

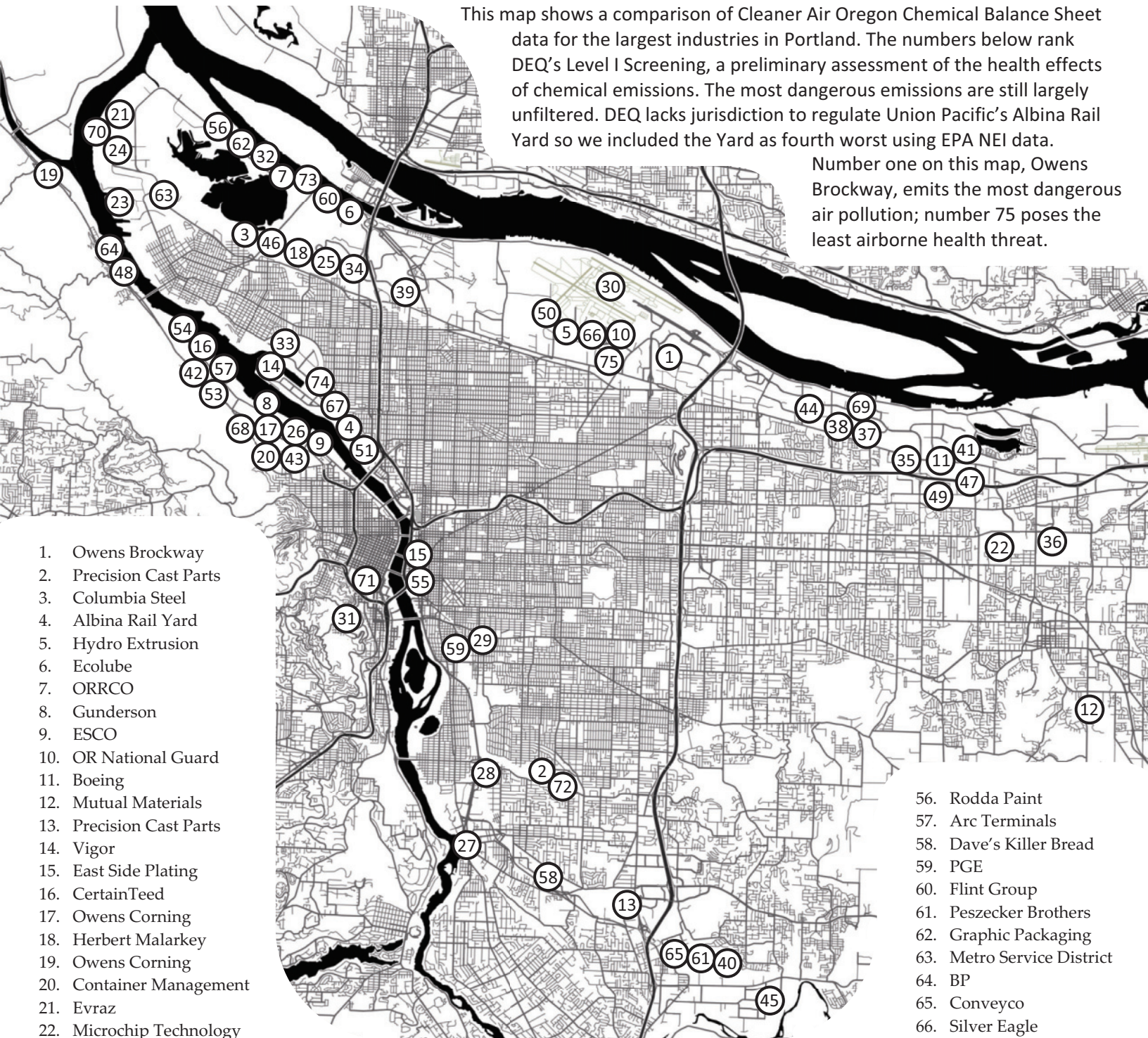


# INDUSTRIAL AIR POLLUTERS

Portland factories ranked by risk to human health

This map shows a comparison of Cleaner Air Oregon Chemical Balance Sheet data for the largest industries in Portland. The numbers below rank DEQ's Level I Screening, a preliminary assessment of the health effects of chemical emissions. The most dangerous emissions are still largely unfiltered. DEQ lacks jurisdiction to regulate Union Pacific's Albina Rail Yard so we included the Yard as fourth worst using EPA NEI data.

Number one on this map, Owens Brockway, emits the most dangerous air pollution; number 75 poses the least airborne health threat.



1. Owens Brockway
2. Precision Cast Parts
3. Columbia Steel
4. Albina Rail Yard
5. Hydro Extrusion
6. Ecolube
7. ORRICO
8. Gunderson
9. ESCO
10. OR National Guard
11. Boeing
12. Mutual Materials
13. Precision Cast Parts
14. Vigor
15. East Side Plating
16. CertainTeed
17. Owens Corning
18. Herbert Malarkey
19. Owens Corning
20. Container Management
21. Evraz
22. Microchip Technology
23. Northwest Pipe
24. Ash Grove Cement
25. Arclin
26. Solenis
27. Clackamas County
28. East Side Plating
29. Bullseye Glass
30. Port of Portland
31. OHSU

32. Supreme Perlite
33. Daimler Trucks
34. Blasen Lumber
35. US Bancorp
36. SemiConductor Comp.
37. Hickory Springs of CA
38. Signature Graphics
39. Mondelez

40. Peco
41. City of Gresham
42. Kinder Morgan
43. Galvanziere
44. Canron
45. PGE
46. City of Portland
47. Cascade

48. Shore Terminals
49. International Paper
50. Boeing
51. Oldcastle Building
52. US Bakery
53. Phillips 66
54. Siltronic
55. East Side Plating

56. Rodda Paint
57. Arc Terminals
58. Dave's Killer Bread
59. PGE
60. Flint Group
61. Peszecker Brothers
62. Graphic Packaging
63. Metro Service District
64. BP
65. Conveyco
66. Silver Eagle
67. Ash Grove Cement
68. Equilon
69. Pierce Pacific
70. J. R. Simplot
71. PSU
72. McClure
73. Lacamas
74. EZFlow
75. Apex Anodizing



## The most dangerous Portland-area stationary industrial air polluters

Health risks are from DEQ Level I Screening data unless otherwise cited.

Cancer risk is expressed as expected cases per million people; noncancer risk is stated as a Hazard Index. Both are calculated as risk to neighbors living 50 meters from the smokestack.

Portland ranking		cancer risk	noncancer chronic risk	noncancer acute risk	prioritization risk estimate
1 *	Owens Brockway	29,796	354	110	1,655
2 *	Precision Cast Parts	31,479	191	127	1,577
3 *	Columbia Steel	15,749	36	44	709
4 **	Union Pacific, Albina	5,996	noncancer data unknown		239
5	Hydro Extrusion	1,560	116	26	204
6	Ecolube no data, Ecolube failed to provide an Emissions Inventory to DEQ				
7	ORRCO	882	36	123	194
8	Gunderson	412	51	102	169
9	ESCO	1,206	30	7	85
10	OR National Guard	1,989	<1	1	80
11 **	Union Pacific, Brooklyn	1,998	noncancer data unknown		79

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Under Cleaner Air Oregon, existing facilities with Best Available Control Technology or who are in compliance with a National Emission Standards for Hazardous Air Pollutants order, are allowed to emit air contaminants which will result in no more than 200 cancers per million people and have a Hazard Index no higher than 10.

### Washington County ranking

1 **	Hillsboro Airport	unknown	risk is dispersed differently		209
2	Intel	409	65	25	106
3	Stimson	334	34	18	65
4	T5@Portland	343	9	34	56
5	Lam Research	54	14	18	34
6	Jireh Semiconductor	19	26	<1	26

\* Owens Brockway, Precision Cast Parts, and Columbia Steel health risks were primarily from chromium. The numbers above assume 100% of the chromium is hexavalent. All three industries are currently source testing to reveal their percentage of hexavalent chromium to trivalent chromium because trivalent chromium is not a carcinogen. On December 30, 2019 Owens Brockway idled its green glass furnace, ending its chromium emissions. In 2020, Precision Cast Parts installed Ultra Low Particulate Air filters to dramatically reduce heavy metal emissions. Columbia Steel heavy metal emissions are still entirely unfiltered.

\*\* For Union Pacific and Hillsboro Airport ranking calculations go to:  
[pdxcleanair.org/files/reports/polluter%20ranking%20method.pdf](https://pdxcleanair.org/files/reports/polluter%20ranking%20method.pdf)

1. The most dangerous Portland smokestack according to the DEQ Level I Screening was Owens Brockway in the Sumner neighborhood. Stack testing revealed 192 pounds of lead and 597 pounds of arsenic were released in 2021 alone. Owens signed an agreement with DEQ in June 2022 to install a catalytic ceramic filter, the best choice to control heavy metal particulate matter, nitrogen oxides and sulfur dioxide. In June 2021, DEQ fined Owens \$1,023,054, which was reduced to \$662,000, of which \$529,000 would go to the nonprofit Friends of Trees to plant trees in the neighborhood.

2. The 2<sup>nd</sup> greatest risk to human health from

airborne industrial air pollution according to the DEQ Screening was the heavy metals from Precision Cast Parts in SE Portland, who agreed to pay \$22.5 million in March 2022 to settle a class action lawsuit over air pollution. This includes \$9.7 million for pollution control equipment. We await DEQ stack testing results for Precision Cast Parts.

3. 3<sup>rd</sup> was Columbia Steel in North Portland, who announced in August 2022 it will close the 121 year old plant permanently. Stack testing revealed Columbia Steel released 2,409 pounds of manganese in 2020.



4. Hydro Extrusion comes came in 4<sup>th</sup> for their massive emissions of Diethylene glycol monobutyl ether in Cully neighborhood. Hydro Extrusion currently has no control devices installed. Hydro Extrusion requires citizen action, as they have not agreed to install a control device and DEQ has no immediate date to require them to mitigate.

5. Fifth is Ecolube, near Hayden Island, who installed a thermal oxidizer after citizen protest in 2017 to mitigate massive VOC releases that were caused by illegally removing their thermal oxidizer approximately eight years previous. Now fugitive emissions appear to be the problem. We are working to get this answered by DEQ now.

6. ORRICO, near Hayden Island, is sixth, and is likely emitting dangerous levels of Benzo[a]pyrene and strong smelling hydrogen sulfide according to the DEQ Screening. ORRICO requires citizen action, as they currently has no control devices installed, doesn't plan to mitigate, and DEQ doesn't plan to consider regulating them anytime soon.

We calculated Alibina Railyard would be 4<sup>th</sup> most dangerous to human health by using EPA National Emissions Inventory (NEI) data and California risk assessments for diesel particulate. Albina rail yard, near Overlook neighborhood, is likely the largest nexus of unfiltered diesel trucks in the Portland area. Albina Rail Yard also releases 14,778 pounds of VOC (volatile organic compounds AKA industrial solvents) annually according to EPA NEI because the Rail Yard does not use a thermal oxidizer for truck/train chemical transfers. Brooklyn Yard in Inner SE is similarly dangerous and it is unclear if Union Pacific has shifted more operations from Albina to Brooklyn. DEQ cannot regulate Union Pacific; the EPA can but is unlikely to, leaving citizen action as the only alternative.

The Linnton tank farms emit dangerous VOC emissions and have little to no control devices installed. According to the Oregon Seismic Safety Policy Advisory Commission, "some tanks contain non-petroleum hazardous chemicals such as ammonia and chlorine that are lethal if released." "If a Cascadia earthquake were to occur today ...

the CEI Hub aftereffects would be as devastating as the 2011 Fukushima nuclear meltdowns in Japan. Citizen action is required to make the tank farms safe. DEQ has been refusing to regulate emissions for the tank farms, or even test them. Oregon, Multnomah County, and City of Portland lack authority to require seismic upgrades.

Since the Bullseye Glass scandal, 13 of the most dangerous Portland-area industries have mitigated due to citizen action. These include Porter Yett asphalt plant in Cully who installed a \$1 million Blue Smoke Control in 2017 to control emissions. Bullseye, Northstar, and Glass Alchemy glass plants installed bag houses. Oroboros Glass moved to Mexico. Intel Aloha installed more thermal oxidizers in 2017 and neighbors' protests resulted in DEQ investigating and levying a \$143,000 fine. Zenith, a tar sands oil terminal in Linnton, was denied an expansion permit in 2019. Malarkey Roofing in Kenton purchased a state-of-the-art regenerative thermal oxidizer (RTO) in 2020 and agreed to a \$1.45 million fine for formaldehyde emissions in July 2022. Arclin, also in Kenton, spent \$5 million installing a new RTO in 2019, but their onsite wastewater evaporator is still unfiltered and emits an estimated 13,588 pounds of formaldehyde annually, a dangerous carcinogen.

Preceding Bullseye Glass in the news in 2017, three industries abated due to citizen action. Esco in Inner NW Portland agreed to a \$1 million control device in 2011. Pembina LNG terminal was denied a permit in 2016. Vigor in NE Portland ended a \$1 million waste treatment program in 2017.

## **Industrial air pollution and human health risk in Oregon**

The Environmental Quality Commission (EQC) is a five-member panel appointed by Governor Brown to serve as the Oregon Department of Environmental Quality's (DEQ) policy and rulemaking board. As a result of the 2016 Bullseye Glass scandal, the EQC approved the Cleaner Air Oregon program in 2018 to begin to include the risk to human health in Oregon's regulation of industrial air pollution. Senate Bill 1541 (SB 1541) became law in 2018, specifying what level of health

risk is actionable by DEQ.

In 2018 Pete Shepherd, Interim Director for DEQ, sent a letter to Oregon's 364 largest stationary industrial air polluters, requiring them for the first time to accurately report all chemicals released into the air annually. Our procedures for how we made this data available to the public are here:

[pdxcleanair.org/files/procedures/DEQ%20CAO%20Emissions%20Inventories%20method.pdf](https://pdxcleanair.org/files/procedures/DEQ%20CAO%20Emissions%20Inventories%20method.pdf)

In January 2019, DEQ scientists finished a rough calculation of the cancer and noncancer risks of the chemical releases reported in Oregon industries' Emissions Inventories. Although this data was not released to the public, we obtained a copy through an information request and made the DEQ's "Prioritization Risk Values" publicly available here:

[portlandcleanair.org/files/portland\\_clean\\_air/deq\\_emissions/output\\_data/Prioritization%20Risk%20Values.xlsx](https://portlandcleanair.org/files/portland_clean_air/deq_emissions/output_data/Prioritization%20Risk%20Values.xlsx)

The DEQ Prioritization Risk Values are a "level one screening" which can significantly overestimate some risks. DEQ's goal is a relative ranking to prioritize which industries will require "source testing," a more accurate way to determine risk. Source testing is underway at some of the most dangerous Portland industrial air polluters.

## How DEQ reports health risk

DEQ scientists assess cancer and noncancer risks differently, which results in two different benchmarks. Cancer risks are reported as the expected number of cancers per million people, while noncancer health risks are stated as an Hazard Index (HI) number. Noncancer risks from industrial air pollution exposure can include breathing problems, heart disease, liver disease, impaired brain development, infertility, premature birth, and birth defects. An HI number of less than one means no health effects are expected. An HI number greater than one means adverse health effects are possible. The higher the HI number, the greater the risk.

As a result of SB 1541, facilities are required to take action to reduce air pollution depending on the cancer and/or noncancer health risk the facility poses to the public. Facilities posing a specified

level of health risk are required to keep neighbors informed of the risks as well as take action to mitigate their pollutants. In 2029, when the benchmarks will be reassessed, they can change but cannot be more tolerant of toxic exposure.

New and existing facilities have different benchmarks. New facilities are allowed to emit air contaminants which will result in 5 cancers per million people or have a Hazard Index 1 for noncancer causing contaminants. If a new industry's emissions exceed this, then a community engagement requirement is triggered and the facility must take action to reduce the emissions.

Existing facilities have a different standard which requires community engagement and action to reduce emissions if their air contaminant(s) cause 25 cancers per million or have a Hazard Index 1 for noncancer health effects. However, if an existing facility has the "Best Available Control Technology" in place or is in compliance with a National Emission Standards for Hazardous Air Pollutants order, they are allowed to emit air contaminants which will result in 200 cancers per million people and have a Hazard Index 10.

## Understanding health risk

To put the danger of smokestack emissions into perspective, it is helpful to compare them to other known health risks. The measles vaccine can cause a health risk of anaphylactic shock, which can be fatal, but the risk is very low. More than 70 million doses of Measles, Mumps, Rubella (MMR) vaccine have been distributed in the United States since 1990 but only 33 cases of anaphylactic reactions have been reported. This is a one-time risk of .47, or less than one case of anaphylactic shock per million. According to the Center for Disease Control, before the measles vaccination program started in 1963, the annual risk of getting measles was 15,856 per million which means that nearly all Americans got measles as a child. Each year before the vaccine was introduced, an estimated 400 to 500 people died, 48,000 were hospitalized, and 1,000 people suffered encephalitis (swelling of the brain) from measles. The health risk of measles, including death, is far worse than the risk of the vaccine.

Driving or riding in a car is significantly more dangerous than receiving a vaccine. According to National Safety Council 2018 data, the lifetime risk of dying in a car accident is one out of 106 people. Considering that the 2018 US population was 327,200,000 people, this can be expressed as a lifetime risk of 9,433 deaths per million.

Motorcycles are more dangerous than cars; motorcycles riders incur 15x more fatalities per mile than car drivers. According to the Motorcycle Industry Council, 12,231,000 households in the US had a motorcycle in 2018. The National Center of Health Statistics reported 4,669 motorcycle deaths that year. This is a lifetime risk of 26,721 deaths per million, about three times as dangerous as a car. However, the average number of miles driven per year by car drivers is five times that of motorcycle riders, multiplying motorcycle risk times five.

Smoking tobacco is more dangerous than riding a motorcycle. In 2018, 13.7% of all US adults currently smoked cigarettes which decreased from 42% in the 1960s. However, twenty-five percent of nonsmoking Americans are still exposed to secondhand smoke. According to the Center for Disease Control, cigarette smoking causes about one of every five deaths in the United States each year, more than 480,000 deaths annually. This is a lifetime risk of 102,698 deaths per million people. Smoking is a choice. Exposure to industrial air pollution is not a choice.

## **Ranking Portland area smokestack air polluters by health risk**

Although the numbers will change when source testing is completed, we think the DEQ Priorization Risk Values are incredibly revealing. This is the best data currently available to both rank industrial polluters and begin to understand the health risks they pose. To rank facilities, DEQ used the following formula:

$(\text{noncancer chronic risk}) + (\text{noncancer acute risk}) + (\text{cancer risk} / 25) = \text{normalized risk estimate.}$

To include industries that the DEQ doesn't regulate, we used the same formula to rank rail yards and airports.

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