

## 2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN (DIOXIN)

<b>#1</b>	<b><u>Minimum Risk Level</u></b>
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### Minimum Risk Level

- Dioxin - 0.000000001 mg/kg/day for neurological effects - ingestion - monkeys

### Inventory Estimates of Dioxin

Community	Ranking by Mass	Total Emitted (tons per year)	Top Sources
Anchorage*	71 of 71	0.000	n/a
Fairbanks*	58 of 58	0.000	n/a
Juneau*	52 of 52	0.000	n/a
Total of 3 Communities		0.000	

\*Data indicates negligible emission

### Dioxin Sources Expected in Alaska

vehicles	locomotives	Non-road sources like chainsaws, snow blowers, snowmobiles, outboards, and personal watercraft
boats and ships	structural fires	asphalt plants and paving
power generators	seafood processing	airports
military bases	hospitals	mines
refineries	wastewater	

### Potential Exposure to Dioxin

- There is no data of a person exposed solely to 2,3,7,8-tetrachlorodibenzo-p-dioxin (Dioxin). Dioxin is not

intentionally produced by industry, but can be inadvertently produced in very small amounts as an impurity during the incineration of municipal and industrial wastes or during the manufacture of certain chemicals. The only present use for dioxin is in chemical research.

by product of chlorine bleaching process used by pulp and paper mills	manufacture of chlorinated organic chemicals, such as chlorinated phenols	combustion of fossil fuels (including motor vehicles)
combustion of wood	incineration processes	

## Dioxin Emission Inventory Improvements

- Update emission factors for locomotives
- Update emission factors for asphalt plants and paving, and structural fires
- Update emission factors for the Ted Stevens Anchorage International Airport

## Dioxin Health Effects

Chloracne (sever skin rash like severe acne) is the most prevalent effect of occupational exposures to dioxin. Many studies have shown this in workers in herbicide (esp. chlorophenol) plants. Some evidence of carcinogenicity from herbicide plants and spraying in Vietnam also exists. High concentrations with short term exposure in laboratory accidents led to chloracne; after two years personality changes, loss of energy, changes in vision, taste, and coordination occurred.

**Cancer ranking:** EPA has classified 2,3,7,8-tetrachlorodibenzo-p-dioxin in Group B2; a probable human carcinogen. Studies of workers occupationally exposed to dioxin by inhalation found associations between dioxin and lung cancer, soft-tissue sarcomas, lymphomas, and stomach carcinomas. EPA estimates there is a  $2.2 \times 10^{-5}$  (approximately 1 in 50,000) increase in lifetime risk of cancer for every one  $\text{pg}/\text{m}^3$  (0.00000000001 g per cubic meter) of continuous dioxin exposure over a lifetime.

## ALASKA TOP HAZARDOUS AIR POLLUTANTS

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