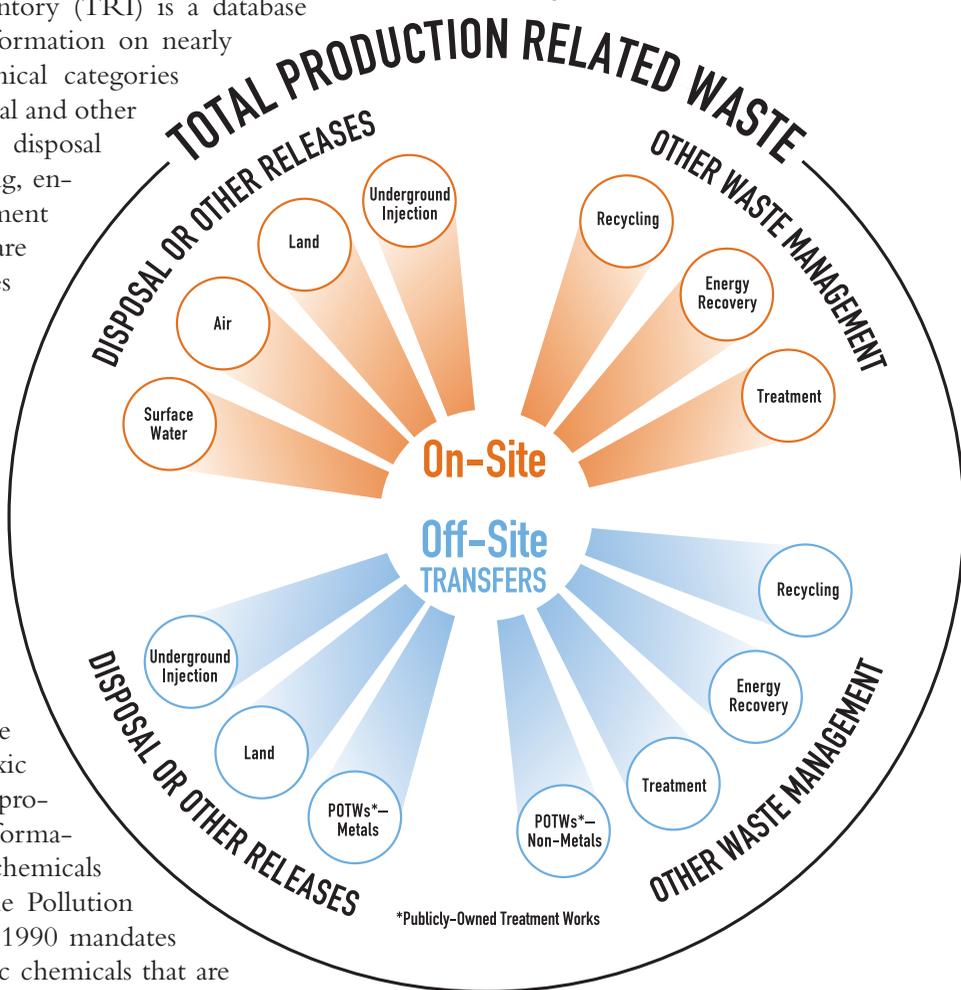
The TRI provides the public with unprecedented access to information about toxic chemical releases and other waste management activities on a local, state, regional and national level.

TRI data help the public, government officials and industry:

- identify potential concerns and gain a better understanding of potential risks;
- identify priorities and opportunities to work with industry and government to reduce toxic chemical disposal or other releases and potential risks associated with them; and
- establish reduction targets and measure progress toward reduction goals.

TRI data are widely used across EPA programs. For example, the National Partnership for Environmental Priorities, an element of the Resource Conservation Challenge (RCC), uses TRI data to identify facilities that may present pollution prevention opportunities. EPA also uses TRI data in the Risk Screening Environmental Indicator (RSEI) tool, which compares toxic chemicals released to the environment from industrial sources. Using RSEI, you can examine rankings and trends, and set priorities for further action. You can search for other EPA programs and tools that utilize TRI data by visiting EPA's Web site at www.epa.gov or from EPA's publication *How are the Toxics Release Inventory Data Used?* at: www.epa.gov/tri/guide_docs/pdf/2003/2003_datausepaper.pdf.

Figure 1: Information Collected Under TRI



What are the limitations of the TRI data?

Users of TRI data should be aware that TRI data reflect disposal or other releases and other waste management of chemicals, not whether (or to what degree) the public has been exposed to them. Both the toxicity of a chemical and exposure considerations should be taken into account when using the data.

- TRI chemicals vary widely in toxicity, or their potential to produce toxic effects. Some high-volume releases of less toxic chemicals may appear to be more serious than lower-volume releases of highly toxic chemicals, when just the opposite may be true.
- The potential for exposure may be greater the longer the chemical remains unchanged in the environment. Sunlight, heat, or microorganisms may or may not decompose the chemical. Smaller releases of a persistent, highly toxic chemical may create a more serious problem than larger releases of a chemical that is rapidly converted to a less toxic form.

For more detailed information on this subject refer to *The Toxics Release Inventory (TRI) and Factors to Consider When Using TRI Data* document at:

www.epa.gov/tri/triprogram/FactorsToConPDF.pdf.

What should I know about the different types of disposal or other releases?

The TRI Program collects data on a number of different types of disposal or other releases, as well as on certain waste management and recycling practices. Disposal or other releases of chemicals into the environment occur through a range of practices that may ultimately affect the potential for human exposure to the toxic chemicals. Facility releases may include discharges to air, water, and land. Facilities limit contamination and human exposure by disposing of or otherwise releasing waste in certain ways. For example:

- Disposal of harmful materials to Class I Underground Injection wells located in isolated formations beneath the lowermost underground source of drinking water limits potential for contamination; and
- Disposal to landfills that are designed with liners, covers, leak-detection systems, and groundwater monitoring systems also limits the potential for human exposure to the contents of the landfill.

Most disposal or other release practices are subject to a variety of regulatory requirements designed to limit environmental harm. Please refer to the *Toxics Release Inventory (TRI) and Factors to Consider When Using TRI Data* (www.epa.gov/tri/triprogram/FactorsToConPDF.pdf) for more information on the differences of these data elements.

What should I know about persistent bioaccumulative toxic (PBT) chemicals?

Starting in 2000, EPA established more stringent reporting thresholds for persistent bioaccumulative toxic (PBT) chemicals originally on, or added to, the TRI chemical list. PBT chemicals are of particular concern not only because they are toxic but also because they remain in the environment for long periods of time, are not readily destroyed, and build up or accumulate in body tissue. The TRI PBT chemicals include dioxin and dioxin-like compounds, lead and lead compounds, mercury and mercury compounds, polycyclic aromatic compounds (PACs), polychlorinated biphenyls (PCBs), and certain pesticides, among other chemicals.

For more information about PBTs and the Agency's multimedia strategy for priority PBT chemicals, visit EPA's Persistent Bioaccumulative and Toxic (PBT) Chemical Program Web site at

www.epa.gov/pbt/index.htm.



What do TRI data show for 2008?

For 2008, 21,695 facilities, including federal facilities, reported to the TRI Program. They reported 3.9 billion pounds of on-site and off-site disposal or other releases of the almost 650 toxic chemicals, as shown in Table 1. Over 87% of the total was disposed of or otherwise released on-site; 13% was sent off-site for disposal. Metal mining facilities reported 30% and electric utilities reported 23% of the total in 2008, as shown in Figure 2.

Persistent bioaccumulative toxic (PBT) chemicals accounted for 498 million pounds or 13% of reported on- and off-site disposal or other releases in 2008. Of that total, lead and lead compounds accounted for 98% or 486 million pounds of PBT chemicals. Total disposal or other releases for mercury and mercury compounds were 6.2 million pounds and, for dioxin and dioxin-like compounds, they were 33,702 grams (74 pounds).

There were 179 known or suspected carcinogens on the TRI list in 2008. They accounted for 776 million pounds or 20% of reported on- and off-site disposal or other releases in 2008. Of that total for carcinogens, lead and lead compounds accounted for 63% and arsenic and arsenic compounds for 10%. Over three-quarters (598 million pounds or 77%) were disposed of or otherwise released to land on-site. Styrene air emissions were 39% of the total 76 million pounds of air emissions of carcinogens.

All federal facilities are required to report to the TRI Program. For 2008, a total of 389 federal facilities submitted 1,240 forms and reported 101 million pounds of total on- and off-site disposal or other releases.

How did the TRI data change over time?

From 2007 to 2008, total disposal or other releases on- and off-site decreased by 257 million pounds or 6%. On-site disposal or other releases decreased by 5% and off-site disposal or other releases decreased by 13%.

From 2007 to 2008, total production-related waste managed, which reflects waste management practices rather than ultimate disposition of a chemical, decreased by 7%. From 2007 to 2008, the quantity of production-related waste recycled decreased by 5% (415 million pounds), the quantity used for energy recovery decreased by 7% (205 million pounds), the quantity treated decreased by 10% (831 million pounds) and the quantity disposed of or otherwise released decreased 8% (352 million pounds).

Disposal or other releases of PBT chemicals decreased by 2% from 2007 to 2008. Total disposal or other releases of mercury and its compounds decreased by 11% from 2007 to 2008, with air emissions decreasing by 5%. Total disposal or other releases of dioxin and dioxin-like compounds decreased by 77%.

Disposal or other releases of carcinogens decreased by 7% (60 million pounds) from 2007 to 2008, including a decrease of 24% (24 million pounds) in arsenic and arsenic compounds. Air releases of carcinogens decreased by 18% (16 million pounds), including a decrease of 24% (10 million pounds) in air releases of styrene.

Federal facilities showed an overall increase in disposal or other releases of 6 million pounds or 6% from 2007 to 2008. Total production-related waste managed at federal facilities increased by 17 million pounds or 7%.

Overall, from 2001 to 2008, total production-related waste managed decreased by 17%, as shown in Figure 4.

Manufacturing facilities have been required to report to the TRI Program since 1987. From 1988 to 2008, manufacturing facilities decreased their on- and off-site disposal or other releases by 65% based on chemicals that have been consistently reported since 1988.



Toxics Release Inventory, 2008

21,695
TRI facilities
reported 3.9 billion
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for 2008

Figure 2: 2008 TRI Total Disposal or Other Releases
3.9 billion pounds

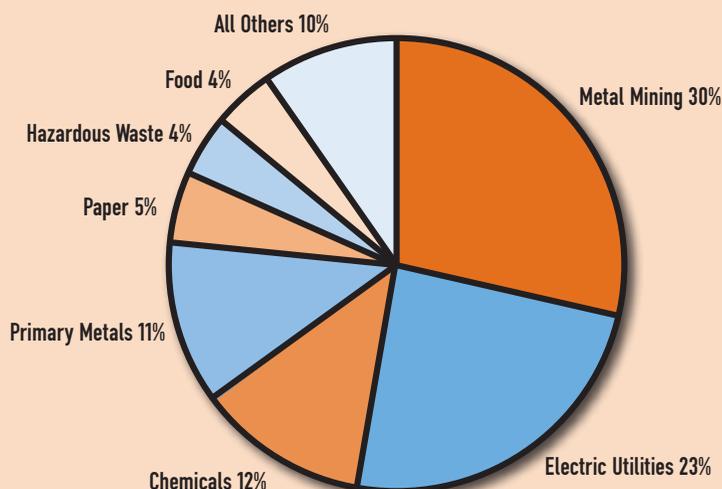


Figure 2 data are from TRI Form R, Section 5 (all parts) and 6.1 (metals and metal compounds only) and 6.2 (disposal codes only and metals and metal compounds reported under codes M40 and M61) as of December 2009.

TABLE 1: TRI ON-SITE AND OFF-SITE DISPOSAL OR OTHER RELEASES, 2008

ON-SITE DISPOSAL OR OTHER RELEASES	POUNDS	PERCENT
Air	1,140,860,350	29.5
Water	246,806,831	6.4
Underground Injection	186,846,496	4.8
Land	1,797,901,526	46.6
TOTAL ON-SITE DISPOSAL OR OTHER RELEASES	3,372,415,203	87.3
OFF-SITE DISPOSAL OR OTHER RELEASES		
Underground Injection	9,503,427	0.2
Land	382,871,079	9.9
POTWs and Wastewater Treatment	3,635,535	0.1
Other	92,914,435	2.4
TOTAL OFF-SITE DISPOSAL OR OTHER RELEASES	488,924,477	12.7
TOTAL ON- AND OFF-SITE DISPOSAL OR OTHER RELEASES	3,861,339,680	100.0

Data are from TRI Form, Sections 5 (all parts) and 6.1 (metals and metal compounds only) and 6.2 (Disposal codes only and metals and metal compounds reported under codes M40 and M61). Does not include transfers to disposal or other releases sent to other TRI facilities that reported the amounts as on-site disposal or other releases. Data as of December 2009.

These 21,695 facilities reported 23 billion pounds of TRI chemicals in total production-related waste managed during 2008. Source reduction, or producing less waste, is the preferred approach to managing waste, followed by recycling. Waste that cannot be prevented or recycled can often be used for energy recovery or treated.

Figure 3: Production-Related Waste Managed, 2008: 23 billion pounds

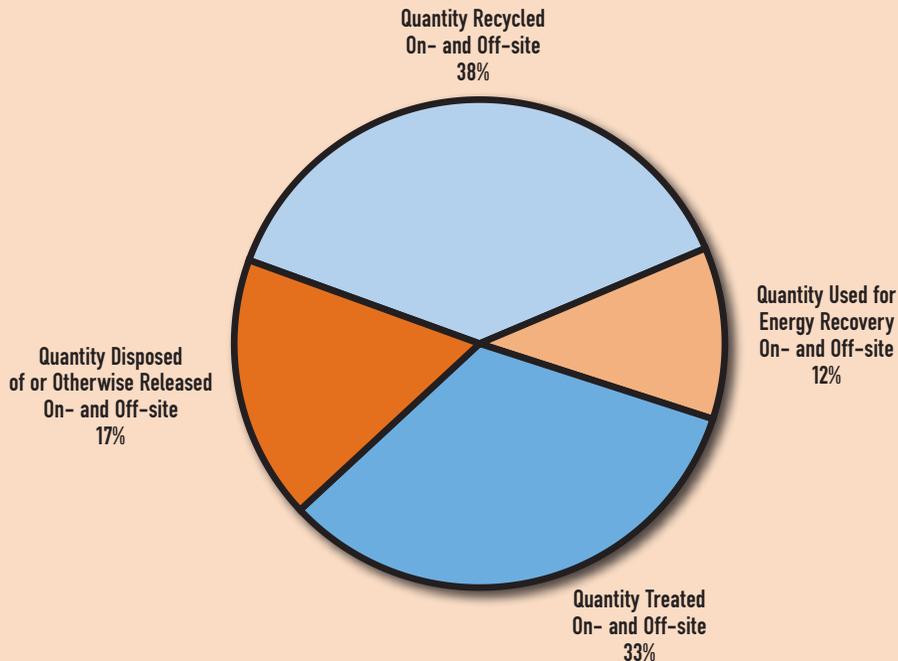


Figure 3 data are from TRI Form R, Section 8, current year for year indicated. Data as of December 2009.

What do TRI data show over a longer period of time?

Figure 4: Production-Related Waste Managed, 2001-2008

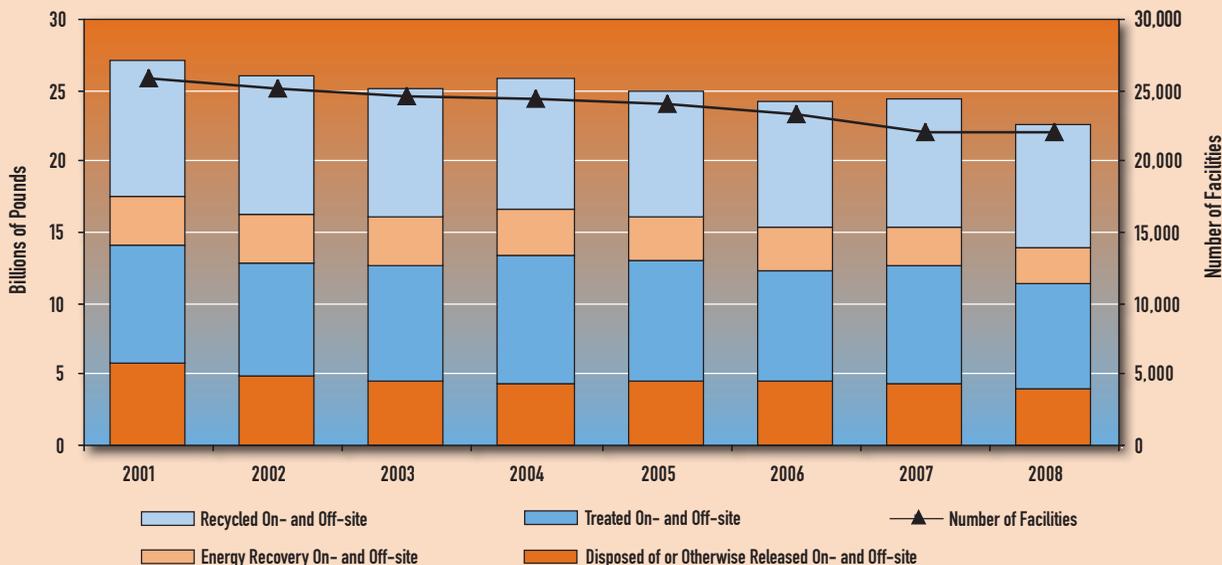


Figure 4 data are from TRI Form, Section 8, for year indicated. Data as of December 2009. This figure covers those years for which comparable data on all currently listed TRI chemicals, including PBT chemicals, are available. Tables encompassing a wider range of years include only those chemicals for which data are comparable (i.e., the chemical must have been consistently reported for the entire time covered) and can be generated using TRI Explorer.

From 2001-2008, total production-related waste managed decreased by 17% and the number of facilities reporting decreased by 15%.

What other information is available?

EPA has also developed an electronic report (eReport) for the 2008 TRI National Analysis. This report offers detailed information as part of the 2008 TRI National Analysis and is available on the TRI Web site. The eReport includes:

- a summary of key findings which provides a detailed look at the 2008 data; and
- additional tables and charts which provide a look at the top chemicals, industries, and facilities for 2008.

To access this report and other information on the TRI Program, please visit our Web site at: www.epa.gov/tri.

How can I access TRI data?

TRI Explorer: It's On-line! It's Easy! It's Your Right to Know!

TRI Explorer provides fast and easy access to the TRI data and can answer your questions about a chemical, facility, geographic area, or industry sector. It also provides further details and breakdown on the type of disposal or other releases reported. Find out what chemicals were released to the air by facilities in your state in 2008, what facilities reported in your zip code, or what progress has been made in reducing TRI chemicals since 1988. TRI Explorer provides customized reports on these and many other topics using the TRI data. Users of TRI data can also customize maps of states or counties within a state to their preferences. Each report can be quickly and easily sorted by total disposal or other releases, by fugitive air emissions, by surface water discharges, by disposal to hazardous waste landfills, etc. Electronic state fact sheets with 2008 data are also available for each state. Visit the TRI Explorer home page to begin creating your own report on TRI data at: www.epa.gov/triexplorer.

Customize reports,

research data

quickly and easily

from your own computer:

www.epa.gov/triexplorer

The screenshot shows the TRI Explorer web application interface. At the top, it features the U.S. Environmental Protection Agency logo and the title 'TRI Explorer'. Below the title, there are navigation links for 'Recent Additions' and 'Contact Us', a search bar with radio buttons for 'All EPA' and 'This Area', and a 'Bookmark' button. A breadcrumb trail indicates the user's location: 'You are here: EPA Home >> TRI >> TRI Explorer (ver 5.0) >> Reports'.

The main content area is titled 'Chemical Report' and includes a detailed instruction: 'Detail columns in online reports are collapsed by default (Feature not in Trends Reports). Click the [icon] icon to view additional columns. Use your Browser back feature to collapse. Alternately you can select / deselect desired columns from this screen.' Below this, there are links for 'Hints for first-time users' and 'Assumptions used in the analysis', along with a 'Go To New Report' button.

A navigation bar contains several tabs: 'About TRI Explorer', 'State Fact Sheet', 'Release Reports' (which is the active tab), 'Waste Transfer Reports', 'Waste Quantity Reports', 'TRI Program Home', and 'Tutorial'.

The 'Release Reports' section is divided into several sections:

- Reports:** Includes 'Chemical' (with an information icon), 'Facility', 'Federal Facility', 'Trends', 'Geography', and 'Industry'.
- Maps:** Includes 'Dynamic'.
- Year of Data:** A dropdown menu set to '2008'.
- Geographic Location:** A dropdown menu set to 'All of United States'.
- Chemical Released:** A dropdown menu set to 'All Chemicals'.
- Industry:** A dropdown menu set to 'All Industries'.
- Data Set:** A checkbox labeled 'Select 2008 PDR data set (frozen on September, 17, 2009 and released to the public December 2009)'. Below this, it states 'Data updates will be released at a later date'.
- Report columns to include:** A list of checkboxes for various report categories:
 - Total On-site Disposal or Other Releases (with a 'Details' link)
 - On-Site Disposal to Class I Wells, RCRA Subtitle C Landfills, and Other On-Site Landfills
 - Other On-Site Disposal or Other Releases
 - Total Off-site Disposal or Other Releases (with a 'Details' link)
 - Off-Site Disposal to Underground Injection Wells, RCRA Subtitle C Landfills, and Other Landfills
 - Other Off-site Disposal or Other Releases
 - Total On- and Off-Site Disposal or Other Releases
 - CAS Number

At the bottom of the form is a 'Generate Report' button and a footer with links for 'EPA Home', 'Privacy and Security Notice', and 'Contact Us'.

Where can I find contact information?

There are three other options for finding more detailed information:

- You can find out more information about the TRI program by contacting the toll-free Emergency Planning and Community Right-to-Know (EPCRA) Call Center at 1-800-424-9346, or
- You can seek assistance in accessing and using TRI data by contacting the TRI User Support Service 202-566-1415, or
- You can find your state or regional TRI coordinator by visiting EPA's TRI Web site at: www.epa.gov/tri.



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