

Introduction to Chemical Data Reporting (CDR), Toxics Release Inventory (TRI), and Resource Conservation and Recovery Act (RCRA)

Public Meeting
Morning Session

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Agenda

- Background on TSCA
- What is Chemical Data Reporting (CDR)?
- What is Toxics Release Inventory (TRI)?
- What is the Resource Conservation and Recovery Act (RCRA)?
- Byproducts
- Differing Scopes of Reporting



BACKGROUND ON TSCA

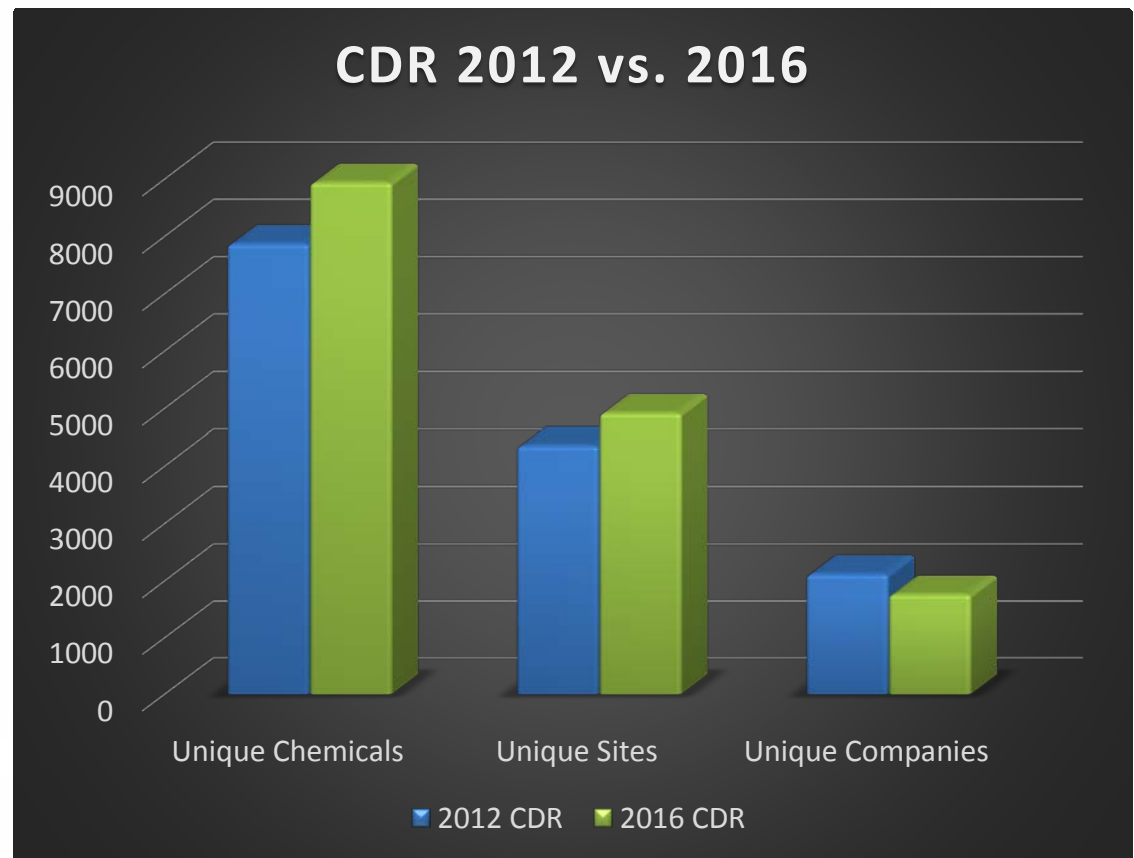


What is the TSCA Inventory?

- The Toxic Substances Control Act (TSCA) Chemical Substance Inventory (TSCA Inventory) was established in 1979 to provide a comprehensive listing of chemical substances in commerce at the time.
- EPA adds new chemicals to the TSCA Inventory when companies submit a Notice of Commencement of Manufacture or Import following completion of Premanufacture Notification procedures. (See www.epa.gov/oppt/newchems/ for further information.)
- The TSCA Inventory currently lists approximately 85,000 chemicals in commerce in the United States.
- Some ways to access the TSCA Inventory include:
 - Through EPA's New Chemical website
 - On www.epa.gov/tsca-inventory
 - Through Substance Registry Services (SRS) database
 - On www.epa.gov/srs

TSCA Inventory: CDR 2012 & 2016

Variable	2012 CDR	2016 CDR
# of Unique Chemicals	7876	8948
# of Unique Sites	4363	4927
# of Unique Companies	2125	1772



NOTE: The 2016 data are preliminary.

CDR, TRI, RCRA

CDR

- Manufacture/Import
Production Volumes
- Processing/Use
- Consumer/Commercial

TRI

- Release and Other
Waste Management
Quantities
- Pollution Prevention
Information

RCRA

- Generated Waste
Stream/Quantity



Differing Scopes

- **CDR** (Chemical Data Reporting) focuses on manufacture, processing, and use data to inform EPA about potential exposures.
- **TRI** (Toxics Release Inventory) provides data on releases and waste management of a chemical as well as pollution prevention information.
- **RCRA** (Resource Conservation and Recovery Act) focuses on the size of the waste streams that contain the chemical.



WHAT IS CDR?



What is Chemical Data Reporting?

- The CDR rule is authorized by Section 8(a) of TSCA.
- EPA collects information from chemical manufacturers on the manufacture, processing, and use of chemicals in commerce produced at **25,000 lbs or more** per year per site through the Chemical Data Reporting (CDR) rule.
- For certain TSCA regulated substances, EPA collects information from chemical manufacturers of chemicals in commerce produced at **2,500 lbs or more** per year per site. *See 40 CFR 711.15(b)*



How are the CDR data used?

- CDR provides a comprehensive source of basic screening-level, exposure-related information on chemicals available to EPA.
- The data are made available to the public and used by states, NGOs and industry.
- EPA uses CDR data to inform chemical risk screening, assessment, priority setting, and management activities, e.g.:
 - For work-plan development and prioritization work
 - For current scoping activities for first 10 priority chemicals
 - To inform exposure scenarios by identifying how chemicals are processed and used



Reporting Requirements Overview

- Who Reports?
 - Domestic manufacturers who produce chemical substances
 - Importers of chemical substances
- What is Reported?
 - Production Volume: Total manufactured (including imported) volume of each reportable chemical substance at each site for each calendar year since the last principal reporting year (i.e., 2012–2015)
 - Manufacturing-related data
 - Processing- and Use-related data
 - Number of workers that are reasonably likely to be exposed (in ranges)
 - Maximum concentration
 - Indication of whether a manufactured chemical substance is being recycled, remanufactured, reprocessed or reused (check box)
 - Physical form and percent production volume in the form



WHAT IS TRI?



The Toxics Release Inventory (TRI)

- The TRI program tracks the management of toxic chemicals that may pose a threat to human health and the environment.
- Facilities that meet reporting requirements submit reporting forms indicating:
 - Chemical use activities on-site,
 - Quantities released and quantities managed as waste (e.g., recycled, treated), and
 - Pollution source reduction activities.
- TRI is a statutory program:
 - Section 313 of the Emergency Planning and Community Right-to-Know Act
 - Section 6607 of the Pollution Prevention Act

TRI's Chemical List

- TRI lists over 690 individual chemicals and chemical categories.
- Some examples of inorganic chemicals (including metals) and chemical categories reported to TRI:

Metal	Metal Compounds
Antimony	Antimony Compounds
Copper	Copper Compounds
Lead	Lead Compounds
Nickel	Nickel Compounds

Individually-Listed Compounds
Aluminum oxide (fibrous forms)
Aluminum phosphide
Iron pentacarbonyl
Titanium tetrachloride



WHAT IS RCRA?



The Resource Conservation and Recovery Act (RCRA)

- RCRA is the federal law that set up a national program for the safe management of hazardous waste
- The RCRA regulations established a “cradle-to-grave” program for hazardous waste
 - Wastes are tracked from generators of hazardous waste through transporters to the final destination – either a permitted treatment, storage, or disposal facility (TSDF) or recycler
- To be a hazardous waste, the waste first must be a solid waste



Biennial Reporting requirements under RCRA

- Large Quantity Generators (LQGs) and Treatment, Storage or Disposal Facilities (TSDFs) have to file a Biennial Report (BR) every two years
- Some hazardous secondary materials are not solid waste when recycled or otherwise excluded and thus, are not reported in a facility's BR



Recycling under RCRA

- In general, the recycling process itself is exempt from regulation
 - Until recently, recycling facilities had to submit a Biennial Report (BR) if they stored prior to recycling (11/28/16 final rule now requires all recyclers of HW to report)
 - However, if materials are not solid waste (SW) when recycled, they cannot be hazardous waste (HW) and thus do not need to be reported



Common Wastes Recycled under RCRA

- Some materials being reclaimed are solid wastes, some aren't:
 - Spent materials, listed sludges, & listed by-products **are solid wastes** when reclaimed.*
 - F006 – listed wastewater treatment sludge from electroplating
 - K061 – listed sludge – emission control dust from the primary production of steel in electric furnaces
 - All listed and characteristic spent materials – spent solvents, spent caustics, etc. that are listed or exhibit one of 4 HW characteristics
 - 8 metals are on the Toxicity Characteristic list: arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver
 - The other HW characteristics are ignitability, corrosivity, and reactivity.

*Note, these materials may be excluded under §261.4(a) solid waste exclusions when recycled if the state has adopted those solid waste exclusions.



Common Materials Not Reported under RCRA

- Characteristic sludges, characteristic by-products, and commercial chemical products being reclaimed **are not solid wastes.**
- Examples that are not solid wastes when reclaimed:
 - Characteristic sludge, such as air pollution control dust from brass foundries that have enough lead to exhibit the Toxicity Characteristic (TC) – D008
 - Characteristic by-products, such as slag from a non-exempt mineral production process that contains TC levels of chromium
 - Off-spec mercury product

*Note, Copper is not on the TC list or a hazardous constituent itself



Other Materials Exempt from RCRA

- Most scrap metal is excluded when recycled and thus, does not need to be reported
- Hazardous secondary materials (HSMs) that are recycled by being used/reused directly are exempt and thus are not reported
- Other material-specific recycling exclusions: closed loop recycling processes, shredded circuit boards, mineral processing spent materials, HSMs used to make zinc fertilizers, and used Cathode Ray Tubes (CRTs)

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BYPRODUCTS



What is a TSCA Byproduct?

“...a chemical substance produced without a separate commercial intent during the manufacture, processing, use, or disposal of another chemical substance or mixture.” (40 CFR § 704.3)



Why Collect Byproducts Information under TSCA Section 8?

- Byproduct chemicals are no different than other chemical substances reported to CDR because being a byproduct does not change that it is a chemical.
- Exposure concerns:
 - Byproducts, like many other chemicals, often are accumulated on site, leave their manufacturing or processing equipment, and are shipped off the manufacturing site.
 - Byproducts shipped from a manufacturing site to a processing site, such as a recycler, would have similar exposure scenarios to any other chemical that is in a similar physical form.
- Byproducts reporting requirements are not new.
 - Reporting requirements for byproducts have been in place since the initial Inventory Update Rule.

When is a Byproduct Chemical Substance Subject to TSCA 8(a) reporting?

TSCA Inventory

It is a chemical listed on the TSCA Inventory

Commercial Purpose

It is a chemical used for a non-exempt commercial purpose

Production Volume Threshold

It is a chemical manufactured in volumes of **25,000 lbs**, or **2,500 lbs** (for certain TSCA actions) **or more** during the principal reporting year at a single site



CDR Byproduct Reporting when Further Processing Occurs

- Further chemical processing of any chemical (including byproducts) to prepare it for use may lead to the manufacture of other chemical substances, each of which may be subject to CDR reporting
- For example, if tin nitrate is a byproduct from the stripping of tin during the manufacture of Printed Circuit Boards (PCBs) and the tin nitrate is chemically converted to tin hydroxide that is then sold to a recycler who uses it to manufacture tin:
 - Both tin nitrate and tin hydroxide have commercial purposes
 - Both would be reportable by the PCB company
 - The recycler would report the tin



How to Characterize Byproducts for Identification Purposes

- In the example of Printed Circuit Board (PCB) manufacturing, byproducts are often mixtures or they may be substances that are Unknown or Variable Composition, Complex Reaction Products, and Biological Materials (UVCBs)
 - Mixtures are composed of definite sets of two or more well defined chemical substances to be named and listed separately on the Inventory;
 - A UVCB substance is a reaction product combination with **unknown, complex, or variable composition** and is listed as a single chemical substance

When is a TSCA Byproduct Exempt?

A byproduct is EXEMPT if:

(1) it is not used for a commercial purpose, or (2) “its only commercial purpose is for use by public or private organizations that:

- a) burn it as fuel,
- b) dispose of it as waste, including in a landfill or for enriching soil, or
- c) extract component chemical substances from it for commercial purposes.”* *40 CFR 720.30 (g) and (h)(2)*

*Note that this last part of the exemption only applies to the byproduct, and not to the extracted component chemical substance.

Example of Byproduct Exemption

Exemption for extracting a component chemical substance

Heat or chemical reactions can be used to extract a component chemical substance, but the component chemical substance extracted must be left chemically unchanged by the extraction process for the byproduct manufacturer to claim an exemption.



Note that individual component chemical substances extracted from a byproduct are reportable substances if they are extracted for a commercial purpose, even if the manufacture of the byproduct itself is not reportable.



What is a TRI Byproduct?

“...An EPCRA Section 313 chemical that is produced coincidentally during the manufacture, processing, otherwise use, or disposal of other chemicals or mixtures, and following its production, is separated from that substance or mixture.”

(TRI Reporting Forms and Instructions)



Byproducts in TRI Reporting

- Generally, byproducts are considered for manufacturing threshold determination and quantity reporting purposes. Facilities that manufacture TRI-listed chemicals as byproducts indicate this activity on their reports.
- **Over 20%** of TRI forms submitted each year include byproduct-related data.
- Incidental manufacture suggests a significant source of potential chemical production.

TRI Reporting Data: Byproducts and Metals/Metal Compounds

Reporting Year	Total Submitted Forms	No. Forms Reporting Byproducts	% Forms Reporting Byproducts	No. Forms Reporting Metals	% Forms Reporting Metals
2010	82,045	18,516	23%	33,462	41%
2011	82,228	18,522	23%	33,677	41%
2012	82,394	18,303	22%	33,702	41%
2013	82,567	18,513	22%	33,816	41%
2014	82,323	18,529	23%	33,865	41%
2015	80,947	18,301	23%	33,257	41%

Differing Scopes

CDR	TRI	RCRA
<p>Focus is on manufacture, processing, and use data to inform EPA about potential exposures.</p>	<p>Program goal is to provide stakeholders with information about toxic chemical releases and other waste management.</p>	<p>Focus is on waste generation, transportation, treatment, storage, and disposal.</p>

Process Diagram Through Reporting Programs

