



TOXICS RELEASE INVENTORY

Form R and Form A Certification Statement

Reporting Codes and Instructions for

Reporting Metals

Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) requires certain facilities manufacturing, processing, or otherwise using listed toxic chemicals to report the annual quantity of such chemicals entering each environmental medium. Such facilities must also report pollution prevention and recycling data for such chemicals, pursuant to section 6607 of the Pollution Prevention Act, 42 U.S.C. 13106. EPCRA section 313 is also known as the Toxics Release Inventory (TRI).

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DISCLAIMER

This guidance document is intended to assist industry by summarizing TRI Form R and Form A Certification Statement reporting codes and specific instructions for reporting metals. These recommendations do not supersede any statutory or regulatory requirements, are subject to change, and are not independently binding on either EPA or covered facilities. Additionally, if a conflict exists between guidance on this site and the statutory or regulatory requirements, the conflict must be resolved in favor of the statute or regulation.

Although EPA encourages industry to consider these recommendations, in reviewing this document, industry should be aware that these recommendations were developed to address common circumstances at typical facilities. Facilities are encouraged to contact the Agency with any additional or clarifying questions about the recommendations in this document, or if the facility believes that EPA has incorrectly characterized a particular process or recommendation.

Additional guidance documents, including industry specific and chemical specific guidance documents, are also available on TRI's GuideME website: https://ofmpub.epa.gov/apex/guideme_ext/f?p=guideme:gd-list

OVERVIEW

This document is intended to assist establishments and facilities with summarizing TRI Form R and Form A Certification Statement reporting codes and specific instructions for reporting metals. The EPCRA section 313 program is commonly referred to as the Toxic Chemical Release Inventory (TRI). For background on the TRI program, resources for determining whether a facility must report, and reporting requirements, please refer to the current TRI Reporting Forms and Instructions, also available on GuideME.

CHAPTER 1 Form R and Form A Certification Statement Reporting Codes

This chapter summarizes reporting codes currently used for the TRI Form R and Form A Certification Statement (OMB Number: 2025-0009; Approval expires: 10/31/2021). Reporting codes are grouped by the appropriate Form R section. Codes no longer in use are listed as retired codes.

Revision Codes

RR1	New Monitoring Data	RR4	Recalculation(s)
RR2	New Emission Factor(s)	RR5	Other Reason(s)
RR3	New Chemical Concentration Data		

Withdrawal Codes

WT1	Did not meet the reporting threshold for manufacturing, processing, or otherwise use
WT2	Did not meet the reporting threshold for number of employees
WT3	Not in a covered NAICS Code
WO1	Other reason(s)

EPCRA Section 313 Chemical Category Codes

N010	Antimony compounds	N450	Manganese compounds
N020	Arsenic compounds	N458	Mercury compounds
N040	Barium compounds	N495	Nickel compounds
N050	Beryllium compounds	N503	Nicotine and salts
N078	Cadmium compounds	N511	Nitrate compounds
N084	Chlorophenols	N530	Nonylphenol
N090	Chromium compounds	N535	Nonylphenol ethoxylates
N096	Cobalt compounds	N575	Polybrominated biphenyls (PBBs)
N100	Copper compounds	N583	Polychlorinated alkanes
N106	Cyanide compounds	N590	Polycyclic aromatic compounds
N120	Diisocyanates	N725	Selenium compounds
N150	Dioxin and dioxin-like compounds	N740	Silver compounds
N171	Ethylenebisdithiocarbamic acid, salts and esters (EBDCs)	N746	Strychnine and salts
N230	Certain glycol ethers	N760	Thallium compounds
N270	Hexabromocyclododecane	N770	Vanadium compounds
N420	Lead compounds	N874	Warfarin and salts
		N982	Zinc compounds

Section 3. Activities and Uses of the EPCRA Section 313 Chemical at the Facility

Section 3.2 Process Sub-Use Codes

3.2.a: As a Reactant

P101	Feedstocks
P102	Raw materials
P103	Intermediates
P104	Initiators
P199	Other

3.2.b: As a formulation component

P201	Additives
P202	Dyes

P203	Reaction diluents
P204	Initiators
P205	Solvents
P206	Inhibitors
P207	Emulsifiers
P208	Surfactants
P209	Lubricants
P210	Flame retardants
P211	Rheological modifiers
P299	Other

Section 3.3 Otherwise Use Sub-Use Codes

3.3.a: As a chemical processing aid

Z101 Process solvents
 Z102 Catalysts
 Z103 Inhibitors
 Z104 Initiators
 Z105 Reaction terminators
 Z106 Solution buffers
 Z199 Other

3.3.b: As a manufacturing aid

Z201 Process lubricants
 Z202 Metalworking fluids
 Z203 Coolants
 Z204 Refrigerants

Z205 Hydraulic fluids
 Z299 Other

3.3.c: Ancillary or other use

Z301 Cleanser
 Z302 Degreaser
 Z303 Lubricant
 Z304 Fuel
 Z305 Flame retardant
 Z306 Waste treatment
 Z307 Water treatment
 Z308 Construction materials
 Z399 Other

Section 4. Maximum Amount of the Toxic Chemical On-Site at Any Time During the Calendar Year

Range Code	From	To
01	0	99
02	100	999
03	1,000	9,999
04	10,000	99,999
05	100,000	999,999
06	1,000,000	9,999,999
07	10,000,000	49,999,999
08	50,000,000	99,999,999
09	100,000,000	499,999,999
10	500,000,000	999,999,999
11	1 billion	More than 1 billion

Section 5. Quantity of the Toxic Chemical Entering Each Environmental Medium On-Site and Section 6 Transfer(s) of the Toxic Chemical in Wastes to Off-Site Locations

Range Codes for Non-PBT Chemicals

Range Code	From
A	1-10
B	11-499
C	500-999

Basis of Estimate

- M1 Estimate is based on continuous monitoring data or measurements for the EPCRA section 313 chemical.
- M2 Estimate is based on periodic or random monitoring data or measurements for the EPCRA section 313 chemical.
- C Estimate is based on mass balance calculations, such as calculation of the amount of the EPCRA section 313 chemical in streams entering and leaving process equipment.
- E1 Estimate is based on published emission factors, such as those relating release quantity to through-put or equipment type (e.g., air emission factors). This may include emissions factors in a trade associations publication or AP-42.
- E2 Estimate is based on site-specific emission factors, such as those relating release quantity to through-put or equipment type (e.g., air emission factors). This may include emissions factors that are developed for a specific piece of equipment and that consider climate conditions on-site.
- O Estimate is based on other approaches such as engineering calculations (e.g., estimating volatilization using published mathematical formulas) or best engineering judgment. This would include applying an estimated removal efficiency to a waste stream, even if the composition of the stream before treatment was fully identified through monitoring data.

Section 6.1 Discharges to Publicly Owned Treatment Works: Disposal / Treatment Codes (POTW)

Disposal

- P30 Discharged to Water Stream
- P31 Discharged to Other Activities
- P32 Released to Air
- P33 Sludge to disposal
- P34 Metals and metal compounds only –
Sludge to incineration
- P35 Sludge to agricultural applications
- P36 Other or Unknown Disposal

Treatment

- P37 Other or Unknown Treatment
- P38 Sludge to incineration
- P39 Experimental and Estimated Treatment
Data (TRI provided)

Section 6.2 Transfers to Other Off-Site Locations: Type of Waste Disposal/Treatment/Energy Recovery/Recycling

Disposal

- M10 Storage Only
- M41 Solidification/Stabilization - Metals and
Metal Category Compounds only
- M62 Wastewater Treatment (Excluding
POTW) - Metals and Metal Category
Compounds only
- M64 Other Landfills
- M65 RCRA Subtitle C Landfills
- M66 Subtitle C Surface Impoundment
- M67 Other Surface Impoundments
- M73 Land Treatment
- M79 Other Land Disposal
- M81 Underground Injection to Class I Wells
- M82 Underground Injection to Class II-V Wells
- M90 Other Off-Site Management

- M94 Transfer to Waste Broker – Disposal
- M99 Management Method Unknown

Treatment

- M40 Solidification/Stabilization
- M50 Incineration/Thermal Treatment
- M54 Incineration/Insignificant Fuel Value
- M61 Wastewater Treatment (Excluding
POTW)
- M69 Other Waste Treatment
- M95 Transfer to Waste Broker - Waste
Treatment

Energy Recovery

- M56 Energy Recovery
- M92 Transfer to Waste Broker - Energy

Recovery	M26	Other Reuse or Recovery
<u>Recycling</u>	M28	Acid Regeneration
M20	M93	Transfer to Waste Broker - Recycling
M24		
Solvents/Organics Recovery		
Metals Recovery		

Retired Codes

M63	Surface impoundment (retired effective RY2003)	M72	Landfill/Disposal surface impoundment (retired effective RY2002)
M71	Underground injection (retired effective RY2003)	M91	Transfer to waste broker (retired effective RY1991)

Section 7A: On-Site Waste Treatment Methods and Efficiency

General Waste Stream

A	Gaseous (gases, vapors, airborne particulates)
W	Wastewater (aqueous waste)
L	Liquid waste streams (non-aqueous waste)
S	Solid waste streams (including sludges and slurries)

Waste Treatment Methods

Air Emissions Treatment

A01	Flare
A02	Condenser
A03	Scrubber
A04	Absorber
A05	Electrostatic Precipitator
A06	Mechanical Separation
A07	Other Air Emission Treatment

Chemical Treatment

H040	Incineration--thermal destruction other than use as a fuel
H071	Chemical reduction with or without precipitation
H073	Cyanide destruction with or without precipitation
H075	Chemical oxidation
H076	Wet air oxidation
H077	Other chemical precipitation with or without pre-treatment

Biological Treatment

H081	Biological treatment with or without precipitation
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Physical Treatment

H082	Adsorption
H083	Air or steam stripping
H101	Sludge treatment and/or dewatering
H103	Absorption
H111	Stabilization or chemical fixation prior to disposal
H112	Macro-encapsulation prior to disposal
H121	Neutralization
H122	Evaporation
H123	Settling or clarification
H124	Phase separation
H129	Other treatment

Section 7B: On-Site Energy Recovery Processes

U01	Industrial Kiln
U02	Industrial Furnace
U03	Industrial Boiler

Section 7C: On-Site Recycling Processes

- H10 Metal recovery (by retorting, smelting, or chemical or physical extraction)
- H20 Solvent recovery (including distillation, evaporation, fractionation or extraction)
- H39 Other recovery or reclamation for reuse (including acid regeneration or other chemical reaction process)

Section 8.10 Source Reduction Activity Codes

Source Reduction Activity Codes

Good Operating Practices

- W13 Improved maintenance scheduling, record keeping, or procedures
- W14 Changed production schedule to minimize equipment and feedstock changeovers
- W15 Introduced in-line product quality monitoring or other process analysis system
- W19 Other changes in operating practices

Inventory Control

- W21 Instituted procedures to ensure that materials do not stay in inventory beyond shelf-life
- W22 Began to test outdated material - continue to use if still effective
- W23 Eliminated shelf-life requirements for stable materials
- W24 Instituted better labeling procedures
- W25 Instituted clearinghouse to exchange materials that would otherwise be discarded
- W29 Other changes in inventory control

Spill and Leak Prevention

- W31 Improved storage or stacking procedures
- W32 Improved procedures for loading, unloading, and transfer operations
- W33 Installed overflow alarms or automatic shut-off valves
- W35 Installed vapor recovery systems
- W36 Implemented inspection or monitoring program of potential spill or leak sources
- W39 Other changes made in spill and leak prevention

Raw Material Modifications

- W41 Increased purity of raw materials
- W42 Substituted raw materials
- W43 Substituted a feedstock or reagent

chemical with a different chemical

- W49 Other raw material modifications made

Process Modifications

- W50 Optimized reaction conditions or otherwise increased efficiency of synthesis
- W51 Instituted recirculation within a process
- W52 Modified equipment, layout, or piping
- W53 Use of a different process catalyst
- W54 Instituted better controls on operating bulk containers to minimize discarding of empty containers
- W55 Changed from small volume containers to bulk containers to minimize discarding of empty containers
- W56 Reduced or eliminated use of an organic solvent
- W57 Used biotechnology in manufacturing process
- W58 Other process modifications

Cleaning and Degreasing

- W59 Modified stripping/cleaning equipment
- W60 Changed to mechanical stripping/cleaning devices (from solvents or other materials)
- W61 Changed to aqueous cleaners (from solvents or other materials)
- W63 Modified containment procedures for cleaning units
- W64 Improved draining procedures
- W65 Redesigned parts racks to reduce drag out
- W66 Modified or installed rinse systems
- W67 Improved rinse equipment design
- W68 Improved rinse equipment operation
- W71 Other cleaning and degreasing modifications

Surface Preparation and Finishing

- W72 Modified spray systems or equipment
- W73 Substituted coating materials used
- W74 Improved application techniques

W75	Changed from spray to other system	products
W78	Other surface preparation and finishing modifications	W83 Modified packaging
		W84 Developed a new chemical product to replace a previous chemical product
<u>Product Modifications</u>		W89 Other product modifications
W81	Changed product specifications	
W82	Modified design or composition of	

Methods Used to Identify Source Reduction Activities

For each source reduction activity, enter up to three of the following codes that correspond to the method(s) which contributed most to the decision to implement that activity.

T01	Internal Pollution Prevention Opportunity Audit(s)
T02	External Pollution Prevention Opportunity Audit(s)
T03	Materials Balance Audits
T04	Participative Team Management
T05	Employee Recommendation (independent of a formal company program)
T06	Employee Recommendation (under a formal company program)
T07	State Government Technical Assistance Program
T08	Federal Government Technical Assistance Program
T09	Trade Association/Industry Technical Assistance Program
T10	Vendor Assistance
T11	Other

Section 8.11 Optional Pollution Prevention Information

Barriers to Implementing Pollution Prevention Activities

B1	Insufficient capital to install new source reduction equipment or implement new source reduction activities/initiatives
B2	Require technical information on pollution prevention techniques applicable to specific production processes
B3	Concern that product quality may decline as a result of source reduction
B4	Source reduction activities were implemented but were unsuccessful
B5	Specific regulatory/permit burdens
B6	Pollution prevention previously implemented—additional reduction does not appear technically or economically feasible
B7	No known substitutes or alternative technologies
B8	Reduction does not appear to be technically feasible
B99	Other barriers

Retired Codes

B8	Other barriers (replaced effective RY2018)
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Chapter 2 Reporting the Waste Management of Metals

This chapter outlines how the TRI-MEweb reporting software restricts reporting for metals when the specific data element or waste management code is not applicable for a particular chemical. Below is a list of metals divided into four groups along with charts that help explain where quantities of these chemicals can and cannot be reported on the Form R using TRI-MEweb. In addition, there are charts that explain restrictions on reporting waste management codes for the toxic chemicals in each of the four groups. This chapter only shows where reporting is restricted in TRI-MEweb, it does not indicate every situation where a metal should not be reported in a specific section of the form. For example, TRI-MEweb does not restrict the reporting of most individually listed metal compounds as used for energy recovery (Sections 8.2 and 8.3) even though some of these chemicals do not have a heat value greater than 5000 British thermal units (Btu) and, thus, cannot be combusted for energy recovery. It is left to the facility to decide which of these toxic chemicals can be used for energy recovery.

Parent Metals	Metal Compound Categories	Metals with Qualifiers	Individually Listed Metal Compounds
Antimony	Antimony Compounds	Aluminum (fume or dust)	Bis(tributyltin) oxide
Arsenic	Arsenic Compounds	Vanadium (except when in an alloy)	Triphenyltin hydroxide
Barium	Barium Compounds	Zinc (fume or dust)	Triphenyltin chloride
Beryllium	Beryllium Compounds		Molybdenum trioxide
Cadmium	Cadmium Compounds		Thorium dioxide
Chromium	Chromium Compounds		Asbestos (friable)
Cobalt	Cobalt Compounds		Aluminum oxide (fibrous forms)
Copper	Copper Compounds		Tributyltin fluoride
Lead	Lead Compounds		Tributyltin methacrylate
Manganese	Manganese Compounds		Titanium tetrachloride
Mercury	Mercury Compounds		Boron trifluoride
Nickel	Nickel Compounds		Metiram
Selenium	Selenium Compounds		Boron trichloride
Silver	Silver Compounds		Zineb
Thallium	Thallium Compounds		Maneb
	Vanadium Compounds		Fenbutatin oxide
	Zinc Compounds		Iron pentacarbonyl
			Ferbam
			C.I. Direct Brown 95
			Osmium tetroxide
			Aluminum phosphide
			C.I. Direct Blue 218

Section 5.3 Discharges to Receiving Streams or Water Bodies and Section 6.1 Discharges to Publicly Owned Treatment Works

The following chart indicates which metals can be reported as released to water in Section 5.3 or to POTWs in Section 6.1. Only zinc (fume or dust) and aluminum (fume or dust) are not reported in these sections because the fume or dust form of a toxic chemical cannot exist in water.

The release and other waste management information that you report for metal category compounds will be the total amount of the parent metal released and NOT the whole metal category compound. The metal cannot be treated because it cannot be destroyed. Thus, transfers of metals and metal category compounds for further waste management should be reported as a disposal. The applicable codes for transfers of metals and metal category compounds in wastewater to a POTW for disposal include P30, P31, P32, P33, P34, P35, and P36.

Form R Section in Part II	Parent Metals	Metal Category Compounds	Metals with Qualifiers	Individually Listed Metal Compounds
Section 5.3 - Discharges to receiving streams or water bodies	All	All	Vanadium (except when contained in an alloy)	All except Asbestos
Section 6.1- Discharges to POTWs	All	All	Vanadium (except when contained in an alloy)	All except Asbestos

Section 6.2 Transfers to Other Off-Site Locations

Any toxic chemical may be reported in Section 6.2. However, TRI-MEweb will not allow certain M codes to be used when reporting metals. The chart below indicates which M codes can be reported in Section 6.2 for the four groups of metals. Note that all disposal M codes other than M41 and M62 can be used for all toxic chemicals. Code M24 is only made available for the four groups of metals.

Waste Management Code for Section 6.2	Parent Metals	Metal Category Compounds	Metals with Qualifiers	Individually Listed Metal Compounds
M41 and M62 (disposal codes-for metals only)	All	All	Vanadium (except when contained in an alloy)	All except Asbestos
M56 and M92 (energy recovery codes)	None	None	None	All except Asbestos ¹
M20 and M28 (recycling codes)	None	None	None	All
M24, M26 and M93 (recycling codes)	All	All	All	All
M40, M50, M54, (treatment codes)	None	None	All except Vanadium (except when contained in an alloy)	All
M61, M69, M95 (treatment codes)	Barium ²	Barium Compounds ²	Same as above	All

¹ Although TRI-MEweb does not restrict reporting of most individually listed metal compounds as transferred off site for energy recovery, only chemicals with a heat value greater than 5000 British thermal units that are combusted in a device that is an industrial furnace or boiler (40 CFR Section 372.3) should be reported as used for energy recovery.

² The toxic chemical category barium compounds (N040) does not include barium sulfate. Because barium sulfate is not a listed toxic chemical, the conversion in a waste stream of barium or barium compound to barium sulfate is considered treatment for destruction (40 CFR Section 372.3).

Section 7A: On-Site Waste Treatment Methods and Efficiency

TRI-MEweb allows any toxic chemical to be reported in Section 7A; however, it limits reporting in two ways. First, TRI-MEweb limits the treatment codes that can be reported based on the General Waste Stream Code selected. If a TRI-MEweb user selects General Waste Stream code “A – Gaseous”, all Waste Treatment Codes are made available. However, if a user selects from the remaining three General Waste Stream Codes (W - Wastewater, L - Liquid waste streams, or S - Solid waste streams), the “Air Emissions Treatment” Waste Treatment Codes are not made available. Second, the software restricts reporting for certain toxic chemicals with qualifiers. When reporting zinc (fume or dust) or aluminum (fume or dust) TRI-MEweb will not allow the user to select General Waste Stream Codes W-Wastewater

and L-Liquid waste streams because the fume or dust form of a toxic chemical cannot exist in a liquid or water waste. For asbestos (friable) only S - Solid or A - Gaseous can be selected. When reporting hydrochloric acid (acid aerosols) or sulfuric acid (acid aerosols) only A - Gaseous can be selected.

Section 7B: On-Site Energy Recovery Processes

Energy Recovery Code for Section 7B	Parent Metals	Metal Category Compounds	Metals with Qualifiers	Individually Listed Metal Compounds
U01, U02, U03	None	None	None	All except Asbestos ¹

¹ Although TRI-MEweb does not restrict reporting of most individually listed metal compounds as transferred off site for energy recovery, only chemicals with a heat value greater than 5000 British thermal units that are combusted in a device that is an industrial furnace or boiler (40 CFR Section 372.3) should be reported as used for energy recovery.

Section 7C: On-Site Recycling Processes

Any chemical can be reported in Section 7C. However, certain waste management codes should not be reported for certain toxic chemicals. The chart below indicates which codes can be reported in Section 7C when using TRI-MEweb.

Recycling Code for Section 7C	Parent Metals	Metal Category Compounds	Metals with Qualifiers	Individually Listed Metal Compounds
H10 (this code is for metals only)	All	All	All	All
H20	None	None	None	All
H39	All	All	All	All

Section 8. Source Reduction and Recycling Activities

The chart below indicates which metals can be reported in Sections 8.2, 8.3, 8.6 and 8.7 of the Form R when using TRI-MEweb. Note that all toxic chemicals can be reported in Sections 8.1, 8.4, 8.5 and 8.8.

Waste Management Activity	Parent Metals	Metal Category Compounds	Metals with Qualifiers	Individually Listed Metal Compounds
Quantity used for energy recovery on site and off site (Sections 8.2 and 8.3)	None	None	None	All except Asbestos ¹
Quantity treated for destruction on site and off site (Sections 8.6 and 8.7)	None except Barium ²	None except Barium Compounds ²	All except Vanadium (except when contained in an alloy)	All

¹ Although TRI-MEweb does not restrict reporting of most individually listed metal compounds as transferred off site for energy recovery, only chemicals with a heat value greater than 5000 British thermal units that are combusted in a device that is an industrial furnace or boiler (40 CFR Section 372.3) should be reported as used for energy recovery.

² The toxic chemical category barium compounds (N040) does not include barium sulfate. Because barium sulfate is not a listed toxic chemical, the conversion in a waste stream of barium or barium compound to barium sulfate is considered treatment for destruction (40 CFR Section 372.3).