

ALASKA TOP HAZARDOUS AIR POLLUTANTS

MERCURY COMPOUNDS

#10	Non Cancer Endpoints
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Reference Concentration

- Elemental Mercury- 0.0003 mg/m³ for central nervous effects - people

Inventory Estimates of Mercury Compounds

Community	Ranking by Mass	Total Emitted (tons per year)*	Top Sources
Anchorage	37 of 71	0.229	incineration, wastewater facility
Fairbanks	49 of 58	0.038	power generation, residential heating with oil, military
Juneau	35 of 52	0.087	waste incineration
Total of 3 Communities		0.354	

* 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.

Mercury Compound Sources Expected in Alaska

vehicles	boats and ships	non-road sources like chainsaws, snow blowers, snowmobiles, outboards, and personal watercraft
asphalt plants	open burning	residential heating-oil and natural gas
seafood processing	airports	hospitals
power generators	wastewater facilities	military bases

incineration	mines	waste incineration
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Potential Occupational Exposure to Elemental Mercury

chlor-alkali plants	mercury mining	manufacture of mercury containing instruments (e.g. thermometers & barometers)
fur and felt hat manufacture	use of mercury in biocides in latex paint ended in 1991	

Mercury Compound Emission Inventory Improvements

- Update emission factors for barges
- Update emission factors for open burning and residential heating with oil
- Update emission factors for area source and point source facilities

Elemental Mercury Compound Health Effects

There is not enough data to ascertain specific effects from specific exposure concentrations. Some studies indicate the following: Given sufficient concentration and time, the central nervous system is the major target for toxicity in humans. Effects include increased excitability, irritability, excessive shyness, insomnia, severe salivation, gingivitis, and tremors. Longer term exposures may lead to too much protein in the kidneys. Acrodynia is a rare syndrome found in children exposed to elemental mercury compounds, characterized by severe leg cramps, irritability, a sensation of prickling on the skin, painful pink fingers, and peeling hands, feet, and nose.

A study of occupational exposures at 0.05 to 1.0 mg/m³ found increased incidence of insomnia and excitability in exposures above 0.05 mg/m³. Immune response, measured by immunoglobulins, altered with concentrations from 0.1 to 1.0 mg/m³.

Cancer ranking:

Elemental mercury: EPA has classified elemental mercury as a Group D, not classifiable as to human carcinogenicity, based on inadequate human and animal data.