Toxic Release Inventory (TRI)

Fact Sheet / Survival Guide

2011 Reporting Season

Why do I have to do TRI reporting every year?

After a series of toxic chemical releases from industrial facilities in 1986, there was a large increase in demand from the general public to know about what hazardous chemicals they could possibly be exposed to[1].

In the U.S., this led to the Emergency Planning and Community Right-to-Know Act (EPCRA) being enacted to inform communities and citizens of chemicals hazards in their areas[2].

As part of the EPCRA, the Environmental Protection Agency (EPA) is required to collect annual data on all releases and transfers of toxic chemicals. This information is then compiled in the Toxics Release Inventory (TRI) so the population at large can be well informed about the hazards in their area.

Over the years this has grown to also include industry's waste management activities with the Pollution Prevention Act and means that every year, in the lead up to July 1st, industry goes through a TRI reporting season.

For some industries dealing with a large amount of toxic materials, there is a large **potential** and small *margin* for error.

Each year there are facilities that are incorrectly reporting on their TRI sources, without being aware that they are doing it[3].

Are you one of these facilities?

As you get ready for your TRI reporting this season, there are some **important** questions that you must ask yourself as your July 1st deadline approaches:

- Are all of my sources completely covered?
- Am I reporting **all** of the substances that I am required to?
- Am I reporting substances that I am not required to?
- Do my calculations accurately represent my actual emissions?
- Have I correctly *reconciled* my Emission Inventory data with my TRI data?
- Am I comfortable with this situation?

Things You May Not Know about TRI

In our experience, quite a few environmental and facility managers do not realize that there are certain exemptions for various substances when it comes to TRI reporting.

Just because a toxic substance or material is reportable in one form does not mean that you are automatically required to report every form of that material. For example, aluminum and zinc are only reportable if they are found in the form of fume or dust.

If you are curious about what these exemptions are, you can download a copy of **Toxic Chemical Release Inventory Reporting Forms and Instructions** (CLICK HERE to download a copy) that outlines what the substances are and the exemptions that each have. Table 1 & 2 below can be used as a snapshot (from page 119 of the PDF) for quick reference to these exemptions.

Chemical	CAS Number	Qualifier
Aluminum (fume or dust)	7429-90-5	**Only** if it is a fume or dust form.
Aluminum oxide (fibrous forms)	1344-28-1	**Only** if it is a fibrous form.
Ammonia (includes anhydrous ammonia and aqueous ammonia from water dissociable ammonium salts and other sources; 10 percent of total aqueous ammonia is reportable under this listing)	7664-41-7	**Only** 10% of aqueous forms. 100% of anhydrous forms.
Asbestos (friable)	1332-21-4	**Only** if it is a friable form.
Hydrochloric acid (acid aerosols including mists, vapors, gas, fog, and other airborne forms of any particle size)	7647-01-0	**Only** if it is an aerosol form as defined.
Nitrate compounds (water dissociable; reportable only when in aqueous solution)	NA	**Only** if in aqueous solution
Phosphorus (yellow or white)	7723-14-0	**Only** if it is a yellow or white form.
Sulfuric acid (acid aerosols including mists, vapors, gas, fog, and other airborne forms of any particle size)	7664-93-9	**Only** if it is an aerosol form as defined.
Vanadium (except when contained in an alloy)	7440-62-2	**Except** if it is contained in an alloy.
Zinc (fume or dust)	7440-66-6	**Only** if it is in a fume or dust form.

Table 1 - Exemptions of various chemicals under TRI reporting according to EPA's Toxic Chemical Release Inventory Reporting Forms and Instructions 2010 (Courtesy of U.S. Environmental Protection Agency 2010)

The qualifier for the following three chemicals is based on the chemical activity rather than the form of the chemical. These chemicals are subject to EPCRA section 313 reporting requirements only when the indicated activity is performed.

Chemical/ Chemical Category	CAS Number	Qualifier
Dioxin and dioxin-like compounds (manufacturing; and the processing or otherwise use of dioxin and dioxin-like compounds if the dioxin and dioxin-like compounds are present as contaminants in a chemical and if they were created during the manufacture of that chemical.)	NA	**Only** if they are manufactured at the facility; or are processed or otherwise used when present as contaminants in a chemical but only if they were created during the manufacture of that chemical.
Isopropyl alcohol (only persons who manufacture by the strong acid process are subject, no supplier notification)	67-63-0	**Only** if it is being manufactured by the strong acid process. Facilities that process or otherwise use isopropyl alcohol are not covered and should not file a report.
Saccharin (only persons who manufacture are subject, no supplier notification)	81-07-2	**Only** if it is being manufactured.

Table 2 Exemptions of various chemicals under TRI reporting according to EPA's Toxic Chemical Release Inventory Reporting Forms and Instructions 2010 (Courtesy of U.S. Environmental Protection Agency 2010)

The De Minimis Exemption

One exemption that is not in common knowledge among managers responsible for reporting is the *de minimis exemption*. Amongst those who do know about it, there tends to be some confusion about how exactly it works.

Broken down, it allows facilities to disregard certain minimal concentrations of non-PBT chemicals in mixtures when making threshold determinations and release management calculations. This also applies to other trade name products.

It does **not** apply to the following situations:

- Manufacture of an EPCRA Section 313 chemical, except if that EPCRA Section 313 chemical is manufactured as an impurity and remains in the product distributed in commerce, or if the EPCRA section 313 chemical is imported below the appropriate *de minimis* level.
- Any byproduct manufactured coincidentally as a result of manufacturing, processing or any waste management activities.
- Any PBT chemical (except lead when it is contained in stainless steel, brass or bronze alloy) or PBT chemical category.

A list of PBT chemicals may be found in **Toxic Chemical Release Inventory Reporting Forms and Instructions** (CLICK HERE to download a copy), but can also be seen in table 3. These instructions also cover the entire De Minimis Exemption in more detail and include the correct method for the straddling calculation. If this is an area that concerns you, we recommend that you read this document or else Contact Us for more details on how it applies to your situation.

Are You Reporting All The Chemicals You Have To?

Anyone who deals with environmental regulations knows that the EPA is continuously playing catch-up with a long list of substances that need to be tested.

The number of industrial chemicals being created is continuously growing and the environmental effects of many of them are not known.

These all require testing and decisions need to be made about which chemicals are to be regulated and which chemicals have to be reported as part of industry's annual TRI report.

This means that every year there are new chemicals being added to the list of reportables. If you (or whoever is responsible for the environmental

Chemical or chemical category name	CAS number or chemical category code	Threshold (pounds, unless noted otherwise)
Aldrin	309-00-2	100
Benzo[g,h,i]perylene	191-24-2	10
Chlordane	57-74-9	10
Dioxin and dioxin-like compounds category (manufacturing; and the processing or otherwise use of dioxin and dioxin-like compounds category if the dioxin and dioxin-like compounds are present as contaminants in a chemical and if they were created during the manufacturing of that chemical	N150	0.1 gram
Heptachlor	76-44-8	10
Hexachlorobenzene	118-74-1	10
Isodrin	465-73-6	10
Lead (this lower threshold does not apply to lead when it is contained in stainless steel, brass or bronze alloy)	7439-92-1	100
Lead compounds	N420	100
Mercury	7439-97-6	10
Mercury compounds	N458	10
Methoxychlor	72-43-5	100
Octachlorostyrene	29082-74-4	10
Pendimethalin	40487-42-1	100
Pentachlorobenzene	608-93-5	10
Polychlorinated biphenyls (PCBs)	1336-36-3	10
Polycyclic aromatic compounds category (PACs)	N590	100
Tetrabromobisphenol A	79-94-7	100
Toxaphene	8001-35-2	10
Trifluralin	1582-09-8	100

Table 3 – List of PBT chemicals and their threshold limits

reporting at your facility) fail to pay attention to what chemicals need to be reported and assume that TRI this year is just "business as usual", this may end up costing you a hefty fine.

The current TRI toxic chemical list contains 593 individually listed chemicals and 30 chemical categories (including 3 delimited categories containing 62 chemicals).

If you want to know what new chemicals you are required to report this year, then you need to watch for updates in the EPA's **Changes To The TRI List Of Chemicals**. You can download a copy of the 2011 edition HERE.

We have included a list for easy access here.

Chemicals Added For Reporting Year 2011

CAS Number	*Chemical Name*
81-49-2	1-Amino-2,4-dibromoanthraquinone
3296-90-0	2,2-bis(Bromomethyl)-1,3-propanediol
110-00-9	Furan
556-52-5	Glycidol
78-79-5	Isoprene
93-15-2	Methyleugenol
91-23-6	o-Nitroanisole
75-52-5	Nitromethane
77-09-8	Phenolphthalein
116-14-3	Tetrafluoroethylene
509-14-8	Tetranitromethane
75-02-5	Vinyl Fluoride

Additions to the Polycyclic Aromatic Compounds (PACs) category:

CAS Number	*Chemical Name*
42397-64-8	1,6-Dinitropyrene
42397-65-9	1,8-Dinitropyrene
7496-02-8	6-Nitrochrysene
57835-92-4	4-Nitropyrene

Do you know if you are you using any of these substances or materials at your facility? How confident are you?

Having a good piece of regulatory software that continuously stays on top of these developments by the EPA is a huge advantage. It removes all of the hassle of having to add this complication to your TRI reporting every year.

This way you know that your reporting process is informed and can be secure in the knowledge that you are reporting the substances that you need to.

The Problems With Metals

One industry that is caught incorrectly reporting every year is the metals industry, or any industry that processes metals as part of its business.

When processing any metals, it is important to remember that any impurities that are contained within those metals need to be accounted for in your TRI, if they are reportable.

You should also know that threshold determinations for any metal category compounds present a special case[4].

If your facility processes several different metal compounds (say nickel), then you should base your threshold determination on the total weight of all nickel compounds processed.

But, if your facility processes both the “parent” metal (nickel) as well as one or more nickel compounds, you must make threshold determinations for both nickel (CAS number 7440-02-0) and nickel compounds (chemical category code N495).

This is because they are separately listed EPCRA Section 313 chemicals.

If your facility exceeds thresholds for both the parent metal and compounds of that same metal, EPA allows you to file one combined report (containing all nickel compounds AND nickel).

This way the release information that gets reported for that metal category compounds will be the total pounds of the metal released.

If you file one combined report, you should put the name of the metal compound category on the Form R. Do not put both names on the Form R.

But what if your metal compound involves more than one metal?

This is also a special case that deserves some attention. Some metal category compounds may contain more than one listed metal. Lead chromate, for example, is both a lead compound and a chromium compound.

In this case, if both thresholds are exceeded you must file two separate reports - one for lead compounds and one for chromium compounds.

Apply the total weight of the lead chromate to the threshold determinations for both lead compounds and chromium compounds.

NOTE: Only the quantity of each parent metal released or otherwise managed as waste, not the quantity of the compound, would be reported on the appropriate sections of both Form Rs.

Are You Completely Covered and Are You Accurate?

From our experience in assessing our client's previous calculating capabilities (mostly with Excel spreadsheets), we often notice that apart from being confusing, the calculation method to determine emissions can be far from accurate.

In fact, in a lot of cases, these methods are just plain wrong.

When you're reporting to the EPA, being precise and accurate is crucial for two reasons.

First, if you're precise it means that you avoid any penalties that can be associated with your actions if you are close to penalty thresholds.

Second, if you're accurate about what you have to report, it will save you time, money and energy reporting on sources and materials that you are not required to.

Lacking precision and accuracy are two of the more common mistakes that Site Operators make. It doesn't matter how correct the mathematical calculations are, if the sources and materials you are reporting on are wrong, your figures won't represent your actual emissions.

It is important to ensure that emissions from all of the sources at your facility are included in your TRI report every year. But quite often, in an effort to be extremely thorough, personnel responsible for reporting end up "double counting" some of their data.

For example, if you are putting wood through a PM calculating source, as well as Kiln source, you wouldn't want to include both in your TRI because it would be a double count on the emissions produced by your wood.

Oxidizers and other control devices also need to be considered when thinking about accuracy and precision. Be sure that your site(s) consider the emissions that are destroyed by your control devices!

On many TRI reports, the beneficial effects of control devices are not taken into account. This leads to facilities over reporting on the amount of toxic emissions they are emitting.

If you are going to spend a substantial amount of money on your control equipment, be sure to take advantage of the work it does for you!

Is Your Inventory System Working Against You?

Reconciling your inventory between the amount of product you have purchased and the amount of product that has been used is an important part of inventory management.

It is important to understand that the amount you purchased is not necessarily the amount that is processed through your factory for your reporting season.

If the threshold determination is triggered by using this method, then you are required to report the amount that was emitted as your emissions.

Are You Comfortable?

In most cases an environmental manager or a plant manager is responsible for collecting the data and compiling the report about a facility's TRI emissions, but an executive has to sign the report for submission.

How comfortable are you that the report you're presenting to your boss or the report that you're being presented by your plant manager is accurate and up to date with the latest regulatory changes?

Were you aware of all the points that were raised in this fact sheet?

If you have any questions or concerns about the topics covered by the content in this fact sheet, call us at (514) 684-6408

We would be happy to clarify any of the information or to show you how ERA's EMS Software can take the hassle out of your TRI reporting responsibilities.

If you would like to find out more about ERA's Environmental Software solution and how it can help you with your annual TRI Reporting, call us (256) 513-4757

REFERENCES:

[1] - http://www.epa.gov/region6/6pd/tri/index.htm

[2] - http://www.epa.gov/lawsregs/laws/epcra.html

[3] - http://www.epa.gov/tri/tridata/data_quality_reports/1995/toc-ovr.pdf

[4] - http://bit.ly/jBEBcv