

# Summary of 2021 Toxics Release Inventory for Oregon

March 2025

## Executive summary

The Oregon Department of Environmental Quality Air Quality division staff created this summary of information provided by the U.S. Environmental Protection Agency for the 2021 Toxics Release Inventory. Anyone can use the EPA TRI website to find this information for themselves, but it may be difficult for many users to know how to review the databases and other information in a way that will let them understand what it means for people living in Oregon. We hope this summary will be helpful. The data described here represent a snapshot in time in 2021.

The TRI includes emissions data for on-site releases of toxic chemicals to air, water, and land from operating facilities. TRI emissions data are estimates made by the facilities themselves, which are then reported to the EPA for each chemical emitted. These estimates are not measurements, but instead are mathematical estimates of what each facility believes it is emitting. This DEQ summary of TRI data considers only TRI releases to air in Oregon in 2021. There were approximately 266 Oregon facilities that reported emissions data covering 74 different pollutants. Although 139 pollutants are listed in Table 1, only 74 of them were emitted by TRI facilities in Oregon in 2021.

DEQ's Air Quality Division uses the information provided by EPA's TRI, the Emissions Inventory System and annual AirToxScreen data to assist in identifying the air contaminants and emissions sources that present the highest concerns to people in Oregon. The TRI contains emissions data submitted (as required) by operating facilities that estimate which types and amounts of contaminants they're emitting. DEQ uses this data to compare against other information that DEQ already has for air pollution in Oregon. In some cases, a potential problem is recognized once DEQ evaluates the TRI results, which might not have been recognized otherwise. Comparing air emissions results from multiple databases and agencies provides a greater level of certainty of identifying problems related to exposure of Oregon's population to toxic air contaminants.

The important information that comes out of a review of TRI data includes:

- Which facilities in Oregon are the biggest emitters of TRI chemicals for the year being reviewed.
- Which TRI chemicals are emitted at the highest amounts in Oregon
- Identification of unpermitted facilities in Oregon that are emitting TRI chemicals.

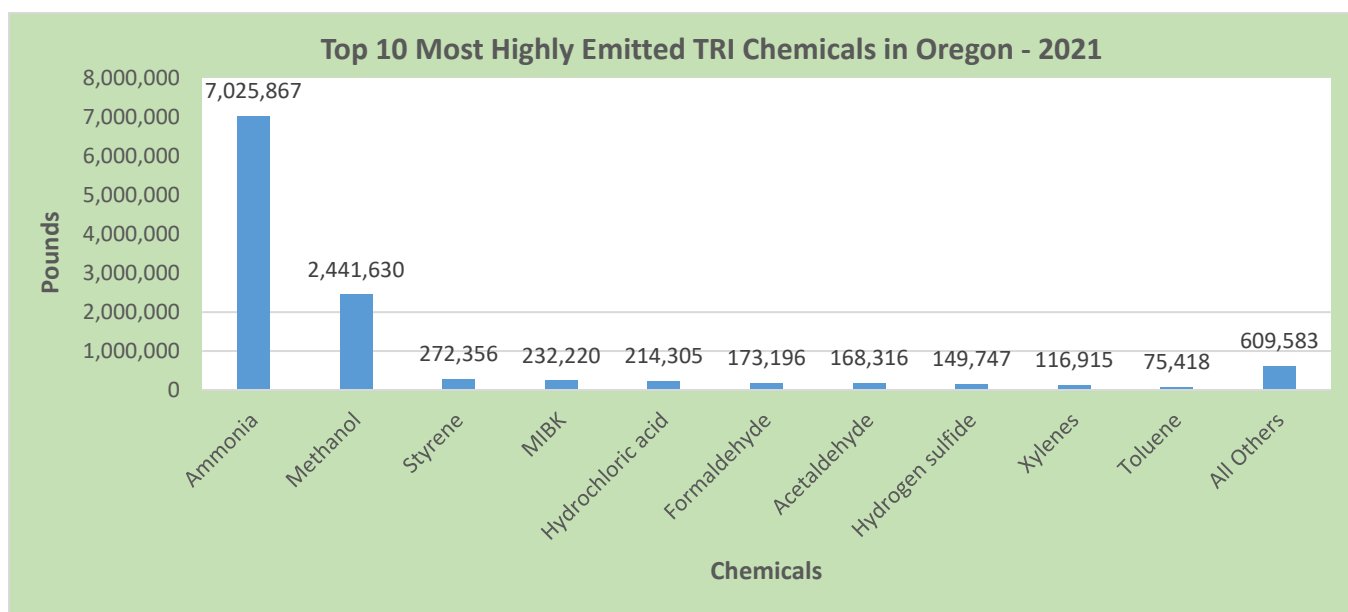
The top 10 most highly emitted TRI chemicals in 2018, 2019, 2020, and 2021 in Oregon include the same 10 chemicals: *ammonia, methanol, hydrochloric acid, hydrogen sulfide, acetaldehyde, methyl isobutyl ketone, formaldehyde, styrene, toluene, and either xylenes or nitric acid*. The bar graph shown below in Figure 1 presents the top 10 most highly emitted TRI chemicals in Oregon in 2021.

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**Figure 1**



The total amount of emissions of all TRI chemicals statewide in 2021 was 11,479,553 pounds.

The top ten TRI reporting facilities in Oregon in 2021 – that is, the ten facilities emitting the highest total amount of multiple chemicals -- are presented in Section 3.0.

The 2021 TRI also identified Oregon facilities which do not have air permits, but still reported estimated emissions to the TRI. DEQ provides a list of these facilities and the amounts of chemicals being emitted in Section 5.0.

# 1.0 Evaluating Toxics Release Inventory data for Oregon

## 1.1 How the TRI Works

The original 2021 TRI database is a product published by EPA, which is the appropriate agency to contact if complex questions arise. Information in this summary can be used by DEQ to identify emissions from facilities that might need further evaluation. DEQ downloaded data to obtain lists of statewide TRI chemicals, lists of emitting facilities and their locations, amounts of chemicals emitted by each facility, and identify any trends in chemical emissions that have occurred over the past 11 years.

If a facility is emitting a pollutant in large enough amounts to exceed TRI limits, or thresholds, then that facility must submit emissions estimates for that pollutant to the TRI, as required by the EPA. There are basically three types of TRI thresholds:

- 1) If a facility **manufactures or processes** a chemical that is estimated to be emitted at greater than 25,000 pounds per year, and that chemical is *not* persistent, bioaccumulative, or toxic (“PBT” as defined per the Inventory), that facility must submit an emissions estimate to the TRI for that chemical.

“Persistent” means the chemical does not break down easily and stays around for a long time.

“Bioaccumulative” means that the chemical travels to the tissues of humans, animals, or plants and builds up to higher concentrations in that tissue over time. “Toxic” means the health effects a chemical has, such as causing cancer or things like liver damage.

- 2) Emissions estimates must also be submitted to the TRI if a chemical that is “otherwise used” at the facility and is *not* persistent, bioaccumulative, or toxic is emitted at greater than 10,000 pounds/year. The term “otherwise used” includes any use of a toxic chemical contained in a mixture or other trade name product or waste, that is not covered by the terms *manufacture* or *process*.

The TRI also has a list of 21 persistent, bioaccumulative, or toxic chemicals that must be reported at much lower levels if manufactured, processed, or otherwise used by a facility.

As of 2023, there were 794 individual chemicals and 33 chemical categories on the TRI list of chemicals – although not all toxic chemicals in the U.S. are included. Generally, chemicals covered by the TRI are those that cause one or more of the following:

- Cancer or other chronic human health effects
- Significant adverse acute human health effects
- Significant adverse environmental effects

## 1.2 Limitations of the Toxics Release Inventory

The TRI provides only certain kinds of information. Operating facilities are required to report to the TRI if they employ the equivalent of 10 or more full-time employees; if they manufacture, process, or other use of other chemicals listed in the TRI at thresholds as described above; and must be either a federal facility or a “covered” industry as identified by the TRI using North American Industry Classification System-coded industries (e.g., mining facilities, utilities, primary metal manufacturing facilities, and others). This means, for example, that facilities manufacturing, processing, or otherwise using toxic chemicals at amounts less than the prescribed thresholds do not have to report to the TRI. In addition, the TRI only considers emissions coming from operating facilities and so does not reflect other types of emissions that may be occurring, such as from cars and agricultural activities.

Facilities can change their initial emission estimates to the TRI at any time. Such revisions sometimes result in significant changes in emission estimates that don’t end up being consistently revised in the larger databases that combine TRI and other air toxics data, including EPA’s.

Finally, the TRI does not provide any of the potential human health risks related to the emissions reported to it. However, TRI data in combination with other air toxics databases are used by EPA to generate risk estimates for air toxics in the United States. EPA shares these risk estimates by publishing the AirToxScreen data, which

replaced the former National Air Toxics Assessment, or NATA, reports. EPA first provided AirToxScreen data for 2017 air emissions data in the fall of 2021. AirToxScreen reporting will occur every year.

### 1.3 Are levels of TRI chemicals in Oregon decreasing over the years?

Yes, levels of TRI chemical emissions in Oregon are decreasing, as shown in [Table 1 - Annual TRI Emissions in Oregon](#). For the purposes of this discussion, we will set aside the ammonia emissions data from the Dyno-Nobel facility. We know that ammonia emissions from this facility are increasing, and the millions of pounds emitted annually make it hard to determine if other TRI emissions in Oregon are decreasing.

If we do not include ammonia emissions from Dyno-Nobel, yearly total emissions of TRI chemicals in Oregon from 2011 to 2021 decreased by about 12.5 percent, decreasing from 5,779,949 pounds in 2011 to 5,055,860 pounds in 2021.

### 1.4 Problems with TRI Reporting by the Dyno-Nobel facility in St. Helens, Oregon

Prior to 2019, TRI data for Dyno-Nobel originally showed annual ammonia emissions of about 630,000 pounds from 2015 through 2018. However, in 2019 Dyno-Nobel was cited by EPA for multiple reporting violations beginning in 2015, including their submittal of TRI data that vastly underestimated the actual amounts of ammonia they were emitting in the years prior to 2019. In the related 2019 Consent Decree, EPA required Dyno-Nobel to conduct source testing of emissions from the Urea Vent Tank scrubber to obtain more accurate emissions estimates and to correct their previous inaccurate TRI data. From 2019 to the present, TRI data for ammonia emissions from Dyno-Nobel show ammonia emissions of approximately 6,000,000 to 7,000,000 pounds. Once the TRI data for Dyno-Nobel were corrected, emissions of ammonia from 2011 through 2018 were at approximately 1,200,000 pounds. Therefore, the reported emissions of ammonia from this facility increased significantly starting in 2019.

In June 2019, EPA fined the Dyno-Nobel facility for violating federal laws meant to protect the public and first responders from dangerous chemicals like anhydrous ammonia, which was stored at its St. Helens location. Details are provided in the related [EPA press release for Dyno Nobel](#). Additional information is available here: [Dyno Nobel Information Sheet | US EPA](#).

## 2.0 Which Toxics Release Inventory chemicals are being emitted at the highest levels in Oregon?

### 2.1 Top 20 most highly emitted TRI chemicals

DEQ ranked TRI chemical releases in air by listing them in order of highest to lowest emissions, measured in pounds per year. For the purposes of this summary, the top 20 most-highly-emitted TRI chemicals are identified, and are listed below in Table 2. However, only the top 10 are discussed further in this summary report. Sections 2.1 and 2.2 provide additional information on these chemicals.

Table 2

Top 20 most highly emitted TRI chemicals	Emissions in 2021 (in pounds)
Ammonia	7,025,867
Methanol	2,441,630
Styrene	272,356
Methyl isobutyl ketone (MIBK)	232,220
Hydrochloric acid (acid aerosols including mists, vapors, gas, fog, and other airborne forms of any particle size)	214,305

Formaldehyde	173,196
Acetaldehyde	168,316
Hydrogen sulfide	149,747
Xylene (mixed isomers)	116,915
Toluene	75,418
Nitric acid	74,885
n-Butyl alcohol (1-Butanol)	68,355
Phenol	66,780
Cresol (mixed isomers)	48,087
Trichloroethylene	45,821
Ozone	33,683
Chlorine dioxide	33,162
Certain glycol ethers	32,048
Hydrogen fluoride (Hydrofluoric acid)	29,442
Sulfuric acid (acid aerosols including mists, vapors, gas, fog, and other airborne forms of any particle size)	26,518

## 2.2 How are the top 10 most highly emitted Toxics Release Inventory chemicals in Oregon used in industrial processes?

Ammonia – most commonly used as a source of nitrogen for fertilizers worldwide, but also for production of plastics, fibers, explosives, nitrogen compounds, and intermediates for dyes and pharmaceuticals.

Methanol – used as a building block to produce synthetic hydrocarbons; is also used in industrial operations as a solvent or energy carrier; or directly used as a fuel for transportation.

Styrene – used in the production of plastics, latex paints and coatings, synthetic rubbers, polyesters and styrene-alkyd coatings.

Methyl isobutyl ketone (MIBK) – a good solvent for wide range of industrial materials. Also used as coating solvents; for rare-metal extraction; as a process solvent for adhesives, ink formulations, leather finishing, pharmaceuticals; and as a chemical intermediate.

Hydrochloric acid – most commonly used to produce corn syrups, adjust the pH of products and wastewater, acid-modify cornstarch, and produce soft drinks. Also used to remove scale and iron oxides from the surface of steel, and to remove scale, rust, and other undesirable deposits from oil wells.

Formaldehyde – used to manufacture resins, and because of the way it interacts with proteins, it is also used in the tanning industry and in treating various vegetable proteins to render them fibrous.

Acetaldehyde – used in the production of other chemicals such as acetic acid, peracetic acid, and pyridine. Also used as an intermediate in the synthesis of resins and plasticizers.

Hydrogen sulfide – used to refine oil and gas, and in mining, tanning, pulp and paper processing, and rayon manufacturing.

Xylene (mixed isomers) – used in fabric production as a component of polyesters, and as a solvent in printing, leather, and rubber industries. Also extracted as a byproduct of petroleum refining and is used as fuel because it is flammable. It is also used in the manufacturing of plastic bottles and other items. It is a solvent used to

clean things like steel and silicon wafers. In the medical world, it is used as an anesthetic that affects the central nervous system.

Toluene – this chemical is a raw material obtained from crude oil and used to manufacture plastics, paints, and varnishes, and in benzene production.

## **2.3 What kinds of health effects are caused by the top 10 most highly emitted Toxics Release Inventory chemicals in Oregon?**

The symptoms listed below for the top 10 most highly emitted TRI chemicals in Oregon are related to inhalation of the chemical, which can cause both acute (immediate) and chronic (longer-term) health effects. These chemicals must be at relatively high concentration in the air you're breathing to cause these effects, but not in all cases. This means, for example, that you would be much more likely to suffer symptoms if you were living or working close to the facility emitting these chemicals than you would if you were located further away. In addition, wind direction, topographical features, and technical controls used by the facility would play a large part in the concentrations in air that you might actually be exposed to.

Ammonia – can cause coughing, burning sensation in throat, breathing difficulties, an altered mental state, runny nose, eye irritation and skin burns. Can be fatal in severe cases. Has only noncancer effects.

Methanol – can cause headaches, blurred vision, and muscle pain as well as adverse developmental effects. Small amounts can cause blindness or even death. Has only non-cancer effects.

Styrene -- can cause drowsiness; vertigo; slight muscle weakness; irritation of the eyes and mucous membrane; gastrointestinal effects. Has only non-cancer effects.

Methyl isobutyl ketone (MIBK) – causes developmental toxicity; can irritate eyes, nose, and throat when inhaled as well as headaches, loss of appetite, nausea, vomiting, and diarrhea. Has both cancer and noncancer effects.

Hydrochloric acid – can cause chest tightness, choking, coughing up blood, dizziness, low blood pressure, rapid pulse, shortness of breath, and a bluish color on the lips and fingernails. Has only non-cancer effects.

Formaldehyde – can cause airway irritation, bronchospasms, and edema (swelling of tissues); in severe cases, can cause tissue and organ damage, and coma. Has both cancer and non-cancer effects.

Acetaldehyde – can irritate the eyes, skin, and respiratory tract; can cause coughing, pulmonary edema, and shortness of breath. Has both cancer and non-cancer effects.

Hydrogen sulfide – primary targets are the nervous system and respiratory system. Can cause nausea, headache, delirium, loss of balance, tremors, convulsions, and irritation to the eyes, skin, and respiratory system. Has only non-cancer effects.

Xylene (mixed isomers) – can cause central nervous system effects like headache, dizziness, balance problems, tremor, ventricular arrhythmias, acute pulmonary edema, nausea, chest pain, cough, and in severe cases, coma. Has only noncancer effects.

Toluene – – exposure to this chemical can cause eye and nose irritation, tiredness, confusion, euphoria, dizziness, headache, dilated pupils, anxiety, muscle fatigue, nerve damage, skin inflammation, and liver and kidney damage. Has only non-cancer effects.

## **3.0 Which Oregon facilities have reported the highest amounts of Toxics Release Inventory emissions?**

In the previous section, the top ten most highly emitted pollutants in Oregon were discussed. In this section, the ten facilities emitting the highest amounts of total TRI chemicals, or the top ten highest TRI reporters, are shown in the Table 3 below. For example, the Oregon facility that emitted the highest amount of multiple chemicals is the Dyno Nobel – St Helens Plant in Deer Island. Most of these emissions were due to ammonia, but the facility emitted nitric acid and formaldehyde, as well.

**Table 3: Top 10 highest reporters of TRI chemicals in 2021**

<b>Rank</b>	<b>Company Name and Location</b>	<b>Sum of Pollutants (pounds/year)</b>
<b>1</b>	DYNO NOBEL- ST HELENS PLANT, 63149 Columbia River Highway, Deer Island, Columbia County. Oregon source ID number: 05-2085. CAO Group 3	<b>6,423,693</b>
<b>2</b>	CASCADE PACIFIC PULP HALSEY PULP MILL, 30480 American Drive, Halsey, Linn County. Oregon source ID number: 22-3501. CAO Group 3	<b>1,124,718</b>
<b>3</b>	GEORGIA-PACIFIC TOLEDO LLC, 92326 Taylorville Road, Clatskanie, Columbia County. Oregon source ID number: 04-0004. CAO Group 1	<b>665,485</b>
<b>4</b>	INTERNATIONAL PAPER, Springfield LRAPA	<b>465,808</b>
<b>5</b>	GEORGIA-PACIFIC CONSUMER OPERATIONS LLC, 92326 Taylorville Road, Clatskanie, Columbia County. Oregon source ID number: 04-0004. CAO Group 3	<b>322,926</b>
<b>6</b>	COLLINS PRODUCTS LLC, 6410 Highway 66, Klamath Falls, Klamath County. Oregon source ID number: 18-0013. CAO Group 3	<b>316,507</b>
<b>7</b>	TDY INDUSTRIES INC DBA WAH CHANG, 1600 Old Salem Road NE, Albany, Linn County. Oregon source ID number: 22-0547. CAO Group 2	<b>251,932</b>
<b>8</b>	ON SEMICONDUCTOR, 23400 NE Glisan Street, Gresham, Multnomah County. Oregon source ID number: 26-0027. CAO Group 3	<b>104,954</b>
<b>9</b>	ROSEBURG FOREST PRODUCTS DILLARD COMPLEX, Old Highway 99 S, Dillard, Douglas County. Oregon source ID number: 10-0025. CAO Group 2	<b>102,504</b>
<b>10</b>	ARCLIN SURFACES LLC, 2301 N. Columbia Boulevard, Portland, Multnomah County. Oregon source ID number: 26-3009. CAO Group 3	<b>85,562</b>

Footnotes:

CAO Group 1, CAO Group 2, CAO Group 3 – facilities called in or to be called in by Cleaner Air Oregon based on a prioritization rating.

LRAPA – this facility is located in Lane County and is under the jurisdiction of Lane Regional Air Protection Agency.

### **Section 3.1 Oregon facilities responsible for entire statewide emissions of a specific TRI chemical in 2021**

Six Oregon facilities emitted 100% of a TRI chemical statewide in 2021 as listed below. The highlighted chemicals are on one or both of the top 20 cancer-weighted and noncancer-weighted emissions lists (Table 4 in Section 4.0).

Boeing Company of Portland, 19000 NE Sandy Boulevard, Portland, Multnomah County. Oregon source ID number: 26-2204. Emitted 100 percent of **tetrachloroethylene** reported to the TRI, 7,433 pounds. CAO Group 2.

Entek International LLC, 250 N. Hansard Avenue, Lebanon, Linn County, Oregon. Oregon source ID number: 22-6024. Emitted 100 percent of **trichloroethylene** reported to the TRI, 45,821 pounds. CAO Group 1.

FXI Inc., 3900 NE 158<sup>th</sup> Avenue, Portland, Multnomah County. Oregon source ID number: 26-3266. Emitted 100 percent of the **toluene diisocyanates** reported to the TRI for permitted facilities in 2021, 52 pounds. CAO Group 3 under the name Hickory Springs of California, LLC.

Lacamas Laboratories Inc., 3625 N. Suttle Road, Portland, Multnomah County. Oregon source ID number: 26-3230. Emitted 100 percent of **1,4-dioxane** reported to the TRI, 89 pounds. CAO Group 3.

Orchid Orthopedic Solutions Oregon Inc., 13963 Fir Street, Oregon City, Clackamas County. Oregon source ID number: 03-2505. in Oregon City. Emitted 96 percent of the **cobalt compounds** reported to the TRI, 377 pounds. This facility's emissions of Cobalt compounds have increased over time since 2014 for this TRI chemical. CAO Group 3.

TDY Industries Inc. DBA Wah Chang, 530 34<sup>TH</sup> Avenue SW, Albany, Linn County Already listed above as one of the 10 highest TRI reporters in Oregon. Emitted 100 percent of the **phosgene** reported to the TRI, 635 pounds. This facility has emitted annual amounts of phosgene every year from 2012 through 2021 ranging from 407 pounds in 2016 to 7,600 pounds prior to 2016. This facility also emitted 99.7 percent of the **methyl isobutyl ketone** emissions in the state in 2021. CAO Group 2.

## 4.0 Which Toxics Release Inventory chemicals in Oregon can cause cancer effects and non-cancer effects?

In addition to identifying the most highly emitted TRI chemicals in Oregon in 2021, DEQ is also interested in identifying emissions of TRI chemicals that cause cancer or cause adverse noncancer health effects; some TRI chemicals may cause both types of health effects. Identifying these chemicals is important because the most highly emitted TRI chemicals in Oregon may not be the most toxic TRI chemicals emitted in Oregon. Knowing how toxic a TRI chemical is and the amounts at which it is emitted may help the DEQ identify facilities that require additional evaluation.

DEQ weighted the Oregon TRI data by comparing emitted amounts of TRI chemicals to chemical-specific risk-based concentrations provided in Oregon rule. These are sometimes referred to as risk-equivalent emission rates, or REERs. Risk-based concentrations indicate the potency of carcinogenic chemicals and noncarcinogenic chemicals (refer to Cleaner Air Oregon Program, rules OAR 340-245-8010 - Table 2-Risk-Based Concentrations).

A highly toxic chemical emitted in small amounts might be of more concern than a less-toxic chemical emitted in large amounts, and this is what makes weighting the results useful. This process gives the DEQ a rough idea of facility emissions that might be of more concern than others in terms of possible adverse health effects. However, this ranking DOES NOT represent actual human health risk caused by TRI chemicals.

A ranked list of the top 20 weighted carcinogenic chemicals and noncarcinogenic chemicals is available in Table 4 below. Note that some chemicals have both carcinogenic and noncarcinogenic effects, and so there will be some overlap between the two lists.

**Table 4: Top 20 TRI chemical emissions weighted based on cancer potency and noncancer toxicity**

Rank	Weighted by cancer potency and emissions	Weighted by noncancer toxicity and emissions
1.	Dioxins and dioxin-like compounds	Dioxins and dioxin-like compounds
2.	Polycyclic aromatic hydrocarbons (PAHs)	Hydrogen sulfide



3.	Chromium compounds	Chlorine
4.	Formaldehyde	Chlorine dioxide
5.	Acetaldehyde	Manganese compounds
6.	Trichloroethylene	Sulfuric acid (acid aerosols including mists, vapors, gas, fog, and other airborne forms of any particle size)
7.	Epichlorohydrin	Trichloroethylene
8.	Nickel compounds	Nickel compounds
9.	Ethylbenzene	Formaldehyde
10.	Naphthalene	Lead compounds
11.	Benzene	Ammonia
12.	Tetrachloroethylene	Hydrogen fluoride (Hydrofluoric acid)
13.	1,3-Butadiene	Hydrochloric acid (acid aerosols including mists, vapors, gas, fog, and other airborne forms of any particle size)
14.	Methyl tert-butyl ether (MTBE)	Chromium compounds
15.	Toluene diisocyanate (mixed isomers)	Cobalt compounds
16.	Di(2-ethylhexyl)phthalate	Toluene diisocyanate (mixed isomers)
17.	1,4-Dioxane	Phosgene
18.	Pentachlorophenol	Epichlorohydrin
19.	Benzo(g,h,i)perylene	Acetaldehyde
20.	Hexachlorobenzene	Acrolein

## 5.0 Are emissions of Toxics Release Inventory chemicals occurring from unpermitted facilities in Oregon?

Yes. There are 107 unpermitted facilities in Oregon – not including the 21 unpermitted facilities located in Lane County – identified in the 2021 TRI data. It is important to identify chemicals estimated to be emitted from facilities in Oregon which do not currently have air quality permits so that the DEQ can determine whether a facility may be required to obtain a permit. Of the 107 facilities in Oregon identified by the TRI as unpermitted, 26 of them reported chemical emissions for 2021. The names, locations and types of emissions from these facilities are available in [Table 5 - Unpermitted TRI Reporters in Oregon](#). Facilities located in Lane County are under the jurisdiction of the Lane Regional Air Protection Agency, or LRAPA, and are not listed or discussed further here.

Even with only zero emissions, industrial facilities must still report to the TRI if they meet the reporting thresholds for manufacturing, processing, or otherwise using listed chemicals, because the TRI tracks chemical and waste management activities, not just emitted releases. When a facility continues to record zero emissions of a TRI chemical, it most likely means that the facility didn't actually release that chemical, but instead took care of it through recycling, energy recovery, or treatment during the reporting period.

Facilities are required to contact the DEQ Air Quality permitting program if they think they may be emitting chemicals that would require them to get a DEQ Air Permit. To obtain an air permit, a facility must undergo a review process by DEQ that uses specific criteria to determine if a permit is needed. In 2021, all existing permitted facilities in Oregon with simple, standard, or Title V air permits were reviewed and categorized by the Cleaner Air Oregon program in terms of which facilities should be called in for potential risk assessment. Any new facilities (also referred to as sources) that require air permits are now reviewed by Cleaner Air Oregon as

part of obtaining a permit. A new facility is one that needs to be built or is part of an existing source that has moved to a new location.

Since all TRI chemicals have some type of health effect, identifying the nonpermitted facilities emitting TRI chemicals may lead to DEQ requiring these facilities to obtain air permits, so that their emissions can be monitored on a regular basis and emission controls implemented to protect human health, if needed.

The three unpermitted TRI facilities listed below emitted compounds in 2021 that are of potentially high human health concern, including hydrogen fluoride and heavy metals. If screening results indicate potentially unacceptable risks, Cleaner Air Oregon can investigate the facility further. To get an idea of whether these emissions warrant further evaluation, a risk assessment screening was done using conservative assumptions. This process is part of Cleaner Air Oregon and is laid out according to the values and footnotes in Table 3C in OAR 340-245-8010, which include emission dispersion factors and formulas for both chronic and acute exposure to emissions emitted by a facility. Once the results are calculated, they can then be compared to Risk Action Levels for Existing Sources (OAR 340-245-8010, Table 1).

**Cascade Columbia Distribution, Sherwood, Washington County: 737 pounds of Hydrogen fluoride, 458 pounds of Nitric acid.**

Both compounds have only noncarcinogenic effects. The risk screening results showed that emissions of these two chemicals from this facility did not result in unacceptable levels of human health risk. There is no need for Cleaner Air Oregon to further investigate this source at this time.

**Benchmade Knife Co., Oregon City, Clackamas County: 9 pounds Chromium and chromium compounds**

Due to the possibility that there may be a human health risk concern with Benchmade's 2021 chromium emissions, Cleaner Air Oregon is currently (as of September 2025) following up with the company. DEQ is in discussions with Benchmade and have requested additional information on how they control their emissions. DEQ will then further evaluate potential human health risks to nearby residents.

**Cardinal Glass, Hood River, Hood River County: 3 pounds Chromium compounds, 1 pound Manganese compounds, and 1 pound Nickel compounds**

Chromium emissions estimates were submitted to the 2021 TRI, and DEQ had initial concerns with potential human health risk to nearby residents. Therefore, Cleaner Air Oregon staff held a virtual meeting with Cardinal Glass representatives and were able to obtain specific details of how their processes work, the assumptions they made regarding their estimate of the 3 pounds of chromium reported to the TRI in 2021, and what kinds of controls are in place. Based on this information, Cleaner Air Oregon has no human health risk concerns with emissions from Cardinal Glass.

The TRI identified certain Oregon facilities as being unpermitted but emitting certain TRI chemicals. Based on DEQ information, however, some of them are instead currently permitted --and so were determined not to need an air permit --or closed (as of August 2024). These include:

- **Ultimate RB, McMinnville, Yamhill County**  
290 pounds Diisocyanates.  
This facility previously had been operating without contacting DEQ about needing an air permit.  
*Permanently closed in June 2023.*
- **Highline Warren – Albany, Albany, Linn County**  
3,033 pounds Methanol (an increase from the 1,752 pounds emitted in 2020)  
This facility submitted a pre-application for an air permit to DEQ on April 26, 2024. DEQ had the facility perform emissions calculations, address concerns about operational procedures, and then vetted it through the Cleaner Air Oregon program. Currently, DEQ will not require that Highline Warren get an air permit. DEQ Air Quality staff are keeping in contact with the facility's DEQ hazardous waste inspector to make sure nothing changes.
- **Orenco Systems, Inc., Roseburg, Douglas County**

This facility is comprised of three different locations, but all are regulated under the same air permit. Large amounts of styrene emissions (71,699 pounds in 2021) and dicyclopentadiene (1,554 pounds in 2021) were emitted by this facility. The TRI incorrectly identifies these three locations as three separate, unpermitted facilities.

## 6.0 What important information is obtained from DEQ review of TRI data?

The Oregon Department of Environmental Quality is committed to advancing environmental protection and justice for all communities and ecosystems in Oregon, now and for future generations. Evaluating annual TRI emissions data provided by EPA for Oregon is one of the tools DEQ uses to do this. DEQ uses TRI data to identify which TRI chemicals are emitted in the highest amounts in Oregon; identifies which Oregon facilities are the biggest emitters of TRI chemicals; and evaluates facilities currently without air permits in Oregon that are emitting TRI chemicals.

The top 10 most highly emitted TRI chemicals in 2018, 2019, 2020, and 2021 in Oregon include the same 10 chemicals: *ammonia, methanol, hydrochloric acid, hydrogen sulfide, acetaldehyde, methyl isobutyl ketone, formaldehyde, styrene, toluene, and either xylenes or nitric acid*. This information is available in [Table 6 - Top 10 TRI Chemicals Emitted in Oregon](#). These 10 chemicals are being emitted by facilities that the Cleaner Air Oregon program regulates. The goal is to decrease emissions of these chemicals from these facilities to levels that do not cause unacceptable human health risk.

Some of those 10 TRI chemicals are also some of the most potent or toxic, for example acetaldehyde and hydrogen sulfide. But many TRI chemicals that are emitted in small amounts can be highly toxic – like dioxins and dioxin-like compounds. DEQ is interested in not only large amounts emitted, but also potent compounds released in small quantities, to make decisions about protecting public health. DEQ is working to reduce the toxic compounds in air, including TRI chemicals, through industrial air permitting and Cleaner Air Oregon oversight.

In addition, DEQ includes environmental justice considerations in the work that the agency does, as emphasized above. Certain neighborhoods and populations tend to be more vulnerable to exposure to air toxics when they are already overburdened with less access to health care and fresh food; with lower incomes; a higher proportion of existing health conditions such as asthma; greater proximity to heavy traffic and its related health impacts, as well as greater proximity to hazardous waste sites; older housing containing lead paint and other toxins; impacts from crime and violence; and with less access to adequate education. The Cleaner Air Oregon program focuses on the facilities of most concern by considering the total population exposed to the facility emissions; presence of minority populations; low-income levels in those communities; and the presence of children who are under five years of age and more vulnerable to exposure to air toxics.

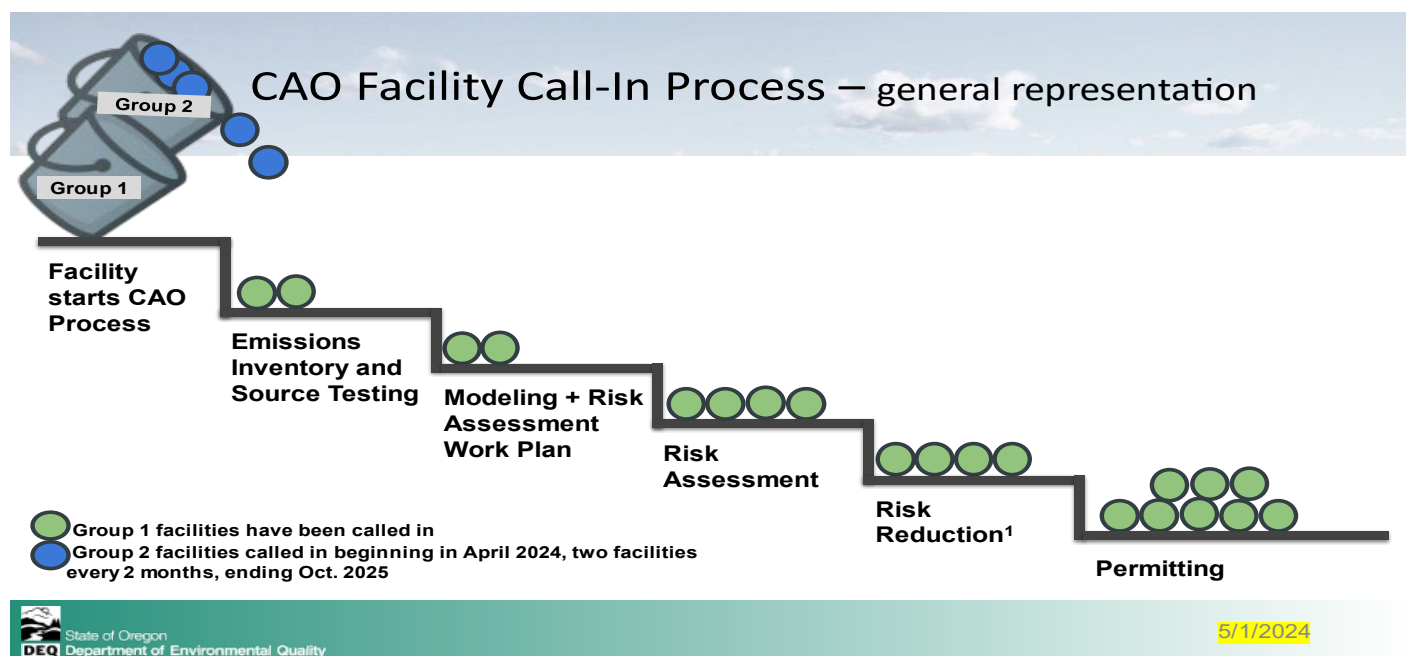
The Cleaner Air Oregon program requires facilities that are emitting unacceptably high concentrations of air toxics to reduce their emissions based on the related human health risk. Many TRI facilities discussed in Section 3.0 are facilities that Cleaner Air Oregon is calling in to determine if the facilities' emissions are causing unacceptable levels of human health risk.

Further information on the Cleaner Air Oregon facility call-in process can be found on the [Cleaner Air Oregon webpage](#). Facilities being called in by Cleaner Air Oregon are sorted into Prioritization Groups. The groups were determined by considering each facility's assigned Prioritization Score and available Qualitative Data, as defined by Cleaner Air Oregon:

- Group 1: (20) facilities to be called in during the first year; as of December 2022, all Group 1 facilities have been called in and most are now nearly finished with or done with all call-in requirements, as of April 2024.
- Group 2: (20) facilities will be called in during April 2024 through October 2025. As of July 2025, about 15 of these 20 facilities have been called in.
- Group 3: (315) lower-priority facilities to be called in as resources permit or if new information becomes available.

Figure 2 shows an approximation of the basic Cleaner Air Oregon evaluation process as it stands currently.

Figure 2



DEQ also works with other agencies in the pursuit of cleaner air, such as the Oregon Health Authority and the City of Portland. The Oregon Health Authority and DEQ continue to be active partners in the ongoing implementation of the Cleaner Air Oregon program.

Additional information for the 2021 TRI data for Oregon and other states is available on [EPA's website](#).

## Contact

If you have specific questions for DEQ or would like this data in another format, please contact Sue MacMillan, Air Toxics Science and Policy Analyst, at 503-875-7741 or [susan.macmillan@deq.oregon.gov](mailto:susan.macmillan@deq.oregon.gov).

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