EPA United States Environmental Protection Agency

Toxics Release Inventory Reporting Requirements

Advanced Concepts: Recent Changes to Requirements and Key Concepts

REPORTING YEAR / **2023**

Emergency Planning & Community RIGHT-TO-KNOW Act (EPCRA) Section 313

TRI Training Module Agendas

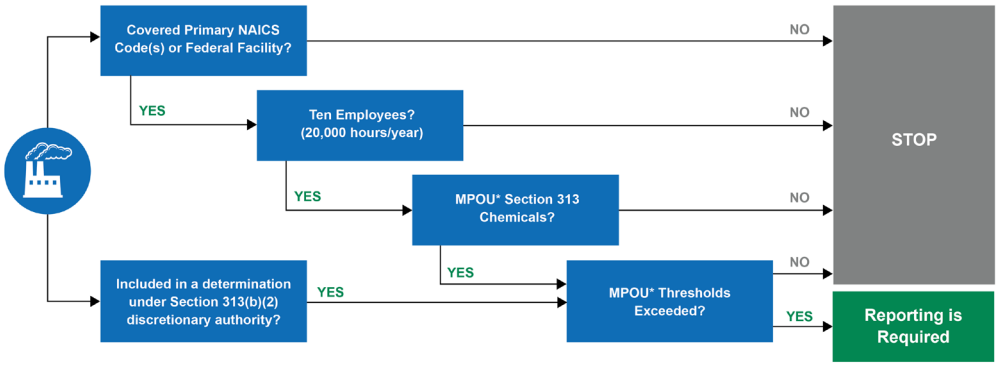
Basic Concepts Module

1. Covered Sectors
2. Listed Chemicals and Activity Thresholds
3. Reporting Exemptions
4. Threshold Determination
5. Overview of Form R
6. Form R Calculation Examples
7. Alternate Threshold Rule (Form A)
8. TRI-MEweb Introduction

Advanced Concepts Module

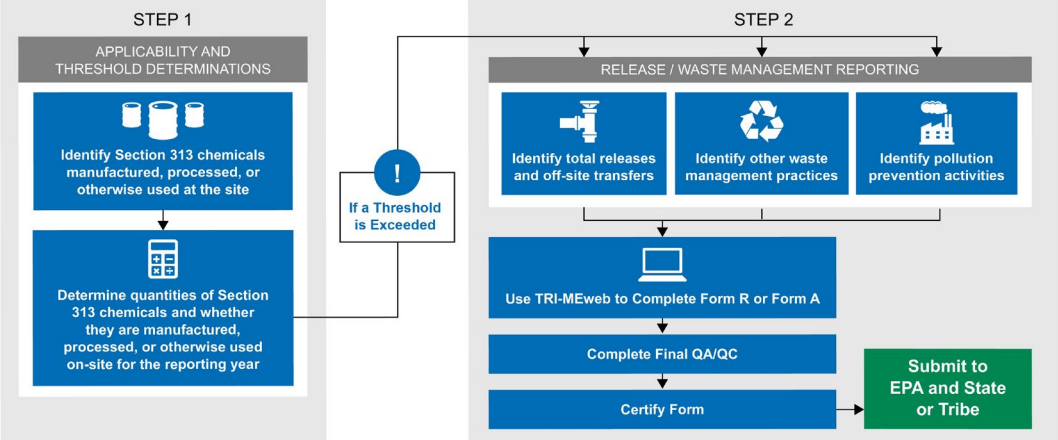
1. Recent TRI Program Changes
2. Advanced Reporting Guidance
3. Detailed Guidance for Chemicals of Special Concern
4. Tools and Assistance
5. TRI-MEweb

TRI Reporting Requirements



*MPOU=Manufacturing, Processing, and Otherwise Use

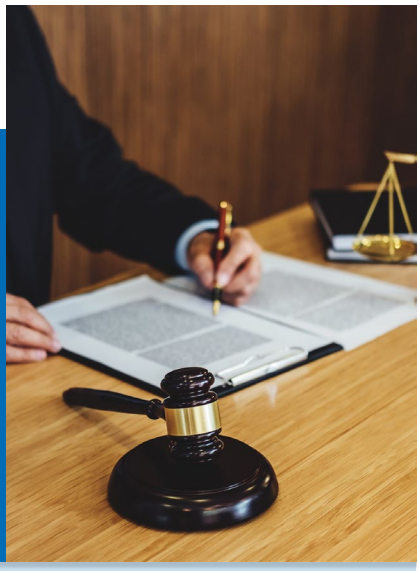
TRI Process: 2 Step Process



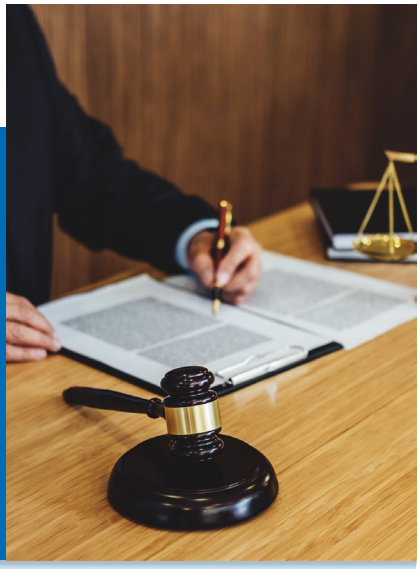
SECTION I: RECENT TRI PROGRAM CHANGES

TRI Program Changes for RY 2023

- **Key program changes and changes to TRI reporting Form R** are listed in the front of the Reporting Forms & Instructions, as well as in TRI-MEweb, and on EPA's TRI website.

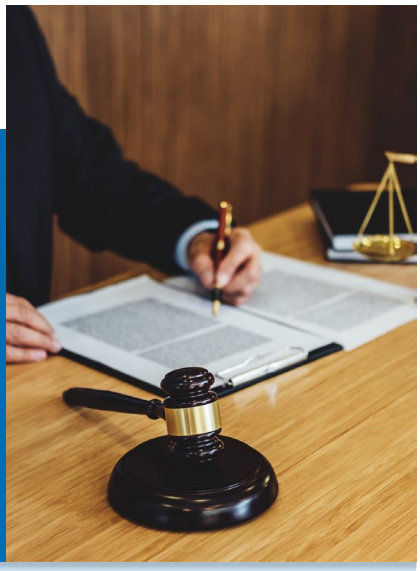


TRI Program Changes for RY 2023



- **Updated *de minimis* levels are in effect for C.I. Direct Blue 218 (28407-37-6), 1,1,1-trichloroethane (71-55-6), diphenylamine (122-39-4), and *N*-methylolacrylamide (924-42-5).**
  - C.I. Direct Blue 218, 1,1,1-trichloroethane, diphenylamine, and *N*-methylolacrylamide are now classified as carcinogens due to assessments by the International Agency for Research on Cancer (*de minimis* level changed from 1.0% to 0.1%).

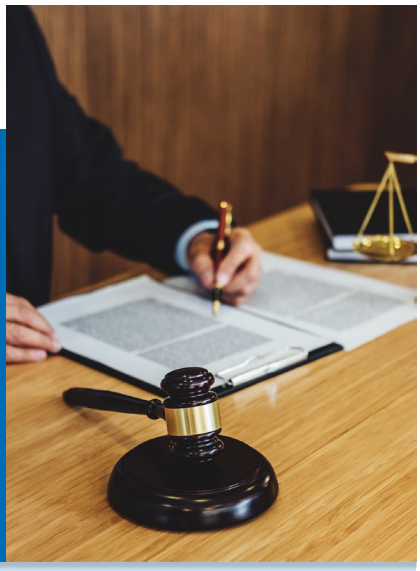
Chemical List Changes



Section 7321 of the National Defense Authorization Act for Fiscal Year 2020 (NDAA) adds certain per- and polyfluoroalkyl substances (PFAS) to the TRI list of reportable chemicals.

- Additional PFAS may be added to the TRI list for future reporting years due to the automatic addition of PFAS to the TRI list mandated by NDAA Section 7321(c) that occur under certain circumstances:
  - *EPA finalizing a toxicity value for a PFAS;*
  - *issuing certain Significant New Use Rules (SNURs) under TSCA for a PFAS, or adding a PFAS to certain existing SNURs;*
  - *adding a PFAS as an active chemical on the TSCA Inventory.*
- PFAS are individually listed and subject to manufacturing, processing, and otherwise use reporting thresholds of 100 pounds.
- https://www.epa.gov/toxics-release-inventory-tri-program/addition-certain-pfas-tri-national-defense-authorization-act

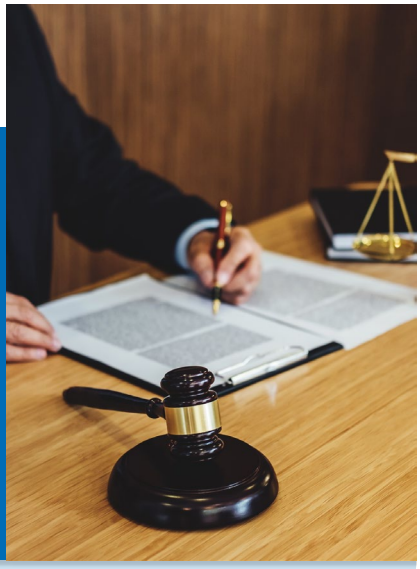
Chemical List Changes



For RY 2023, nine PFAS have been added to the TRI list of reportable chemicals per the requirements of the NDAA. These are:

- Perfluorobutanoic acid (CASRN 375-22-4)
- Sodium perfluorobutanoate (CASRN 2218-54-4)
- Potassium heptafluorobutanoate (CASRN 2966-54-3)
- Ammonium perfluorobutanoate (CASRN 10495-86-0)
- Perfluorobutanoate (CASRN 45048-62-2)
- Alcohols, C8-16, γ-ω-perfluoro, reaction products with 1,6-diisocyanatohexane, glycidol and stearyl alc. (CASRN 2728655-42-1)
- Acetamide, N-[3-(dimethylamino)propyl]-, 2-[(γ-ω-perfluoro-C4-20-alkyl)thio] derivs. (CASRN 2738952-61-7)
- Acetamide, N-(2-aminoethyl)-, 2-[(γ-ω-perfluoro-C4-20-alkyl)thio] derivs., polymers with N1,N1-dimethyl-1,3-propanediamine, epichlorohydrin and ethylenediamine, oxidized (CASRN 2742694-36-4)
- Acetic acid, 2-[(γ-ω-perfluoro-C4-20-alkyl)thio] derivs., 2-hydroxypropyl esters (CASRN 2744262-09-5)

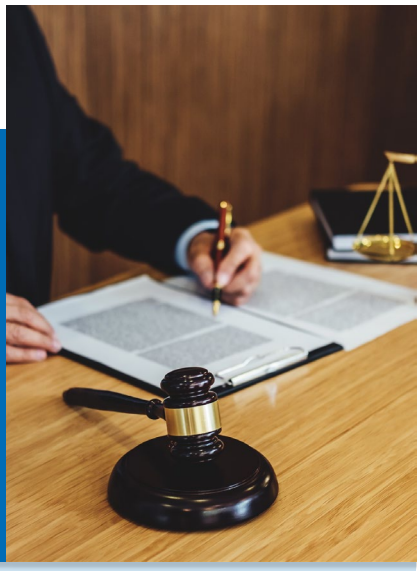
Chemical List Changes



For RY 2023, EPA added 12 chemicals in response to a petition submitted under Section 313(e) of EPCRA. These are:

- Dibutyltin dichloride (CASRN 683-18-1)
- 1,3-Dichloro-2-propanol (CASRN 96-23-1)
- Formamide (CASRN 75-12-7)
- 1,3,4,6,7,8-Hexahydro-4,6,6,7,8,8-hexamethylcyclopenta[g]-2-benzopyran (CASRN 1222-05-5)
- N-Hydroxyethylethylenediamine (CASRN 111-41-1)
- Nitrilotriacetic acid trisodium salt (CASRN 5064-31-3)
- p-(1,1,3,3-Tetramethylbutyl)phenol (CASRN 140-66-9)
- 1,2,3-Trichlorobenzene (CASRN 87-61-6)
- Triglycidyl isocyanurate (CASRN 2451-62-9)
- Tris(2-chloroethyl) phosphate (CASRN 115-96-8)
- Tris(1,3-dichloro-2-propyl) phosphate (CASRN 13674-87-8)
- Tris(dimethylphenol) phosphate (CASRN 25155-23-1)

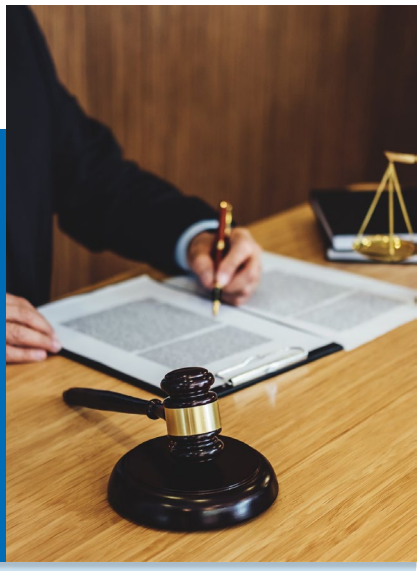
Chemical List Changes



For RY 2023, EPA added 12 chemicals in response to a petition submitted under Section 313(e) of EPCRA.

- EPA has classified one of the chemicals as a persistent, bioaccumulative, and toxic (PBT) chemical and designated it as a chemical of special concern with a 100-pound reporting threshold: 1,3,4,6,7,8-Hexahydro-4,6,6,7,8,8-hexamethylcyclopenta[g]-2-benzopyran, or HHCB.
- The *de minimis* levels for these chemicals are 1.0%, except for nitrilotriacetic acid trisodium salt (5064 31 3), which has a *de minimis* level of 0.1% due to it being classified as a carcinogen by an assessment by the International Agency for Research on Cancer (IARC).
- More information is available at: https://www.epa.gov/toxics-release-inventory-tri-program/final-rule-addition-12-chemicals-toxics-release-inventory

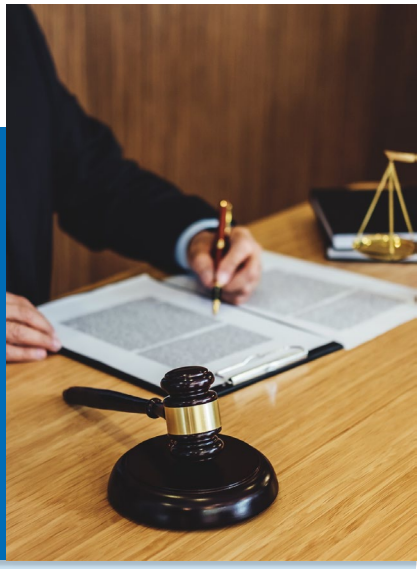
Changes to Parent Company Reporting



A final rule was published on October 21, 2022 (87 FR 63950) to codify the definition of "parent company" for TRI reporting purposes.

- Reporters must enter their parent company definition as codified in the existing Sections 5.1 (U.S.-based parent company) and 5.2 (Dun & Bradstreet number of US.-based parent)
- Starting with RY 2023, this rule also requires TRI facilities to report new data elements Sections 5.3 (foreign parent company) and 5.4 (Dun & Bradstreet number of foreign parent), if the facility has a foreign parent company
- The final rule may be found at: https://www.govinfo.gov/content/pkg/FR-2022-10-21/pdf/2022-22833.pdf

Upcoming TRI Program Changes for RY 2024



PFAS as Chemicals of Special Concern and Supplier Notification Changes.

- EPA published a final rule on October 31, 2023 (88 FR 74360) to classify all PFAS added to the TRI list via the FY2020 NDAA as chemicals of special concern.
- This designation removes certain burden reduction options, including the de minimis exemption, the use of Form A, and limits the use of range reporting. The final rule also removes the use of the de minimis exemption for any chemical of special concern for the purpose of supplier notifications.
- This rule is effective beginning with RY 2024. Affected facilities should update their tracking of chemical activities involving PFAS accordingly. More information about the rule may be found at: https://www.epa.gov/toxics-release-inventory-tri-program/changes-tri-reporting-requirements-and-polyfluoroalkyl

SECTION II: ADVANCED REPORTING GUIDANCE

Chemicals with 25,000/10,000-pound Reporting Thresholds

A TRI-covered facility must submit a TRI Report for a Section 313 Chemical with 25,000/10,000-pound reporting threshold if:

CHEMICALS WITH 25,000/10,000-POUND REPORTING THRESHOLDS

Manufactured (including imported)		Processed		Otherwise Used
more than *25,000* pounds of the chemical in the reporting year	OR	more than *25,000* pounds of the chemical in the reporting year	OR	more than *10,000* pounds of the chemical in the reporting year

Most of the 800+ chemicals and chemical categories on the Section 313 list are chemicals with 25,000/10,000-pound reporting thresholds. Some chemicals have qualifiers (see the Reporting Forms and Instructions, Table II). Guidance documents for many chemicals are available at: https://guideme.epa.gov/ords/guideme_ext/f?p=guideme:gd-list#chemical.

PFAS Activity Thresholds

A TRI-covered facility must file a TRI Report for an EPCRA Section 313 PFAS if:

PFAS THRESHOLDS

Manufactured (including imported)
more than *100* pounds of the chemical in the reporting year

OR

Processed
more than *100* pounds of the chemical in the reporting year

OR

Otherwise Used
more than *100* pounds of the chemical in the reporting year

189 EPCRA Section 313 chemicals are PFAS

Chemicals of Special Concern and Activity Thresholds

Chemicals of Special Concern are subject to separate, lower activity thresholds (See 40 CFR § 372.28).

100 lb/yr (manufactured, processed, or otherwise used):

- Aldrin
- Hexabromocyclododecane
- Lead*
- Lead compounds
- Pendimethalin
- Polycyclic aromatic compounds (PACs)
- Tetrabromobisphenol A
- Trifluralin
- Methoxychlor
- 1,3,4,6,7,8-Hexahydro-4,6,6,7,8,8-hexamethylcyclopenta[g]-2-benzopyran

10 lb/yr (manufactured, processed, or otherwise used):

- Chlordane
- Heptachlor
- Mercury
- Toxaphene
- Isodrin
- Polychlorinated biphenyls
- Benzo[g,h,i]perylene
- Hexachlorobenzene
- Mercury compounds
- Octachlorostyrene
- Pentachlorobenzene

0.1 g/yr (manufactured, processed, or otherwise used):

- Dioxin and dioxin-like compounds

**Excluding lead in stainless steel, brass, or bronze alloys*

Threshold Guidance

The following activities are not considered "manufacturing," "processing," or "otherwise use":

Remediation

- Chemicals being remediated are not manufactured, processed, or otherwise used.
- Chemicals used to remediate waste ARE counted as otherwise used.
- Chemicals manufactured when treating or remediating waste ARE counted toward manufacturing threshold

Treatment of wastes generated on-site

- Wastes brought in from off-site for treatment or other management count towards the otherwise use threshold.

Storage

Recycling on-site for use on-site

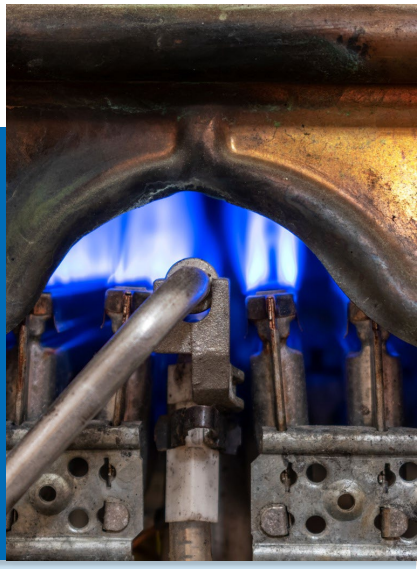
Transferring chemicals off-site for further waste management (except off-site transfers for recycling)

- Chemicals sent off-site for recycling are counted as processed.

These activities do not constitute threshold activities, but are not exempt from reporting if threshold is exceeded through other activities unless specifically eligible for one of the reporting exemptions.

Chemicals coincidentally manufactured during waste treatment or remediation must be considered.

Threshold Guidance: Combustion



Section 313 chemicals may be coincidentally manufactured during combustion of:

- Oil
- Coal
- Natural gas
- Waste
- Other materials

Includes acid aerosols and metal compounds manufactured as by-products of fuel combustion

Any Section 313 chemicals in fuels combusted for energy are considered otherwise used.

Exemptions

- TRI regulations **provide exemptions** for specific scenarios.
- These exemptions allow for a facility to **not consider quantities** of toxic chemicals for certain threshold determinations and waste management calculations.
- To learn more about TRI exemptions, **please visit:**
  - *https://guideme.epa.gov/ords/guideme_ext/f?p=guideme:gd-list#exemption*

Exemption List

- Articles
- *De Minimis*
- Coal Extraction
- Intake Air and Water
- Laboratory Activities
- Janitorial or Facility Grounds Maintenance
- Metal Mining Overburden
- Motor Vehicle Maintenance
- Operators of Establishments on Leased Property
- Owners of Leased Property
- Personal Use
- Structural Component of the Facility

Exemption Guidance

Reminder:

- Even where your activity is covered by an “otherwise use” exemption such as motor vehicle maintenance, if Section 313 chemical are manufactured as by-products, coincidentally as impurities, or otherwise manufactured, they must be considered toward the manufacturing threshold.
- Section 313 chemicals in fuels added to motor vehicles as part of the facility’s service or product do not qualify for the motor vehicle maintenance exemption.
- Laboratory activities exemption only applies to certain activities that take place in a laboratory, and they must be under the direct supervision of a technically qualified individual.

Metals and Metal Compound Category

Elemental metals (metals in their neutral state) and their corresponding metal compound categories are listed separately under Section 313.

- Separate activity threshold determinations.
- Report for each listing (e.g., nickel or nickel compound) only if the threshold for each listing is exceeded.
- For metal compounds calculations:
  - *Use full compound mass for threshold determination.*
  - *Use only parent metal mass for release and waste quantities.*
- If threshold exceeded for both the elemental metal and metal category compound (e.g., nickel and nickel compounds), you may report separately or file one combined report.
  - *If combined, file as metal and metal category compound.*
  - *The reason both the elemental metal and its compound may be reported on the same form is that while the entire weight of the compound is used to determine the threshold, only the amounts of the parent metal are reported.*

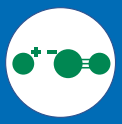
Cyanide Compounds and Hydrogen Cyanide

Cyanide compounds have the form X^+CN^- where X = any other group (except H^+) where a formal dissociation can be made. For example, KCN or $Ca(CN)_2$

- Includes metal (cyanometalates, such as ferricyanides) and non-metal (such as ammonium cyanide) dissociative cyanide complexes
- For threshold determinations, use weight of the entire compound
- For release and other waste management reporting, report weight of entire compound

Hydrogen cyanide (74-90-8)

- An individually listed toxic chemical
- The Corrections to TRI Reporting Requirements rule clarified that hydrogen cyanide is not part of the cyanide compounds category.



Metal Cyanide Compound Guidance

A metal cyanide compound, such as cadmium cyanide, requires separate reporting under both the corresponding metal category compound and cyanide compounds*.

For reporting the metal category compounds, such as cadmium compounds:

- For threshold determinations, use entire weight of compound.
- For release and other waste management reporting, report only the weight of metal portion of the compound.

For cyanide compounds

- For threshold determinations, use weight of entire compound.
- For release and other waste management reporting, report weight of entire compound.

* *Category description for cyanide compounds states: X^+CN^- where X^+ = any group (except H^+) where a formal dissociation can be made. For example, KCN or $Ca(CN)_2$*

Nitrate Compounds Category

Qualifier: "Water dissociable; reportable only when in aqueous solution"

- For threshold determinations, use weight of entire nitrate compound.
- Calculate only weight of nitrate ion portion when reporting releases and other waste management quantities on Form R.

Common nitrate compounds sources

- Nitrate compounds are produced most commonly when nitric acid is neutralized or in biological treatment of wastewater.
- Nitrate compound releases to surface water may result from stormwater run off.
- Exemption may apply for nitrates in intake water (used for processing or non-contact cooling).

Quiz #1: Question 1

A facility processes 200,000 lb of a mixture containing 10% zinc chromate and 15% chromium dioxide by weight.

For which of the following chemical categories was the processing threshold exceeded?

A. Chromium compounds only

B. Zinc compounds only

C. Neither

D. Both

Quiz #1: Question 2

A facility neutralizes 20,000 lb of nitric acid (HNO_3) with sodium hydroxide (NaOH) in an on-site wastewater treatment system. The neutralization is 100% complete and generates sodium nitrate ($NaNO_3$), which is discharged to a nearby water body.

The molecular weight (MW) of HNO_3 = 63 and the MW of $NaNO_3$ = 85. One mole of HNO_3 generates one mole of $NaNO_3$.

Does the facility exceed the manufacturing threshold for nitrate compounds?

Select Yes or No

Quiz #1: Question 3

A facility neutralizes 20,000 lb of nitric acid (HNO_3) with sodium hydroxide (NaOH) in an on-site wastewater treatment system. The neutralization is 100% complete and generates sodium nitrate ($NaNO_3$), which is discharged to a nearby water body.

The molecular weight (MW) of HNO_3 = 63 and the MW of $NaNO_3$ = 85. One mole of HNO_3 generates one mole of $NaNO_3$. The MW of the nitrate ion NO_3 = 62.

In this example, should the facility report release of 27,000 lb of nitrate compounds into a stream or water body (Section 5.3 on Form R)?

Select Yes or No

Ammonia Guidance

Ammonia

- Aqueous ammonia - threshold determination and release and other waste management quantity calculations for aqueous ammonia from any source (i.e., anhydrous ammonia placed in water or water dissociable ammonium salts) is based on 10% of the total ammonia present in aqueous solutions.
- Anhydrous ammonia - include 100% for thresholds and releases
  - *Including air releases from aqueous ammonia*
- Amounts from aqueous sources and anhydrous sources get added together for threshold determinations and ammonia reports.

Ammonia Calculation Examples

In a calendar year, a facility places 25,000 pounds of anhydrous ammonia in water for processing and processes 25,000 pounds of aqueous ammonia from an ammonium salt.

The facility must include all of the 25,000 pounds of anhydrous ammonia in the determination of the processing threshold, but only 10 percent (or 2,500 pounds) of the aqueous ammonia from the ammonium salt in the processing threshold determination.

In a calendar year, a facility uses 30,000 pounds of anhydrous ammonia to neutralize acids in a wastewater stream. The neutralized waste stream (containing aqueous ammonia from dissociated ammonium salts) is then transferred to a POTW.

The quantity to be applied toward threshold determinations is the total quantity of anhydrous ammonia used in the waste stream neutralization, or 30,000 pounds. The quantity of ammonia reported as transferred is 10 percent of the total quantity of aqueous ammonia transferred, or 3,000 pounds.

Acid Aerosols

Hydrochloric and sulfuric acids have a chemical qualifier….They are reportable only if in the aerosol form.

- These aerosols are common combustion products of coal and other fuels combustion (includes mists, vapors, gas, fog, and other airborne forms of any particle size).

Threshold determination for closed-loop reuse systems that generate acid aerosol:

- Acid aerosols are manufactured and otherwise used .
- Applicable for sulfuric and hydrochloric acid only.

Total Amount of Acid in Reuse System + **Total Virgin Acid Added in RY** = **Amount Acid Aerosols Manufactured/ Otherwise Used** ⟳ **Closed-loop Acid Reuse System**

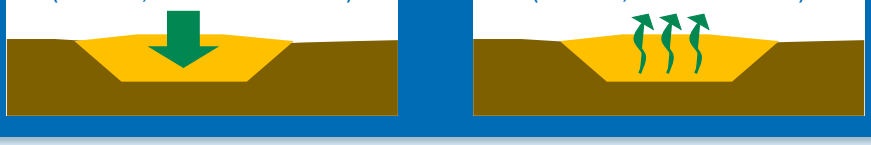
* *See EPA's Guidance for Reporting Sulfuric Acid and Guidance for Reporting Hydrochloric Acid for specific calculations*

Chemical Migration Guidance

Migration of a Section 313 chemical contained in waste disposed or released from one environmental medium to another within the reporting year:

- For example, volatilization from a landfill
- Release estimates must be calculated and reported for all media in Part II, Sections 5, 6, and 8 of Form R.

Year 1	Year 1
2,000 lb to surface impoundment (Form R: 1,000 lb in Section 5.5.3B)	1,000 lb to air (Form R: 1,000 lb in Section 5.1)

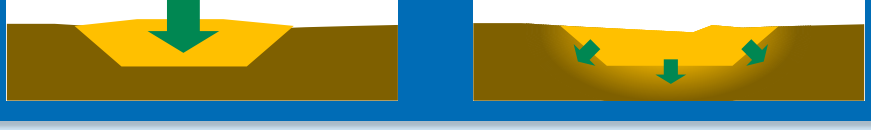


Chemical Migration Guidance

Migration of a Section 313 chemical contained in waste disposed or released from one environmental medium to another within the reporting year:

- For example, volatilization from a landfill
- Release estimates must be calculated and reported for all media in Part II, Sections 5, 6, and 8 of Form R.

Year 1	Year 2
2,000 lb to surface impoundment (Form R, Section 5.5.3B)	500 lb leachate in year 2 Not reported on Year 2 Form R



EPA Compliance Incentives

July 1 is the TRI reporting deadline. There is a legal obligation to file an accurate and complete Form R report for each chemical by July 1 each year. EPA may take enforcement action and assess civil administrative penalties regarding corrections to errors in Form R reports that are not changes based on previously unavailable information or procedures which improve the accuracy of the data initially reported.

The Agency implements policies that reduce or waive penalties under certain conditions for facilities that discover, disclose, correct, and prevent future violations.

Current Compliance Incentive Policies, Guidance, and Audit Protocols can be found by visiting:

- https://www.epa.gov/compliance/audit-protocols

EPA Self-Disclosure Audit Policy

Conditions to qualify (nine criteria):

1. Systematic Discovery of the Violation Through Environmental Audit or the Implementation of a Compliance Management System
2. Voluntary Discovery
3. Prompt Disclosure
4. Discovery and Disclosure Independent of Government or Third Party Plaintiff
5. Correction and Remediation
6. Prevent Recurrence
7. No Repeat Violations
8. Other Violations Excluded
9. Cooperation

For more information, including a copy of the Audit Policy, visit:

- https://www.epa.gov/compliance/epas-audit-policy

EPA Self-Disclosure Audit Policy

EPA Compliance Incentive Policy available only to small businesses

- Small businesses employ 100 or fewer individuals across all facilities and operations.

Small businesses that meet all four conditions of the policy may have 100% of the gravity-based penalty waived. However, EPA reserves the option to collect any significant economic benefit which may have been realized by the facility.

Conditions to qualify (four criteria):

1. Good Compliance Record
2. Voluntary Discovery
3. Prompt Disclosure
4. Correction and Remediation

For more information, including a copy of the Small Business Compliance Policy and a Q&A document, visit:

- https://www.epa.gov/compliance/small-business-compliance

Revising TRI Data

Revised TRI data that are not trade secret must be submitted using TRI-MEweb via EPA's CDX. You may only revise back to RY 1991.

If your state or tribe participates in the TRI Data Exchange (TDX) then **submitting via CDX to EPA will also satisfy your obligation** to report to the state or tribe in which your facility is located if the revision is for RY 2005 through the present reporting year. Otherwise, revisions must also be submitted in the state- or tribe-specified format. To determine if your state or tribe is in TDX go to:

- https://www.epa.gov/toxics-release-inventory-tri-program/tri-data-exchange

Withdrawing TRI Data

You must use TRI-MEweb to withdraw a TRI form (except for trade secrets). You may withdraw forms back to RY 1991.

For more information regarding withdrawals, go to the following tutorial:

- https://www3.epa.gov/tri/tutorials/TRIT-33/

Please be aware if your state or tribe is a TRI Data Exchange (TDX) participant, submitting to EPA via CDX will also satisfy your state obligations for reporting years back to 2005. For states or tribes that are not TDX participants, withdrawals should also be submitted in the specified format for the state/tribe.

Submitting Revisions and Withdrawals

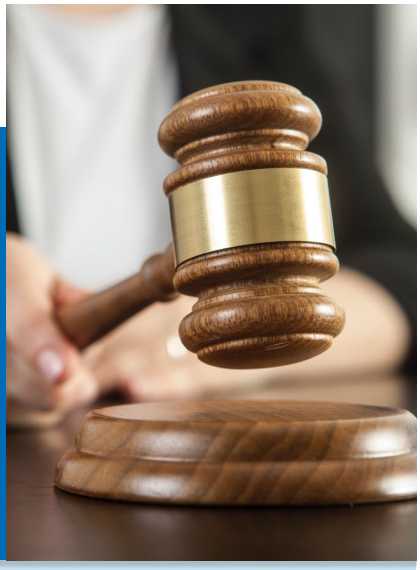
Form R submitted to replace previously filed Form A Certification Statement.

- You must withdraw the previously filed Form A Certification Statement and then submit a Form R. The Form R is considered to be a late submission if submitted after the reporting deadline.

For a change in chemical reported (including a metal to a metal compound), you must withdraw the original submission and re-submit for the new chemical. This is not a revision.

EPA may audit revisions or withdrawals at any time.

EPCRA Section 313 Enforcement



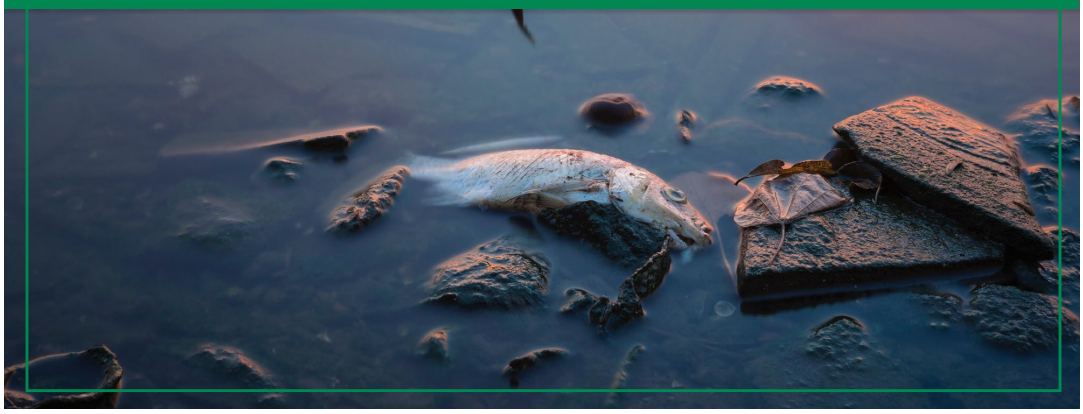
Owners and operators of covered facilities violating any statutory or regulatory requirement are **subject to penalties of up to $40,779 per day per violation** (periodically adjusted for inflation).

Owners and operators of covered facilities subject to citizen suits could also be **liable for attorney fees and litigation costs** (EPCRA § 326(f)).

Government's penalty for Section 313 of EPCRA is determined by applying the statutory penalty factors as described in the **Enforcement Response Policy (ERP)** to each violation.

- For EPA's EPCRA enforcement policies, see:
  - *https://www.epa.gov/sites/production/files/2017-03/documents/epcra313erpamendments2017.pdf*

SECTION III: DETAILED GUIDANCE FOR CHEMICALS OF SPECIAL CONCERN



Chemicals of Special Concern

Organic Compounds:

- Benzo[g,h,i]perylene, Dioxin and dioxin-like compounds category, Hexabromocyclododecane, Hexachlorobenzene, 1,3,4,6,7,8-Hexahydro-4,6,6,7,8,8-hexamethylcyclopenta[g]-2-benzopyran, Octachlorostyrene, Pentachlorobenzene, Polycyclic aromatic compounds (PAC) category, Polychlorinated biphenyls, and Tetrabromobisphenol A

Metals and Metal Compounds

- Mercury, Mercury compounds category, Lead, and Lead compounds category

Pesticides:

- Aldrin, Chlordane, Heptachlor, Isodrin, Methoxychlor, Pendimethalin, Toxaphene, Trifluralin

Chemicals of Special Concern are subject to separate, lower reporting thresholds and different reporting requirements than the other TRI chemicals.

- Facilities must use Form R (cannot use Form A)
- Quantities can be reported in decimal amounts
- Cannot use range codes for release reporting
- Cannot use the *de minimis* exemption

Dioxin and Dioxin-like Compounds

Dioxin and dioxin-like compounds are reported in grams.

The manufacture, process, or otherwise used activity thresholds are 0.1 grams.

Dioxins formed as unwanted by-products when chlorinated materials are involved in combustion or other high-temperature processes, such as:

- Fossil fuel and wood combustion
- Waste incineration
- Metallurgical processes

What does it take to exceed the 0.1-gram activity threshold?

- 64,462 tons of coal combusted in a utility boiler
- 8.31 million gallons of fuel oil combusted in a utility boiler
- 1,230 tons of copper scrap fed to a secondary copper smelter

Dioxin and Dioxin-like Compounds

Dioxin and dioxin-like compounds category is composed of 17 individually listed compounds.

- In addition to the total mass grams released for the entire chemical category, facilities that have the data are required to report the quantity of each of the 17 individual members, which must add up to the total mass for the category.

Dioxin and Dioxin-like Compounds Toxicity Equivalency (TEQ)

- Each compound has an assigned Toxic Equivalency Factors (TEFs) that is multiplied with the compound mass to yield TEQ.
- TEQ for each of the compounds are summed to provide a category TEQ.
- TEQ values are made available to the public along with mass data.

Emission factors, listed compounds, TEFs, and other guidance:

- https://guideme.epa.gov/ords/guideme_ext/f?p=guideme:gd-title:::::title:dioxin

Lead and Lead Compounds

Raw materials processed by a variety of facilities may contain metallic lead or lead compounds:

- Metal ores
- Coal
- Wood
- Oil & Oil products: heating oils, gasolines

Lead used in solder and other alloys is in the elemental NOT the compound form (i.e., this is lead, not a lead compound).

Lead-acid batteries will typically meet the articles exemption.

Sending old paint containing lead off-site for disposal or treatment is not a threshold activity.

Other sources of lead and lead compounds for Chemicals of Special Concern threshold:

- Lead solder, lead babbitt, castings/molds, contaminants of aluminum and other common base alloys, X-Ray film
- Cement, asphalt, graphite brushes, leaded glass
- Transfers of lead and lead compounds off-site for recycling

Lead and Lead Compounds

Under TRI, lead is classified as a Chemical of Special Concern except for lead contained in stainless steel, brass, and bronze alloys

Pb

Chemicals of Special Concern activity threshold for lead and lead compounds:

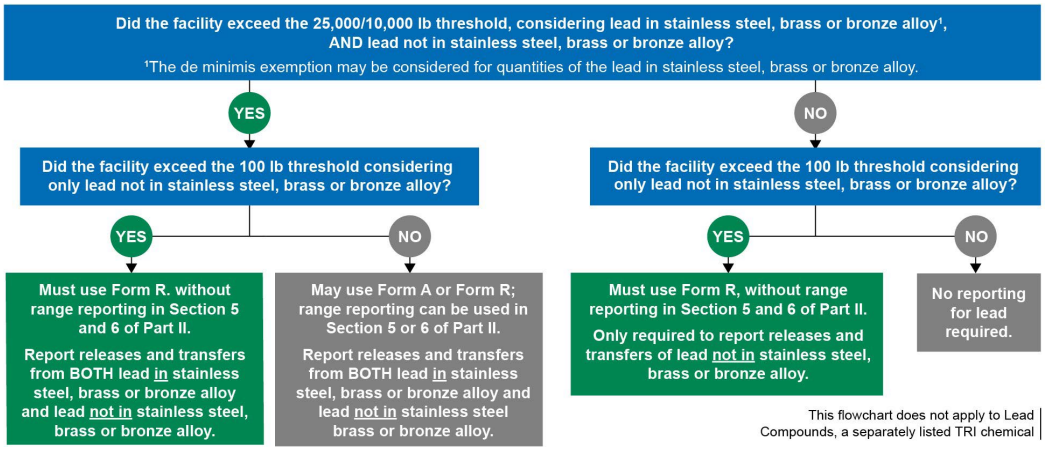
- 100 pounds for lead (not contained in stainless steel, brass, or bronze)
- 100 pounds for lead compounds

25,000/10,000-pound reporting thresholds apply to lead contained in stainless steel, brass, or bronze*

- 25,000-pound thresholds for manufacturing or processing
- 10,000-pound threshold for otherwise use
- 0.1% *de minimis* limit applies to lead contained in stainless steel, brass, or bronze

* *If elemental lead is removed from the qualified alloy, such as vaporization during melting of an alloy, the 100 lb threshold applies.*

Lead Threshold Determination Flow Chart



Quiz #2: Question 1

A facility combusts 13,600,000 lb of coal to fire its boilers. The coal contains elemental lead (Pb) at 7.0 ppm by weight. In combusting the coal, the facility otherwise uses lead and coincidentally manufactures lead compounds. The facility has no other information about the chemical makeup of the lead compounds manufactured and assumes it is the lowest-weight oxide - PbO. Based on molecular weights (Pb = 207, PbO = 223), the facility knows that 223 lb of PbO is formed for every 207 lb Pb used.

Which of the following thresholds have been exceeded for lead or lead compounds?

A. Otherwise Use only

B. Manufacturing only

C. Neither

D. Both

Quiz #2: Question 2

The facility in the previous question combusted 13,600,000 pounds of coal in the reporting year and has exceeded the reporting threshold for lead compounds. The facility has no monitoring data on their point source lead emissions from combusting the coal. They determined that their best available information for calculating their point source air emissions is the published emission factor for lead from controlled coal combustion from EPA's AP-42* which is 4.2E-04 lb Pb/ton of coal combusted.

What are the facility's point source emissions of lead from coal combustion?

A. 2.86 lb

B. Range Code 'A'

C. 95.2 lb

D. Either 2.86 lb or Range Code 'A'

Polycyclic Aromatic Compounds (PACs) and Benzo[g,h,i]perylene

Chemicals of Special Concern activity threshold

- PACs category threshold: 100 pounds
- Benzo[g,h,i]perylene threshold: 10 pounds

Present in coal, fuel oil, other petroleum products, such as asphalt and roofing tars

Asphaltic concrete (blacktop) typically contains 4 - 10% paving asphalt

Some uses of paving asphalt (blacktop) are NOT EXEMPT

- Paved process areas and roads for process vehicles (e.g., on-site haul trucks) – NOT EXEMPT
- Employee parking lot and non-processes access roads – EXEMPT

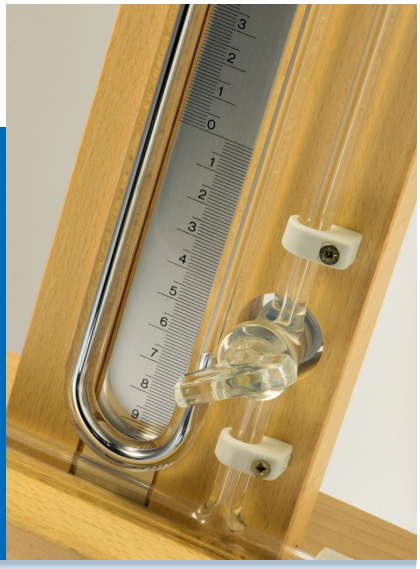
See also EPA's PACs and Persistent Bioaccumulative Toxic (PBT) guidance

- https://guideme.epa.gov/ords/guideme_ext/f?p=guideme:gd-title:::::title:pacs
- https://guideme.epa.gov/ords/guideme_ext/f?p=guideme:gd-title:::::title:pbts

PACs (cont.)

FUEL MATERIAL	TYPICAL PAC CONCENTRATION	QUANTITY NEEDED TO MEET THRESHOLD (GALLONS)
No. 6 Fuel Oil (Bunker C)	2,461 ppm	5,140
No. 2 Fuel Oil	10.0 ppm	1,410,000
Crude Oil	depends on type of crude	
Gasoline	17 ppm	1,060,000
Paving Asphalt	178 ppm	51,800

Mercury and Mercury Compounds



Chemicals of Special Concern activity threshold:

- 10 pounds for mercury
- 10 pounds for mercury compounds

Combustion of fuels is expected to be a main source of mercury triggering a reporting threshold.

Combustion involves the otherwise use of mercury compounds in fuel and the manufacture of elemental mercury.

Amount of fuel required to exceed a threshold:

- No. 2 Fuel Oil: 1.41 x 10^9 gallons
- No. 6 Fuel Oil: 1.89 x 10^9 gallons
- Coal: 11,000 – 120,000 tons

Mercury and Mercury Compounds

Present in some switches and lights

- Bulbs and switches may qualify as articles for which the articles exemption would apply IF less than 0.5 pound of Section 313 chemicals are released from all like items as a result of processing or use of the items during the year.

Mercury may be present in measurement devices such as thermometers or manometers. The addition of mercury to these devices needs to be considered in threshold and release calculations.

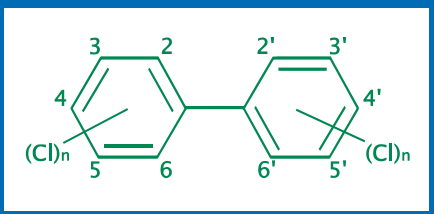
Present in Caustics/Acids (if produced in mercury cell process – not common)

May be present in mined ores

Polychlorinated Biphenyls

Chemicals of Special Concern activity threshold: 10 pounds

Manufacturing: Polychlorinated biphenyls may be manufactured as a product of incomplete combustion (PIC)



Otherwise use:

- On-site treating or disposing polychlorinated biphenyl-contaminated waste received from off-site
- Combusting polychlorinated biphenyl-contaminated oil

Polychlorinated Biphenyls

Activities NOT considered manufacturing, processing, or otherwise use:

- On-site disposal or treatment of polychlorinated biphenyls
  - *Exception: if polychlorinated biphenyls were received as wastes from off-site they are counted towards "otherwise use" threshold.*
- Off-site shipment of polychlorinated biphenyls for disposal or treatment

Transformers containing polychlorinated biphenyls may be considered articles and thus exempt from consideration towards reporting and release thresholds.

- Leaks may negate article exemption if 0.5 pounds of polychlorinated biphenyls are released in a reporting year.

SECTION IV: TOOLS AND ASSISTANCE

www.epa.gov/tri

TRI website for reporting materials and guidance includes:

- Electronic versions, or links to electronic versions, of the statutes, regulations, executive orders, chemical-specific guidance documents, and industry-specific guidance documents

TRI GuideME

- View the Reporting Forms and Instructions
- Browse frequently asked questions and answers
- Browse guidance materials
- View interactive EPCRA Section 313 chemical lists
- Available at: https://guideme.epa.gov/

Reference Sources

EPA Industry Guidance located at:

- https://guideme.epa.gov/ords/guideme_ext/f?p=guideme:gd-list

AP-42: Compilation of Air Pollutant Emission Factors located at:

- https://www.epa.gov/air-emissions-factors-and-quantification/ap-42-compilation-air-emissions-factors

Technology Transfer Network located at:

- https://www.epa.gov/technical-air-pollution-resources
- AP-42
- WATER9 program
- TANKS program

Perry's Chemical Engineer's Handbook; CRC Handbook of Chemistry and Physics; Lange's Handbook of Chemistry

Pollution Prevention (P2) Information

Visit the **TRI Pollution Prevention web page**

- www.epa.gov/tri/p2

P2 Reporting Guide

- https://guideme.epa.gov/ords/guideme_ext/f?p=guideme:gd:::::gd:p2_reporting_guide

P2 Resources Search Tool:

- https://www.epa.gov/p2/p2-resources-search

Contact Info:

- Helpline: https://www.epa.gov/p2/forms/contact-us-about-pollution-prevention#helpline
- E-mail: p2hub@epa.gov
- Phone: (202) 566-0799

TRI Contact Information

TRI Technical Support

- For technical questions related to TRI-MEweb and the Central Data Exchange (CDX), please contact the CDX Hotline at helpdesk@epacdx.net or call toll-free at (888) 890-1995.

TRI Information Center

- Provides a toll free number that facilities may call to obtain guidance on TRI reporting requirements and help on completing the TRI reporting forms
- The number is (800) 424-9346. Callers in the Washington, D.C. metropolitan area call (703) 348-5070. The TDD is (800) 553-7672.

TRI Regional Coordinators

- https://www.epa.gov/toxics-release-inventory-tri-program/tri-regional-coordinators

SECTION V: TRI-MEweb

TRI-MEweb and Submitting Via CDX

Electronic filing via TRI-MEweb is required

- No paper submissions are accepted (except for trade secrets), including revisions and withdrawals.
- TRI-MEweb supports new reporting, revisions & withdrawals for RY 1991 – current year.
- TRI-MEweb resources including tutorials are available to help users at:
  - https://www.epa.gov/toxics-release-inventory-tri-program/electronic-submission-tri-reporting-forms

Use hard-copy form only for trade secret reporting

- Information about trade secret reporting at:
  - https://guideme.epa.gov/ords/guideme_ext/f?p=guideme:rfi:::::rfi:apx_a

All TRI reports must be prepared and certified by July 1st following the calendar year's activities (aka Reporting Year (RY))

- July 1, 2024 deadline for RY 2023 (January 1 - December 31, 2023) activities

Accessing TRI-MEweb

TRI-MEweb is accessed through EPA's Central Data Exchange (CDX)

- CDX is accessed through: https://cdx.epa.gov.
- TRI-MEweb users must have a CDX account.
- Select TRI-MEweb user role: preparer or certifying official.

Within TRI-MEweb, new users must gain access to their facility before preparing forms.

- Option 1: Enter facility's access code.
- Option 2: Enter TRIFID and Technical Contact Name.
- Option 3: Begin a new facility profile if the facility has never reported to TRI

For assistance with accessing your facility, contact the CDX helpdesk at helpdesk@epacdx.net or call toll-free at (888) 890-1995

Starting a Form in TRI-MEweb

To start a new chemical form from scratch (Part II Sections 1.1-1.2, 2.1)

- Select CAS number or category code and name of chemical or chemical category; or
- Select "Add generic chemicals", if supplier claims trade secret.
- Indicate if Reporting Form R or From A (non-Chemicals of Special Concern only).

TRI-MEweb preloads previous year's reporting details using "Import Forms."

The XML uploader handles forms generated by third-party tools.

Production-Related Waste Managed (Section 8.1-8.7)

Waste Management Description	Prior Year (RY 2017)	Current Year (RY 2018)	Reporting Year 2019	Reporting Year 2020
	Edit		Use Current Year Quantities	Use Current Year Quantities
Section 8.1a: Total On-site Disposal to Class I Underground Injection Wells, RCRA Subtitle C Landfills, and Other Landfills	NA	700 Edit	700 NA	700 NA
Section 8.1b: Total Other On-site Disposal or Other Releases	NA	1,450 Edit	1450 NA	1450 NA
Section 8.1c: Total Off-site Disposal to Class I Underground Injection Wells, RCRA Subtitle C Landfills, and Other Landfills	NA	4,300 Edit	4300 NA	4300 NA
Section 8.1d: Total Other Off-site Disposal or Other Releases	NA	NA	NA	NA
Section 8.2: Quantity Used for Energy Recovery On-site	NA	Edit	NA	NA
Section 8.3: Quantity Used for Energy Recovery Off-site	NA	NA	NA	NA
Section 8.4: Quantity Recycled On-site	NA	6,000 Edit	6000 NA	6000 NA
Section 8.5: Quantity Recycled Off-site	NA	NA	NA	NA
Section 8.6: Quantity Treated On-site	NA	NA	NA	NA
Section 8.7: Quantity Treated Off-site	NA	2,800 Edit	2800 NA	2800 NA

Certifying Official Information

- **All non-trade secret forms must be certified by an electronic signature from a senior management official.**
- **New certifying officials must submit an electronic signature agreement (ESA) and a facility certification agreement form before pending submissions can be certified.**
- **Returning certifying officials do not need to submit an ESA as long as they continue to represent the same facility year to year.**
- **TRI-MEweb now includes a built-in Certification module, accessible by users registered as certifying officials.**
- **New certifying officials will answer personalized security questions in addition to their CDX password for digital procedures.**

Signing and Certifying Forms

New Certifying officials must complete the following two requirements

- Electronic signature agreement (ESA)
  - *Must be completed only once, not annually, applicable to all facility profiles*
  - *Option 1: Real-time ESA approval – verify user's identity electronically*
  - *Option 2: Mail in signature form – minimum of 5 business days to process*
- TRIFID Certification Agreement Form
  - *Must be completed after access to TRI-MEweb is granted by ESA approval*
  - *Facility profiles are added to TRI-MEweb using access keys or prior year information*
  - *Certifying officials must have a digitally signed TRIFID Certification Agreement for each facility profile before access to any pending submission (s) for certification is granted*

New certifying officials must submit an ESA and digitally sign a TRIFID certification agreement form before pending submissions can be reviewed and certified.

State and Tribal Submission Requirements

Facilities that reside in a state or territory participating in the TRI Data Exchange (TDX) will have their RY 2005 - 2023 forms sent simultaneously to EPA and their state or tribal TRI representative in electronic format.

If the facility is located in a state, territory, or tribal country that is not in TDX, then the facility must also send a copy of the report to the state.

Find which states are participating in TDX at:

https://www.epa.gov/toxics-release-inventory-tri-program/tri-data-exchange.

TDX does not support reporting for years prior to 2005.

eReceipts

- **Facilities can obtain a copy of their electronic receipt (formerly known as the electronic Facility Data Profile report (eFDP)) using TRI-MEweb under the Submission History tab.**
- **Review your eReceipt immediately after certifying TRI forms in CDX to verify that EPA processed your data correctly.**
- **The eReceipt provides an opportunity to review data submitted to EPA.**
- **It allows EPA to highlight errors and possible issues with your submission.**
- **If you have problems accessing your eReceipt, contact:**
  - E-mail: tri.efdp@epacdx.net

TRI-MEweb Tutorials

TRI-MEweb has integrated online tutorials to assist users with common functions in the application.

- Tutorials cover areas such as
  - *Overview*
  - *Registration*
  - *Accessing Your Facility*
  - *Nominating a Certifying Official*
  - *Section 8 Calculator*
  - *Submitting Data*
  - *Certifying Data*
  - *Getting Help*

The tutorials can be viewed at:

- https://www.epa.gov/toxics-release-inventory-tri-program/electronic-submission-tri-reporting-forms#q2

END OF MODULE

Quiz Answers

Quiz #1: Question 1

A facility processes 200,000 pounds of a mixture containing 10% zinc chromate ($ZnCrO_4$) and 15% chromium dioxide (CrO_2) by weight

For which of the following chemical categories was the processing threshold exceeded?

A. Chromium compounds only
B. Zinc compounds only
C. Neither
D. Both

Answer: A is correct

Total chromium compounds processed:
(10% + 15%) × (200,000 lb) = 50,000 lb

Total zinc compounds processed:
(10%) × (200,000 lb) = 20,000 lb

The processing threshold (25,000 lb) was exceeded for chromium compounds, but not zinc compounds. Both are chemicals with 25,000/10,000-pound reporting thresholds

Quiz #1: Question 2

A facility neutralizes 20,000 lb of nitric acid (HNO_3) with sodium hydroxide (NaOH) in an on-site wastewater treatment system. The neutralization is 100% complete and generates sodium nitrate ($NaNO_3$), which is discharged to a nearby water body.

The molecular weight (MW) of HNO_3 = 63 and the MW of $NaNO_3$ = 85. 1 mole of HNO_3 generates 1 mole of $NaNO_3$.

Does the facility exceed the manufacturing threshold for nitrate compounds?

Answer: Yes

The quantity of nitrate compounds manufactured =
(quantity of HNO_3 neutralized) × (MW of $NaNO_3$ / MW of HNO_3**)**

$NaNO_3$ manufactured =
(20,000 lb) × (85/63) = 26,984 lb (rounded to 27,000)

Nitrate compounds are subject to 25,000/10,000-pound reporting thresholds.

The manufacturing threshold (25,000 lb) is exceeded, so the facility must submit a TRI form for nitrate compounds

Quiz #1: Question 3

A facility neutralizes 20,000 lb of nitric acid (HNO_3) with sodium hydroxide (NaOH) in an on-site wastewater treatment system. The neutralization is 100% complete and generates sodium nitrate ($NaNO_3$), which is discharged to a nearby water body. The molecular weight (MW) of HNO_3 = 63 and the MW of $NaNO_3$ = 85. 1 mole of HNO_3 generates 1 mole of $NaNO_3$

In this example, should the facility report release of 27,000 lb of nitrate compounds as to a stream or water body? (Section 5.3 on Form R)? Yes or no

Answer: No

Releases of nitrate compounds are reported on nitrate ion (NO_3^-) basis. Based on molecular weights ($NaNO_3$ = 85, NO_3^- = 62)**, 62 lb of nitrate ion are generated for every 85 lb of nitrate compounds.**

To calculate the quantity of nitrate ion released to the water body in the example described above:
(lb of $NaNO_3$) x (MW of NO_3^- / MW of $NaNO_3$) = (26,984 lb) x (62/85) = 19,682 lb (rounded to 20,000 lb)

On the Form R for nitrate compounds, the facility would report 20,000 lb of the nitrate ion releases to the stream or water body.

Quiz #2: Question 1

A facility combusts 13,600,000 lb of coal to fire its boilers. The coal contains elemental lead (Pb) at 7.0 ppm by weight. In combusting the coal, the facility otherwise uses lead and coincidentally manufactures lead compounds. The facility has no other information about the chemical makeup of the lead compounds manufactured and assumes it is the lowest-weight oxide – PbO. Based on molecular weights (Pb = 207, PbO = 223), the facility knows that 223 lb of PbO is formed for every 207 lb Pb used.

Which of the following thresholds have been exceeded for lead or lead compounds?

A. Otherwise Use only B. Manufacturing only C. Neither D. Both

Answer: B is correct

Pb in coal: (13,600,000 lb) * (7 x 10^{-6}) = 95.2 lb

Total lead combusted (95.2 lb) does not exceed the threshold for otherwise using lead not in stainless steel, brass, or bronze (100 lb)

PbO formed: (95.2 lb) * (223/207) = 103 lb

Total lead oxide manufactured (103 lb) exceeds the threshold for manufacturing of lead compounds (100 lb)

Quiz #2: Question 2

The facility in the previous question combusted 13,600,000 pounds of coal in the reporting year and has exceeded the reporting threshold for lead compounds. The facility has no monitoring data on their point source lead emissions from combusting the coal. They determined that their best available information for calculating their point source air emissions is the published emission factor for lead from controlled coal combustion from EPA's AP-42* which is 4.2E-04 lb Pb/ton of coal combusted.

What are the facility's point source emissions of lead from coal combustion?

A. 2.86 lb B. Range Code 'A' C. 95.2 lb D. Either 2.86 lb or Range Code 'A'

Answer: A is correct

Point Source Emissions (lb) = EF × W
where: EF = emission factor for controlled coal combustion (lb Pb/ton coal), and W = weight of coal combusted (ton)

Weight of coal combusted:
(13,600,000 lb coal)/(2,000 lb/ton) = 6,800 tons coal

Point Source Emissions =
4.2E-4 (lb Pb/ton coal) × 6,800 tons coal = 2.86 lb Pb

Assuming coal combustion was the only source of point source air emissions for this facility, the facility would report 2.86 lb in Section 5.2 of their Form R for lead compounds.

Range codes cannot be used for Chemicals of Special Concern.

While threshold determination is based on the weight of the lead compounds, release and waste management calculations are based on the weight of the parent metal (lead) in the metal compound (lead oxide)