ALASKA TOP HAZARDOUS AIR POLLUTANTS

BERYLLIUM COMPOUNDS

#3	Non Cancer Endpoint

Reference Concentration

- Beryllium Compounds- 0.00002 mg/m^3 for onset of chronic beryllium disease (CBD), a condition of long-term, irritated, lung lesions - humans

Inventory Estimates of Beryllium Compounds

Community	Ranking by Mass	Total Emitted (tons per year)*	Top Sources
Anchorage	44 of 71	0.109	wastewater facility, military, and incineration
Fairbanks	54 of 58	0.01	residential heating with oil
Juneau	42 of 52	0.017	wastewater facility, residential heating with oil
Total of 3 Communities		0.136	

* The mass emission rates are based on input data that may or may not be accurate. The reader should not consider the inventory accurate to three decimal places (one thousandth of a ton). The use of three decimal places allows us to acknowledge small quantities of pollutants rather than showing the emission rate as zero.

Beryllium Compound Sources Expected in Alaska

asphalt plants	open burning	residential heating - oil
residential heating - natural gas	seafood processing	airports
military bases	hospitals	used oil combustion
mines	wastewater	power generators
	boats and	non-road sources like chainsaws, snow blowers,

incineration	ships	snowmobiles, outboards, and personal watercraft
refineries		

Potential Occupational Exposure to Beryllium Compounds

mining	alloy manufacturing	phosphorus manufacturing
ceramics	missile manufacturing	nuclear reactors
electronic equipment	jewelers	

Beryllium Compound Emission Inventory Improvements

- Update emission factors for boats and ships
- Update emission factors for open burning, residential heating with oil and used oil combustion
- Update and clarification of emission factors for seafood processing, power generation, airports, wastewater facilities, and point sources

Beryllium Compound Health Effects

Low level (<0.5 µg/m^3): Some evidence around that long term exposures may lead to chronic beryllium disease.

Medium level (0.5 - 2µg/m^3): Over a long period, inhaling these concentrations develop chronic beryllium disease, characterized by a long-term lesion, difficulty breathing, cough, and reduced lung function.

High level (2 - 100 µg/m^3]): Increased risk of acute beryllium disease, characterized by inflammation of the lung.

Very high levels (> 100 µg/m^3): Onset of acute beryllium disease.

Cancer ranking: The EPA classifies beryllium as a group B1 carcinogen for lung cancer. Group B1 carcinogens are considered probable human carcinogens where there is some human data and adequate animal data of its cancer causing properties.