

The U.S. Toxics Release Inventory (TRI)

Experiences in the development and implementation of PRTR:
Uses and Applications

29 August 2024



Presentation Overview

- Toxics Release Inventory overview
- Most recent TRI data
- Adding context to TRI data
- Accessing TRI data (live demo)
- Q&A

What is the TRI?



**An information resource about toxic
chemical waste management at facilities
across the U.S.**



800+

individual chemicals and chemical categories

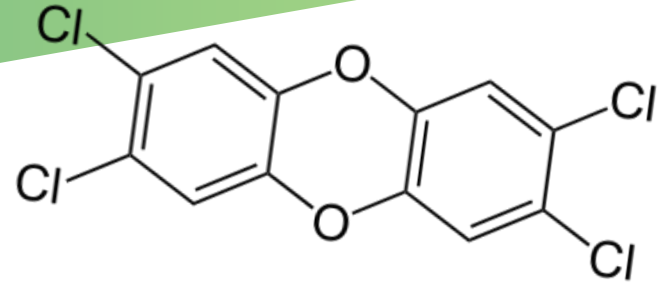
21,000+

industrial and federal facilities

since 1987

annual reporting directly from facilities

What Chemicals Are Covered?



- TRI covers an important subset of chemicals used in commerce
- In general, chemicals on the TRI list are those that cause:
 - Cancer or other chronic human health effects
 - Adverse acute human health effects
 - Significant adverse environmental effects

See the complete list at www.epa.gov/tri/tri-listed-chemicals

What Facilities Must Report?

A facility's coverage under the TRI Program is determined by its 6-digit North American Industry Classification System (NAICS) code. Approximately 400 NAICS codes are required to report to TRI.

- Covered industry sectors include:



Manufacturing



Federal Facilities



**Coal/Oil Electricity
Generation**



**Certain Mining
Facilities**



**Hazardous Waste
Management**

- Minimum number of employees (equivalent to 10 full-time employees)
- Manufactures, processes, or otherwise uses more than a certain amount of a TRI-listed toxic chemical per year (generally 25,000lbs M/P and 10,000lbs OU; lower thresholds for PBTs/chemicals of special concern)

What information do facilities report to TRI?

EPA
United States
Environmental Protection
Agency

FORM R
Section 313 of the Emergency Planning and Community
Right-to-Know Act of 1986, also known as Title III of
Superfund Amendments and Reauthorization Act

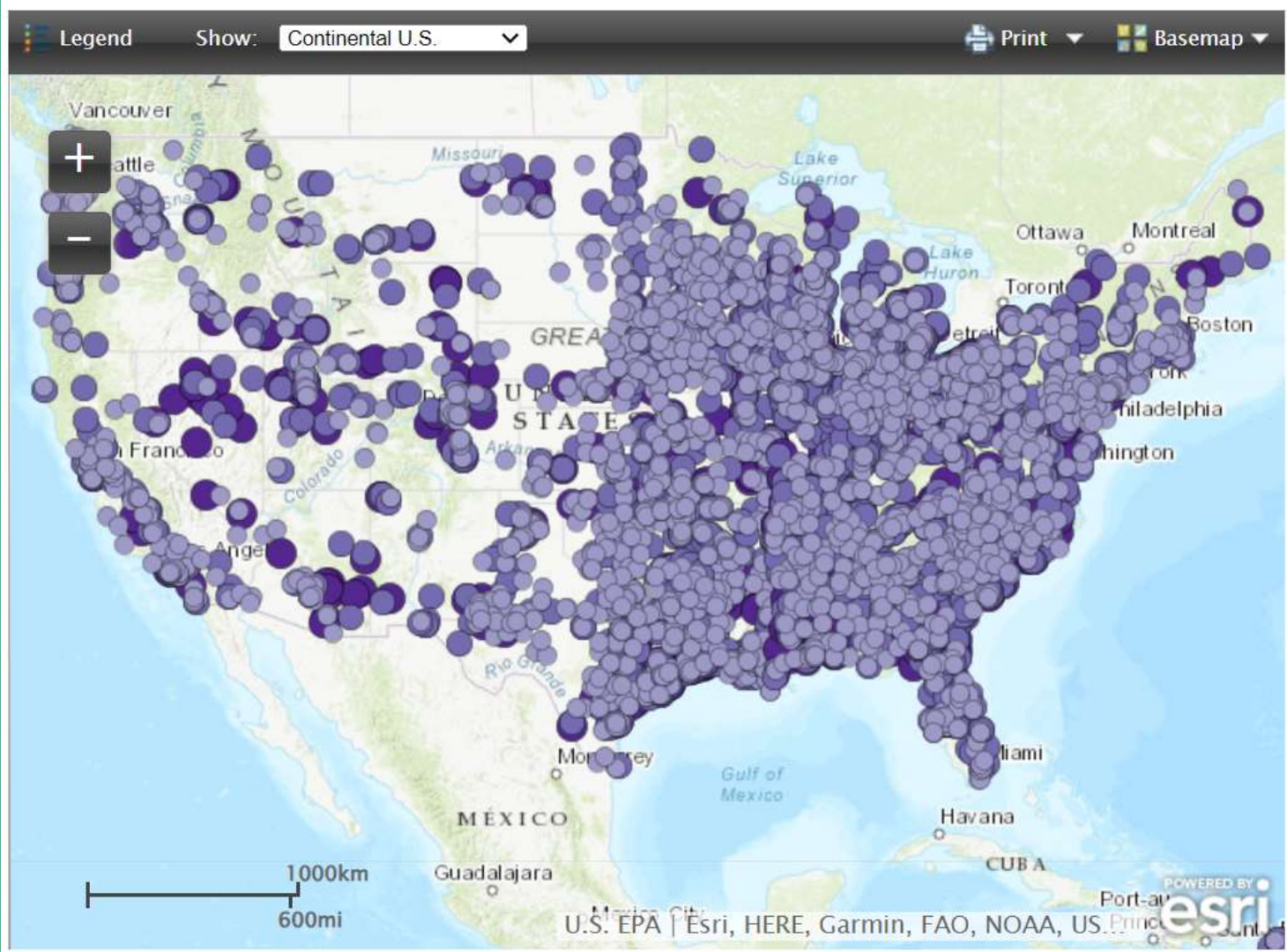
Complete form online via TRI-Web. For a trade secret submission, send completed forms to TRI Reg
annual public burden related to the Form R is estimated to average 35.71 hours per response for a facility.
Instructions for more information on submissions and the Paperwork Reduction Act.

This section only applies if you are
revising or withdrawing a
previously submitted form,
otherwise leave blank.

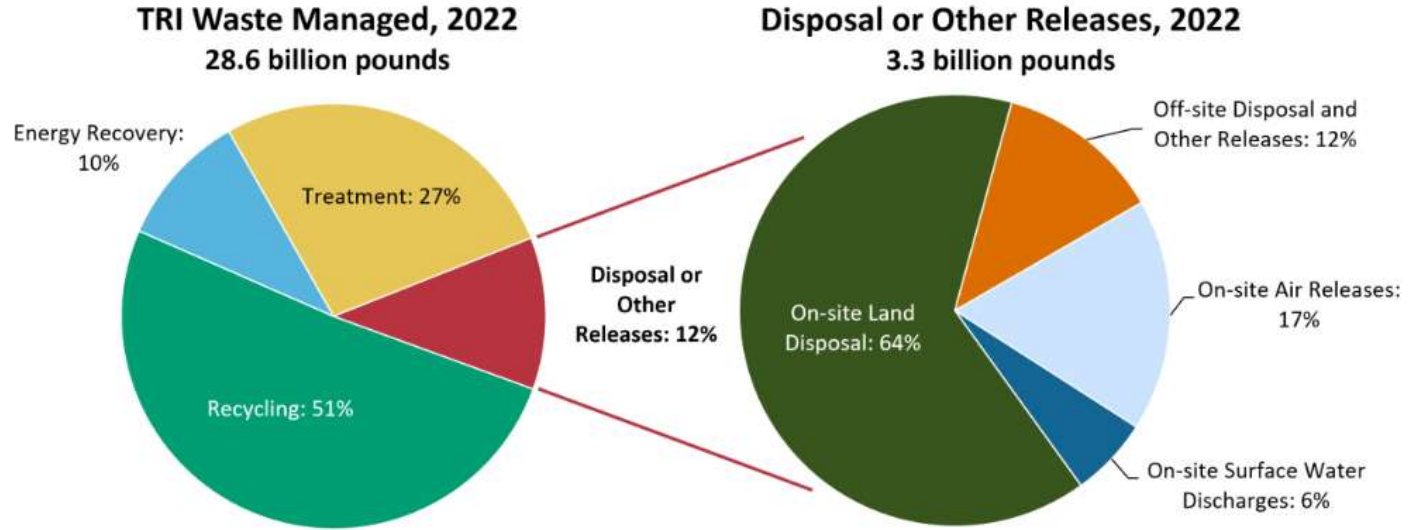
Revision (Enter up to two code(s))

- **On-site releases**
 - Air emissions
 - Surface water discharges
 - Disposal to land
- **Other on-site waste management**
 - Recycling
 - Energy recovery
 - Treatment
- **Transfers to off-site locations**
- **Newly implemented pollution prevention activities**

2022 TRI Reporting Facilities

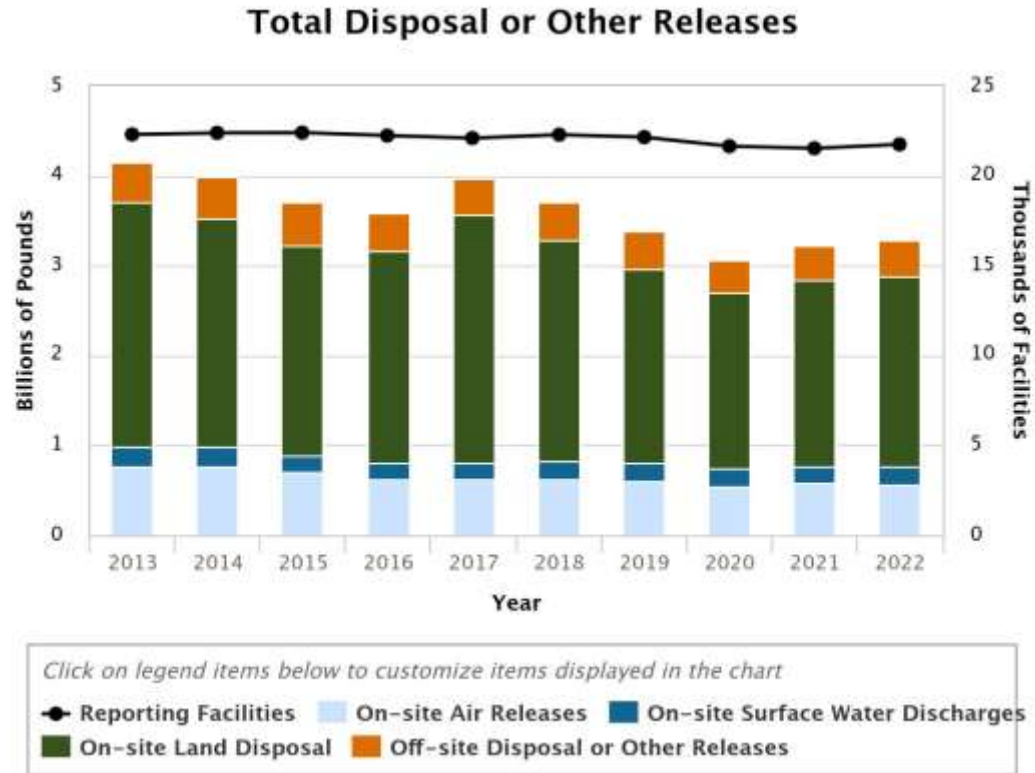


2022 TRI Data – Waste Managed



88% of waste was managed by preferred methods rather than released to the environment

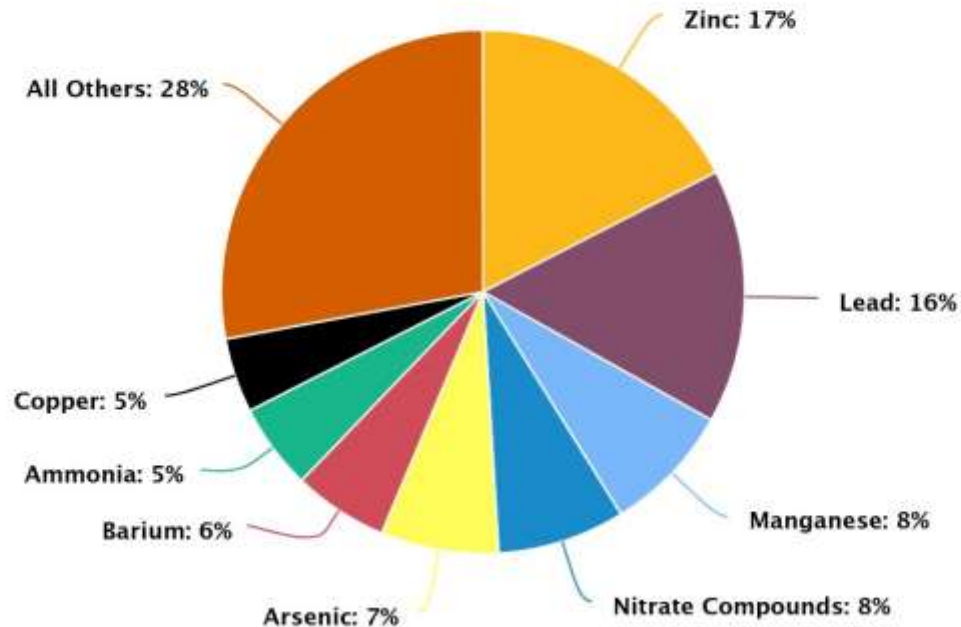
2022 TRI Data – Release Trend



2022 TRI Data – Releases by Chemical

Total Disposal or Other Releases by Chemical, 2022

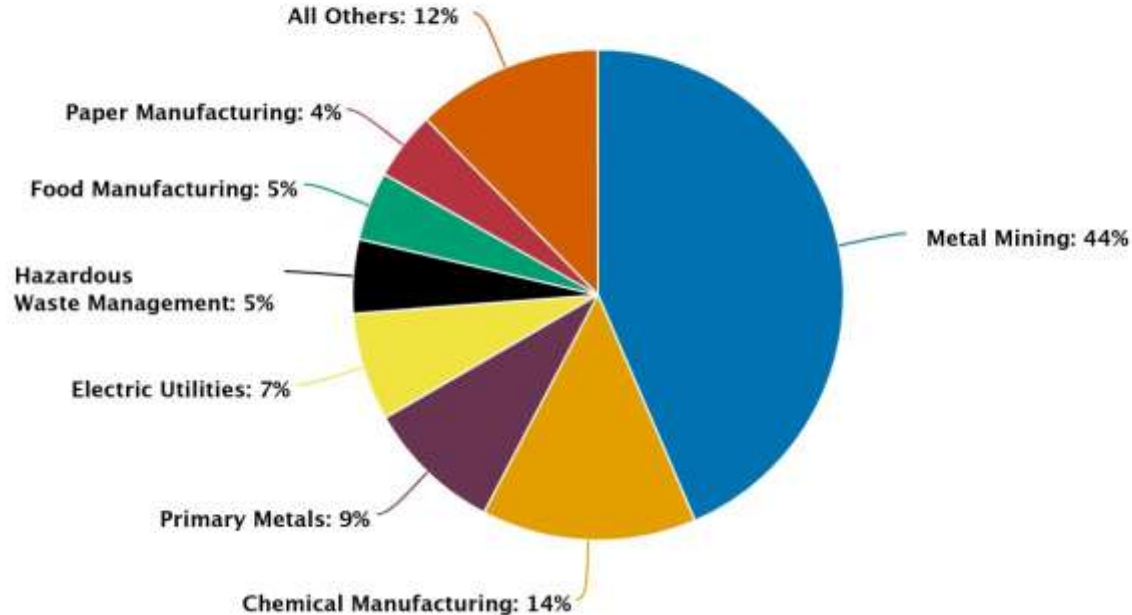
3.3 billion pounds



2022 TRI Data – Releases by Sector

Total Disposal or Other Releases by Industry, 2022

3.3 billion pounds





What Pollution Prevention Data do Facilities Report?

Source reduction activities are practices that reduce, eliminate, or prevent pollution at its source. Source reduction is also referred to as **Pollution Prevention (P2)**.

- Facilities are **required** to report all newly implemented source reduction activities involving TRI chemicals
 - Includes selection from 24 source reduction activity codes. Example: “S02: Substituted an organic solvent”
 - Codes are tracked across 5 categories
- Must also indicate the method(s) used to identify the activity (e.g., audit, vendor assistance)



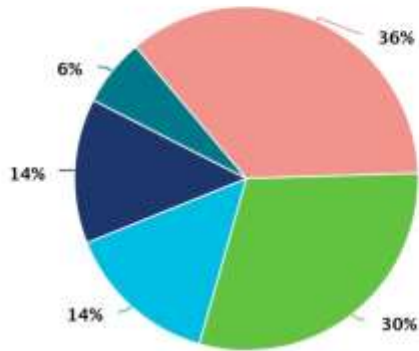
Benefits of TRI P2 Data Collection



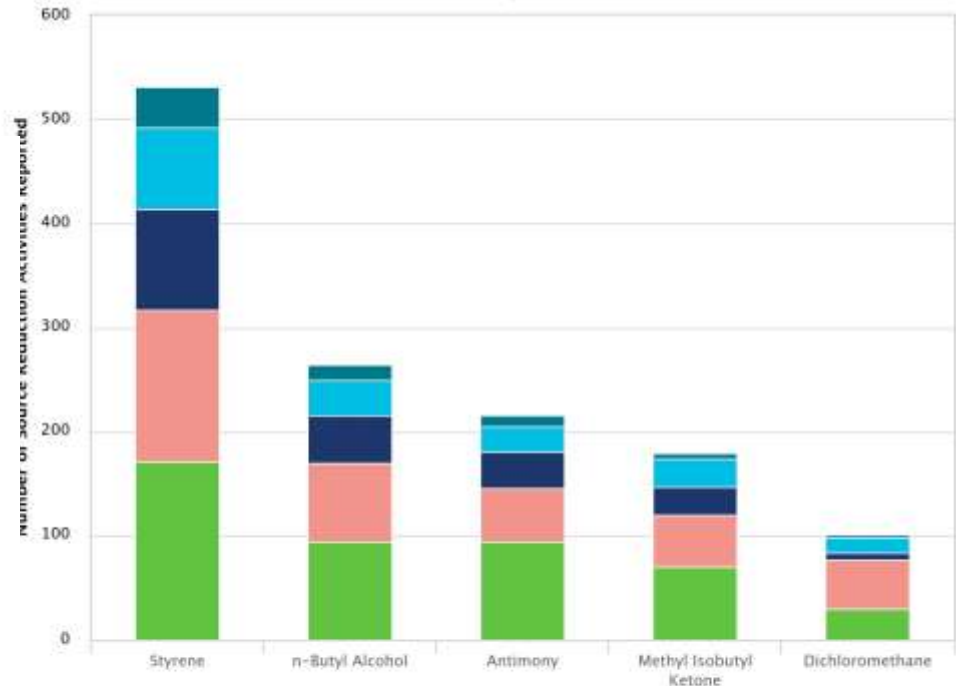
- Explore a shared knowledge base of source reduction practices
- Learn from peers along the value chain
- Increased opportunity to identify replicable practices
- Create a strong incentive for companies to reduce pollution and be good neighbors in their communities
- Measure facility/industry progress on reducing environmental releases and hazards

2022 TRI Data - Pollution Prevention

Source Reduction Activities Reported, 2022



Source Reduction Activities by Chemical, 2018-2022



Click on legend items below to customize items displayed in the chart



How EPA uses TRI P2 data

- Promoting P2 success stories
 - Chemical- and industry-specific spotlights
 - Videos highlighting good work being done at TRI-reporting facilities
 - P2 Search Tool
- Tracking facility performance
- Facilitating tech transfer
- Identifying research/assistance needs

EPA Pollution Prevention (P2) Spotlight
Reducing Trichloroethylene (TCE) Waste in the Fabricated Metal Sector

Overview of TCE and Fabricated Metal Manufacturing
Facilities in the Fabricated Metal Product Manufacturing sector make mechanical metal part products through processes such as forging, stamping, bending, forming, welding, machining, and assembly. Some facilities in the sector are the source of trichloroethylene (TCE) as a solvent degreaser, which cleans metal parts in preparation for further finishing operations, like painting or plating.

Quick Stats for 2012

- All Fabricated Metal Products reported TCE to TRI
- All facilities reported 94 TCE releases
- 100% reduction in TCE releases from 2007 to 2012

TCE Reductions Reported to the Toxic Release Inventory (TRI)
The quantity of TCE releases reported to TRI by the fabricated metal sector decreased by 70% between 2007 and 2012. The sector's use and off-site releases of TCE from 3 facilities across the nation peaked in the initial period, and total production-related waste managed (which includes quantities recycled, used for energy recovery, stored, and released) fell from more than 80 million pounds to less than 10 million pounds reported annually.

Management of TCE at Fabricated Metal Manufacturers

Releases Reported to the Toxic Release Inventory (TRI)
For the 2012 reporting year, the Fabricated Metal Product Manufacturing sector (NAICS 3327) reported more than 94 releases of TCE to TRI, which is a 100% reduction from 2007. Total releases of TCE to TRI from the fabricated metal sector decreased by 70% from 2007 to 2012.

EPA Pollution Prevention (P2) Spotlight
Reducing Decabromodiphenyl Ether Waste Management

Overview of Decabromodiphenyl Ether (DecaBDE)
Decabromodiphenyl ether (DecaBDE) is a brominated diphenyl ether (BDE) used as a flame retardant in a broad range of plastic and composite materials. It is used in a variety of applications, including electrical and electronic equipment, building and construction materials, and transportation.

DecaBDE Reported to the Toxic Release Inventory (TRI)
For the 2012 reporting year, the Plastic and Rubber Manufacturing sector (NAICS 2822) reported more than 100 releases of DecaBDE to TRI, which is a 100% reduction from 2007. Total releases of DecaBDE to TRI from the plastic and rubber manufacturing sector decreased by 100% from 2007 to 2012.

Waste Management of DecaBDE

Links/Stats

- 100% reduction in DecaBDE releases to TRI in 2012 (from more than 100 in 2007)
- 100% reduction in DecaBDE releases to TRI in 2012 (from more than 100 in 2007)
- 100% reduction in DecaBDE releases to TRI in 2012 (from more than 100 in 2007)

USING DATA FOR COLLABORATIVE ACTION AT INDUSTRIAL FACILITIES

0:59 / 2:14

More TRI Data Uses

Who uses the data?



*Includes federal, state, local, and tribal governments

For what purposes?

- Track environmental performance of facilities
- Estimate potential chemical risks
- Encourage pollution prevention


Leading to increased **awareness**, **understanding** of impact, and improved **decision making**.

Catalog of Applied TRI Data Uses

Catalog of Applied TRI Data Uses

Search this collection of case studies, articles, and other resources to find examples of how organizations and individuals have used Toxics Release Inventory (TRI) data. U.S. facilities in certain industry sectors and all federal facilities must report their efforts in reducing the use of chemicals annually. They must also report quantities of chemical waste created as well as how much they managed through release into the environment, treatment, energy recovery and recycling. This information is compiled in the TRI and can be used by companies, government agencies, non-governmental organizations, and the public for advocacy, research or environmental improvement.

The Catalog of Applied TRI Data Uses collects examples of these efforts and makes them searchable by keyword, type of waste management method or by project focus type, such as pollution prevention, risk management or industry performance.



The image displays three overlapping screenshots of the 'Catalog of Applied TRI Data Uses' search interface. Each screenshot shows a different search filter selected and circled in red. The first screenshot shows the 'Keyword' filter selected. The second screenshot shows the 'Waste Management Method' filter selected, with a list of options including Source reduction, Recycling, Energy recovery, Treatment, and Releases/disposal. The third screenshot shows the 'Project Focus' filter selected, with a list of options including Community engagement, Environmental justice, Facility performance, Industry performance, Global sustainability, Policy, Pollution prevention, Public health, Risk management or planning, and Risk Screening Environmental Indicators (RSEI) Model projects. Each screenshot also includes a search bar, 'Reset All' and 'Search' buttons, and a link to submit examples for inclusion in the catalog.

Keyword Waste Management Method

Enter keyword to customize search:

[Reset All](#) [Search](#)

How are you using the TRI? [Submit your own examples for inclusion in the Catalog.](#)

Keyword **Waste Management Method** Project

Select waste management method(s) of interest:

- Source reduction
- Recycling
- Energy recovery
- Treatment
- Releases/disposal

[Reset All](#) [Search](#)

How are you using the TRI? [Submit your own examples for inclusion in the Catalog.](#)

Keyword Waste Management Method **Project Focus**

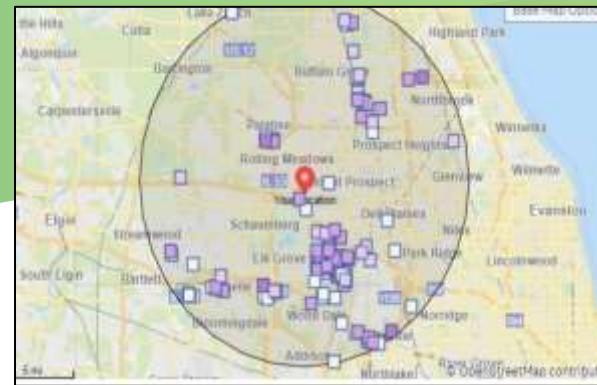
Select topic(s) of interest:

- Community engagement
- Environmental justice
- Facility performance
- Industry performance
- Global sustainability
- Policy
- Pollution prevention
- Public health
- Risk management or planning
- Risk Screening Environmental Indicators (RSEI) Model projects

[Reset All](#) [Search](#)

How are you using the TRI? [Submit your own examples for inclusion in the Catalog.](#)

Accessing TRI Data



TRI Explorer
 You are here: EPA Home » TRI » TRI Explorer » Release Reports – Release Industry Report

Release Reports

Fact Sheets | Release Reports | Waste Transfer Reports | Waste Quantity Reports

Chemical | Facility | Federal Facility | Trends | Geography

Release Industry Report

This site uses pop-up windows. Click here to learn how to allow pop-ups from this site. [Go To New Report](#)

Year of Data 2019

Geographic Location All of United States

Chemical All chemicals

Data Set The default is Data Source: 2019 Updated Dataset (released October 2020)
 Select 2018 Updated Dataset (released April 2020)
 Select 2018 National Analysis Dataset (released November 12, 2019)

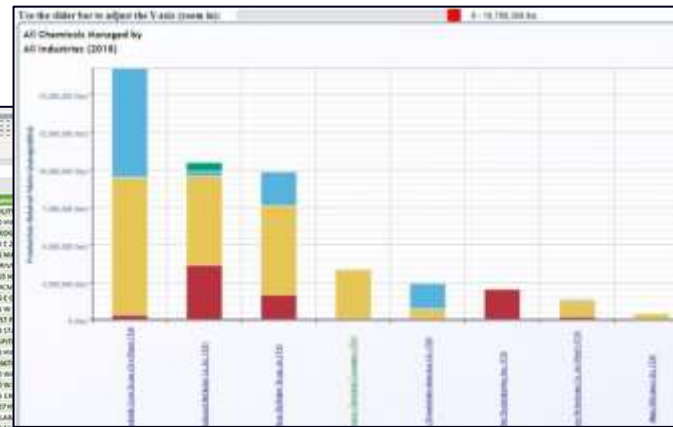
Report columns to include

- Total On-site Disposal or Other Releases
 - 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
 - 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

[Generate Report](#)

Tools vary by level of complexity, type of output, and amount of context added.

Reporting Year	Trade Sector Indicator	Chemical	Chemical Name	Estimate
2018	NO	35023PACT1700N	REFRACTORY SALES & SERVICE CO INC	1750 MB
2018	NO	28693PFC0004R	APPALACHIAN FIBERS SERVICES LLC	289 000
2018	NO	9025WJGL3035E	LOS ANGELES PLANT ES	1305 T 2
2018	NO	7762HLP73910M	VALERO REFINING - TEXAS LP HOUSTON REFINERY	9056 MB
2018	NO	9176AKLLE05V6	URBELL COAL MIN INC	108 404
2018	NO	3070NBLER21203	BLUE CUBE OPERATIONS LLC - FLAGMANING SITE	23255 NA
2018	NO	17823WV193RPM	MONITOR STEAM ELECTRIC STATION	18 900M
2018	NO	42520WJLC1238E	MULLER CO PLANT #1	12264 E
2018	NO	9220AAR181121W	BIG TRANSPORT DYNAMICS CORP	8182 18
2018	NO	55675ALND050WY	ST PAUL PARK REFINING CO LLC	3615 ST
2018	NO	42426LCHNG007U	CENTURY ALUMINUM SERIES LLC	9404 ST
2018	NO	69899PCHS06B8T	WOODRUM INDUSTRIES INC SPACIO DIV	14 540E
2018	NO	30773JAVSEV00G6	HOOD CONTAINER OF LOUISIANA LLC - ST FRANCISVILLE MILLS	2395 MB
2018	NO	38620WJMS29196	CHEMICAL COMPOUNDING CO	791 000
2018	NO	75002WR19K12UP	COOPER TIRE CO	1500 MB
2018	NO	30454279S0080W	FREEDPORT ACADAMAKS SERRITA INC	6200 90
2018	NO	34627WV1903251	NORTHMAN SUN OIL CO JOPM	5025 18
2018	NO	63603CYNH0909W	CONTINENTAL CEMENT CO LLC	13000 T4
2018	NO	63055A0DPW00316	AMEREN MISSOURI LABACHE ENERGY CENTER	229 144
2018	NO	78408719M5300N	PLANT MILLS RESOURCES CORPUS CHRISTI - EAST PLANT	1790 000000000
2018	NO	42201WJGG00014	BUSSES & TRACTOR CORP	771 000 042
2018	NO	12040TRN95A94R	RAYONER PERFORMANCE FIBERS JESUP MILL	6430 SAVANNAH HAY



Toxics Release Inventory (TRI) Program



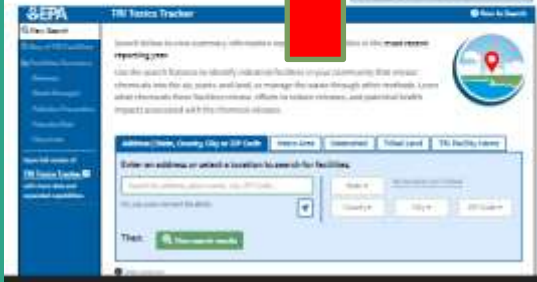
What is the TRI? The Toxics Release Inventory (TRI) is a resource for learning about toxic chemical releases and pollution prevention activities reported by industrial facilities. TRI data supports informed decision-making by communities, government agencies, companies, and others. See our list of the [Toxicity Factors and Community Right-to-Know \(TRK\) covered by TRI](#).

Get TRI Email & Text Updates

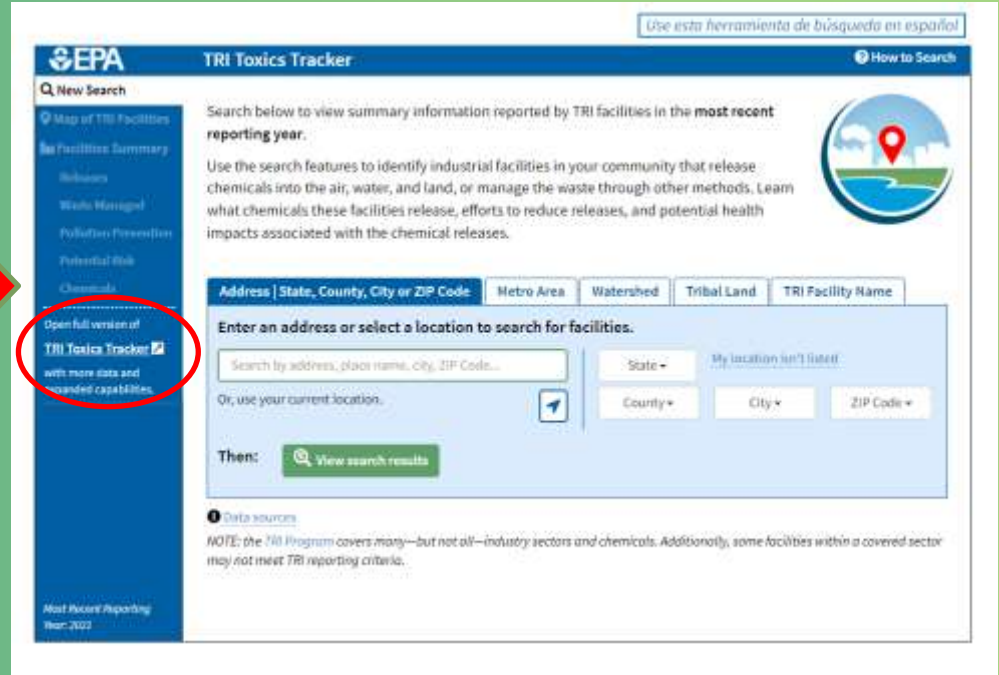
What is the TRI? **Report TRI Data** **Access & Use Data**



- [What is the TRI?](#)
- [Report TRI Data](#)
- [Access & Use Data](#)



TRI Toxics Tracker via TRI Homepage



Full Version of TRI Toxics Tracker

EPA TRI Toxics Tracker Show Print View How to Search Contact Us

Reporting Year: 7 of 10 CLEAR BACK FORWARD

Welcome to TRI Toxics Tracker, where you can access nationwide TRI data from the past 10 years and easily explore by geography, facility, industry, chemical, or specific data elements.

You are currently viewing data for facilities based on your search parameters shown in the green bar above

# Facilities	# Reporting Years	# Chemicals Reported	# Releases
23,708	3 (2019 - 2021)	559	2

Use this page to:

- Select your search parameters. Selections will be summarized in the green bar above.
- View search results by clicking a topic (e.g., "releases") in the left menu. You can filter within a topic by using the tabs at the top of each page.

Start a search:

Geography Sector Chemical TRI Facility Name or ID

Choose a geography type:

Street address State, County, City, and/or ZIP Code Metro Area Watershed Tribal Land EPA Region

Search by address, place name, city, ZIP Code... OR Use Current Location

Search Radius (Miles): 10

Years quick selections:

Chemical

TRI Chemical Name (ID)

Other EPA Program

General

Reporting Year

TRI Facility Name - ID

1 Data sources: 2021 National Analysis Dataset, released May 2023. Risk Indicators (RISE) model results based on 2021 National Analysis dataset

NOTE: the TRI Program covers many—but not all—industry sectors and chemicals. Additionally, some facilities within a covered sector may not meet TRI reporting criteria.

Adding Context to TRI Data



- **Potential health effects associated with TRI chemicals are based on the Occupational Safety and Health Administration (OSHA) Carcinogen List and EPA's TRI-CHIP datasets.**
- *Demographic data layers provide characteristics of residents by census block groups, derived from EPA's EJScreen tool.*
- *Risk-Screening Environmental Indicators (RSEI) scores are relative unitless values to help understand potential impacts of TRI air and water releases, derived from EPA's RSEI model.*

Potential health effects associated with TRI chemicals

EPA TRI Toxics Tracker Show Print View How to Search Contact

ReportingYear: 2021 ✕ FacilityIDName: 139 of 29658 ✕ CLEAR BACK FORWARD

Releases by Chemical | Waste Managed by Chemical | Health Effect Definitions | **Potential Health Effects**

TRI Chemical Na... | Other EPA Program | Health Endpoint | Chemical Groups | Chemical Synonym

Health Endpoint ... 🔍 ✕ ✓

Search in listbox

- Body Weight
- Cancer
- Cardiovascular
- Dermal
- Developmental
- Endocrine
- Gastrointestinal
- Hematological
- Immunological
- Neurological
- Reproductive
- Respiratory

Chemicals and Potential Health Effects

Chemical	Releases (lb)	RSEI	Health Endpoint
Totals	5,283,154	2,68	
1,3-Butadiene (106-99-0)	61,447	1,09	
Chromium compounds (N090)	18,486	99	Endocrine, Hematological, Neurological, Reproductive, Respiratory
Benzene (71-43-2)	38,859	24	Hematological
Hydrogen cyanide (74-90-8)	141,669	61,899	Endocrine, Hematological, Neurological, Reproductive
Nickel compounds (N495)	8,217	63,139	Body Weight, Cancer, Hematological, Immunological, Respiratory
Carbon tetrachloride (M036)	1,216	45,553	Cancer, Hematological, Respiratory

Health Effect Notes: Cancer: Known to be a human carcinogen only applies to chromium (VI) compounds

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Mapping Demographic Data

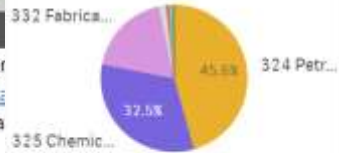
Legend

National Percentiles for Demograp...

National Percentiles	Percent
95 - 100 percentile	≥ 78.59
90 - 95 percentile	< 78.59
80 - 90 percentile	< 69.84
70 - 80 percentile	< 56.19
60 - 70 percentile	< 45.01
50 - 60 percentile	< 36.05
Less than 50 percentile	< 29.04
Data not available	N/A

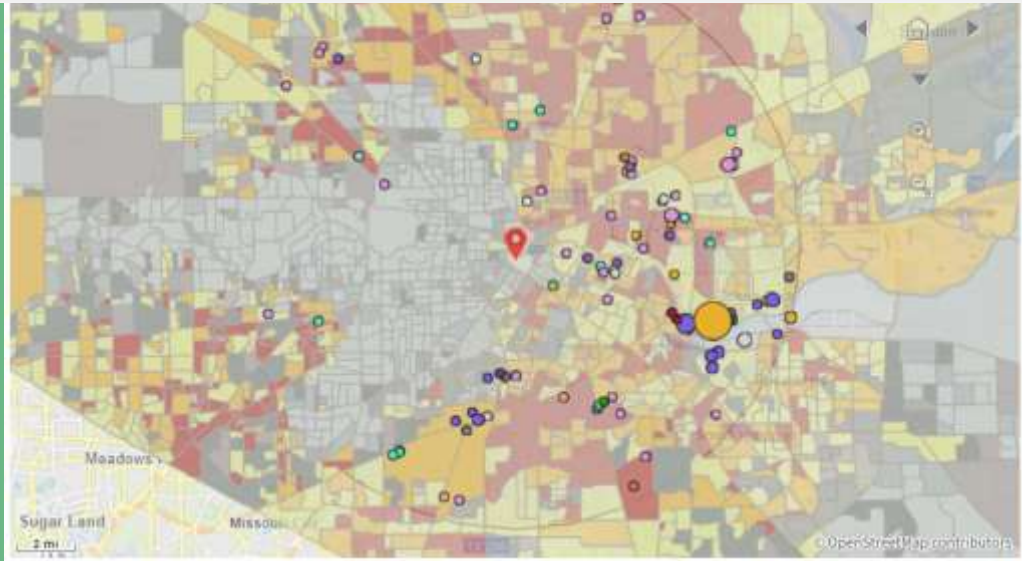
Releases by Industry Sector

The colors in this pie chart provide a legend for the facility dot colors on the map.



Facilities with more than one industry sector are shown in gray on the map.

Census block groups on the map are color based on the selected indicator's percent value and national percentile. Data are ba on EJScreen.



Adding Context to TRI Data



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Potential impacts from TRI releases to air and water: RSEI scores

EPA TRI Toxics Tracker | Reporting Year: 2021 | Facilities: 20 of 2000

Home Page | Map | Summary | Tribal Lands | Releases | Maps/Maps

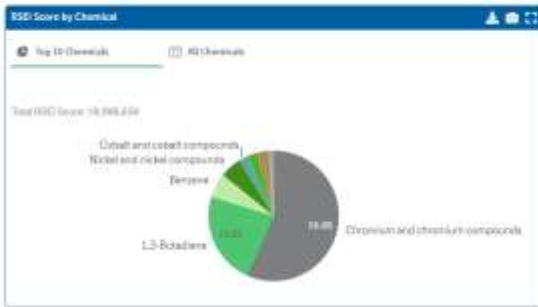
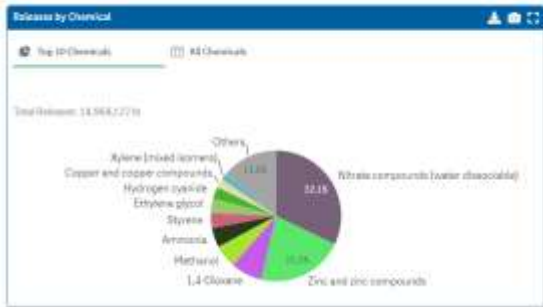
You are currently viewing data for facilities based on your search parameters shown in the green bar above

Facilities: 97 | # Reporting Years: 3 (2019 - 2021) | # Chemicals Reported: 103 | # Reporting Forms: 1,270

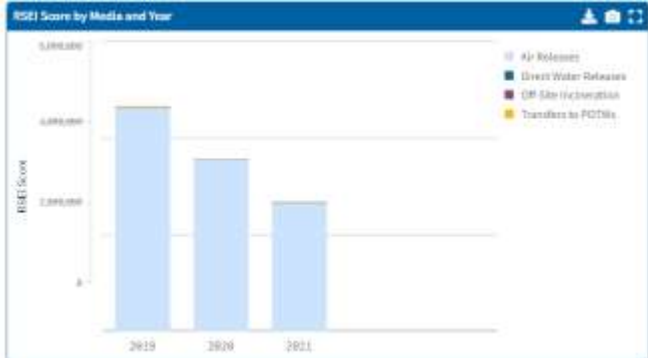
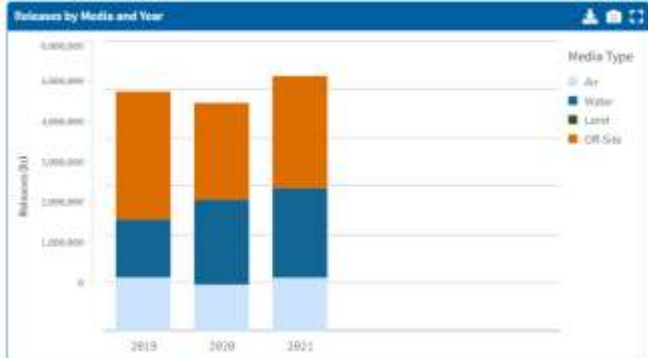
Potential Risk

TRI potential risk data are derived from EPA's **Risk-Screening Environmental Indicators (RSEI)**, a screening level modeling tool that uses TRI air and water data to provide information about potential health-related impacts from toxic industrial releases. **RSEI Score** is a synthesis value that accounts for the size of the chemical release, how the chemical degrades and moves through the environment, the size and location of the exposed population, and the chemical's toxicity. See the "More Info" button for more details.

Compare TRI Total Releases vs. RSD | By Chemical | By Media | By Industry Sector | By Location | Summary Table



By Media | By Industry Sector | By Location | Summary Table



TRI Resources:

TRI Homepage - <https://www.epa.gov/toxics-release-inventory-tri-program>

TRI Toxics Tracker - <https://edap.epa.gov/public/extensions/TRIToxicsTracker/TRIToxicsTracker.html#continue>

TRI Data & Tools Page - <https://www.epa.gov/toxics-release-inventory-tri-program/tri-data-and-tools>

Catalog of TRI Data Uses - <https://www.epa.gov/toxics-release-inventory-tri-program/catalog-applied-tri-data-uses>

TRI Pollution Prevention - <https://www.epa.gov/toxics-release-inventory-tri-program/pollution-prevention-p2-and-tri>

Risk Screening Environmental Indicators Model - <https://www.epa.gov/rsei>

Factors to Consider when Using TRI Data - <https://www.epa.gov/toxics-release-inventory-tri-program/factors-consider-when-using-toxics-release-inventory-data>

TRI Toxics Tracker – Live Demo

EPA TRI Toxics Tracker Show Print View How to Search Contact Us

Reporting Year: 7 of 10 CLEAR BACK FORWARD

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Start a search:

Geography Sector Chemical TRI Facility Name or ID

Choose a geography type:

Street address State, County, City, and/or ZIP Code Metro Area Watershed Tribal Land EPA Region

Search by address, place name, city, ZIP Code... OR Use Current Location

Search Radius (Miles): 10

Years quick selections:

Data sources: 2021 National Analysis Dataset, released May 2023. Risk Indicators (RISE) model results based on 2021 National Analysis dataset

NOTE: the TRI Program covers many—but not all—industry sectors and chemicals. Additionally, some facilities within a covered sector may not meet TRI reporting criteria.

< MORE X

Geography **1**

State/Territory

County

Sector **1**

General Industry Sector

Industry Subsector

Chemical **1**

TRI Chemical Name (ID)

Other EPA Program

General

Reporting Year

TRI Facility Name - ID

Questions?

Contact: Caitlin Briere

US Environmental Protection Agency

Office of Pollution Prevention & Toxics – Data Analysis & Right-to-Know Branch

Briere.Caitlin@epa.gov