

Lambton Facility FAQs

What Contaminants Are Being Emitted From the Stack?



Clean Harbors provides a secure destruction option for hazardous liquid wastes, which cannot be further recycled due to their chemical composition.

Because hazardous waste landfills are not designed to contain liquids, an alternative treatment technology – high temperature incineration – is used.

We destroy various liquid hazardous wastes including: acids, alkalis, metal finishing wastes, chemical fertilizer wastes, phosphates, oily water, waste oils, organic solvents, plastic resins, amines, glycols, phenols, pigments, paints, printing inks, adhesives, pesticides, herbicides, detergents, cleaners and soap, pharmaceutical and cosmetics by-products.

The Lambton incinerator uses temperatures over 1,300° C to destroy hazardous liquid organic wastes. The types of waste that are burned in the

incinerator fall into two categories: rich (high heat value) materials, which burn easily; and lean (low heat value) materials, which contain larger proportions of water.

The incineration process breaks the waste down into water, carbon dioxide, nitrogen and trace compounds, while the unit's pollution control system neutralizes acid gases and activated powdered carbon removes minute particles trapping mercury, dioxins and furans. During the final stages, air-cleaning systems trap and collect residual particles (ash) for proper disposal in our secure landfill.

Emissions from the incinerator stack consist of: oxygen (11%), carbon dioxide (7%), nitrogen (81.9%) and trace contaminants (0.1%).

The list of trace contaminants that make up the 0.1% is quite long. The tables below, taken from the 2006 Lambton Incinerator Stack Testing program, identify the substances and illustrate the very low emission levels for these compounds by presenting a comparison with the allowable provincial emissions standards and guidelines.

The Ontario Ministry of the Environment (MOE) uses analysis of “point of impingement” (POI) air quality to determine the impact of the Lambton incinerator. POI standards and guidelines are set for each contaminant and the incinerator must operate below those standards to be in compliance. These limits are usually based on health effects and incorporate significant margins of safety.



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Regulation 419 Dispersion Modelling Results for Inorganic and Semi-Volatile Organic Compounds

Contaminant	Average Emission Rate	Calculated Impingement Concentration	Allowable Impingement Concentration	Percentage of Allowable Concentration	Status of Allowable Concentration
Base Case	1.00 g/s	1.9441 $\mu\text{g}/\text{m}^3$			
Particulate matter	320 mg/s	0.62 $\mu\text{g}/\text{m}^3$	100 $\mu\text{g}/\text{m}^3$	0.62	S
Sulphur dioxide	0.31 g/s	0.60 $\mu\text{g}/\text{m}^3$	830 $\mu\text{g}/\text{m}^3$	0.073	S
Nitrogen oxides	50.2 g/s	97.6 $\mu\text{g}/\text{m}^3$	500 $\mu\text{g}/\text{m}^3$	19.5	S
Carbon monoxide	1.06 g/s	2.06 $\mu\text{g}/\text{m}^3$	6000 $\mu\text{g}/\text{m}^3$	0.034	S
Hydrogen chloride	86.0 mg/s	0.17 $\mu\text{g}/\text{m}^3$	100 $\mu\text{g}/\text{m}^3$	0.17	S
Fluorides (as hydrogen fluoride)	25.0 mg/s	0.049 $\mu\text{g}/\text{m}^3$	4.3 $\mu\text{g}/\text{m}^3$	1.13	S
Dioxins & furans (TEQ)	0.029 ng TEQ/s	0.000056 pg TEQ/ m^3	15 pg TEQ/ m^3	<0.001	G
Naphthalene	146 $\mu\text{g}/\text{s}$	0.00028 $\mu\text{g}/\text{m}^3$	36 $\mu\text{g}/\text{m}^3$	<0.001	G
Biphenyl	368 $\mu\text{g}/\text{s}$	0.00072 $\mu\text{g}/\text{m}^3$	60 $\mu\text{g}/\text{m}^3$	0.0012	G
Benzo (a) pyrene	0.029 $\mu\text{g}/\text{s}$	0.00000056 $\mu\text{g}/\text{m}^3$	0.0033 $\mu\text{g}/\text{m}^3$	0.0017	G
1,2-Dichlorobenzene	15.1 $\mu\text{g}/\text{s}$	0.000029 $\mu\text{g}/\text{m}^3$	37000 $\mu\text{g}/\text{m}^3$	<0.001	G
1,4-Dichlorobenzene	6.71 $\mu\text{g}/\text{s}$	0.000013 $\mu\text{g}/\text{m}^3$	285 $\mu\text{g}/\text{m}^3$	<0.001	S
1,2,4-Trichlorobenzene	2.89 $\mu\text{g}/\text{s}$	0.0000056 $\mu\text{g}/\text{m}^3$	100 $\mu\text{g}/\text{m}^3$	<0.001	G
Pentachlorophenol	0.051 $\mu\text{g}/\text{s}$	0.000000099 $\mu\text{g}/\text{m}^3$	60 $\mu\text{g}/\text{m}^3$	<0.001	G
Polychlorinated biphenyls	1.97 $\mu\text{g}/\text{s}$	0.0000038 $\mu\text{g}/\text{m}^3$	0.45 $\mu\text{g}/\text{m}^3$	<0.001	G

S - Standard
G - Guideline



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Regulation 419 Dispersion Modelling Results for Metals

Contaminant	Average Emission Rate	Calculated Impingement Concentration	Allowable Impingement Concentration	Percentage of Allowable Concentration	Status of Allowable Concentration
Base Case	1.00 g/s	1.9441 $\mu\text{g}/\text{m}^3$			
Aluminum oxide	3.63 mg/s	0.0071 $\mu\text{g}/\text{m}^3$	100 $\mu\text{g}/\text{m}^3$	0.0071	G
Antimony	0.0080 mg/s	0.000016 $\mu\text{g}/\text{m}^3$	75 $\mu\text{g}/\text{m}^3$	<0.001	S
Arsenic	0.65 mg/s	0.0013 $\mu\text{g}/\text{m}^3$	1 $\mu\text{g}/\text{m}^3$	0.13	G
Barium (as water soluble)	0.27 mg/s	0.00052 $\mu\text{g}/\text{m}^3$	30 $\mu\text{g}/\text{m}^3$	0.0017	G
Beryllium	0.00043 mg/s	0.00000084 $\mu\text{g}/\text{m}^3$	0.03 $\mu\text{g}/\text{m}^3$	0.0028	S
Boron	2.28 mg/s	0.0044 $\mu\text{g}/\text{m}^3$	100 $\mu\text{g}/\text{m}^3$	0.0044	S
Cadmium	0.0042 mg/s	0.0000082 $\mu\text{g}/\text{m}^3$	5 $\mu\text{g}/\text{m}^3$	<0.001	S
Calcium oxide	12.9 mg/s	0.025 $\mu\text{g}/\text{m}^3$	20 $\mu\text{g}/\text{m}^3$	0.13	S
Chromium	0.69 mg/s	0.0013 $\mu\text{g}/\text{m}^3$	5 $\mu\text{g}/\text{m}^3$	0.027	G
Cobalt	0.14 mg/s	0.00027 $\mu\text{g}/\text{m}^3$	0.3 $\mu\text{g}/\text{m}^3$	0.091	G
Copper	0.24 mg/s	0.00047 $\mu\text{g}/\text{m}^3$	100 $\mu\text{g}/\text{m}^3$	<0.001	S
Iron (as metal)	3.05 mg/s	0.0059 $\mu\text{g}/\text{m}^3$	10 $\mu\text{g}/\text{m}^3$	0.059	S
Lead	0.25 mg/s	0.00049 $\mu\text{g}/\text{m}^3$	6 $\mu\text{g}/\text{m}^3$	0.0081	S
Lithium	0.072 mg/s	0.00014 $\mu\text{g}/\text{m}^3$	60 $\mu\text{g}/\text{m}^3$	<0.001	S
Magnesium oxide	0.85 mg/s	0.0016 $\mu\text{g}/\text{m}^3$	100 $\mu\text{g}/\text{m}^3$	0.0016	S
Manganese (as compounds)	0.23 mg/s	0.00045 $\mu\text{g}/\text{m}^3$	7.5 $\mu\text{g}/\text{m}^3$	0.0060	G
Mercury	0.71 mg/s	0.0014 $\mu\text{g}/\text{m}^3$	5 $\mu\text{g}/\text{m}^3$	0.028	S
Molybdenum	0.082 mg/s	0.00016 $\mu\text{g}/\text{m}^3$	100 $\mu\text{g}/\text{m}^3$	<0.001	G
Nickel	0.14 mg/s	0.00027 $\mu\text{g}/\text{m}^3$	5 $\mu\text{g}/\text{m}^3$	0.0054	S
Phosphorus pentachloride	5.45 mg/s	0.011 $\mu\text{g}/\text{m}^3$	30 $\mu\text{g}/\text{m}^3$	0.035	G
Potassium hydroxide	10.9 mg/s	0.021 $\mu\text{g}/\text{m}^3$	28 $\mu\text{g}/\text{m}^3$	0.075	G
Selenium	0.025 mg/s	0.000049 $\mu\text{g}/\text{m}^3$	20 $\mu\text{g}/\text{m}^3$	<0.001	G
Silica (as respirable silica)	18.4 mg/s	0.036 $\mu\text{g}/\text{m}^3$	15 $\mu\text{g}/\text{m}^3$	0.24	G
Silver	0.0032 mg/s	0.0000062 $\mu\text{g}/\text{m}^3$	3 $\mu\text{g}/\text{m}^3$	<0.001	S
Sodium hydroxide	155 mg/s	0.30 $\mu\text{g}/\text{m}^3$	20 $\mu\text{g}/\text{m}^3$	1.51	G
Strontium	0.046 mg/s	0.000089 $\mu\text{g}/\text{m}^3$	100 $\mu\text{g}/\text{m}^3$	<0.001	G
Tin	0.15 mg/s	0.00029 $\mu\text{g}/\text{m}^3$	30 $\mu\text{g}/\text{m}^3$	<0.001	S
Titanium	0.37 mg/s	0.00072 $\mu\text{g}/\text{m}^3$	100 $\mu\text{g}/\text{m}^3$	<0.001	S
Vanadium	0.0049 mg/s	0.0000095 $\mu\text{g}/\text{m}^3$	5 $\mu\text{g}/\text{m}^3$	<0.001	S
Zinc	0.60 mg/s	0.0012 $\mu\text{g}/\text{m}^3$	100 $\mu\text{g}/\text{m}^3$	0.0012	S

S - Standard
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What Contaminants Are Being Emitted From the Stack?

Regulation 419 Dispersion Modelling Results for Volatile Organic Compounds

Contaminant	Average Emission Rate	Calculated Impingement Concentration	Allowable Impingement Concentration	Percentage of Allowable Concentration	Status of Allowable Concentration
Base Case	1.00 g/s	1.9441 µg/m ³			
Benzene	17.2 mg/s	0.033 µg/m ³	CARC		
Bromomethane (methyl bromide)	1.35 mg/s	0.0026 µg/m ³	4000 µg/m ³	no standard **	
2-Butanone (methyl ethyl ketone)	1.65 mg/s	0.0032 µg/m ³	30000 µg/m ³		
Chloroethene (vinyl chloride)*	0 mg/s	0 µg/m ³	3 µg/m ³	0	S
1,2-Dibromoethane (ethylene dibromide)	0.014 mg/s	0.000027 µg/m ³	9 µg/m ³	<0.001	G
1,2-Dichloroethane (ethylene dichloride)*	0 mg/s	0 µg/m ³	6 µg/m ³	0	G
trans-1,2-Dichloroethene*	0 mg/s	0 µg/m ³	315 µg/m ³	0	G
Dichloromethane (methylene chloride)	0.062 mg/s	0.00012 µg/m ³	5300 µg/m ³	<0.001	G
Ethylbenzene	0.17 mg/s	0.00033 µg/m ³	3000 µg/m ³	<0.001	S
Isopropylbenzene (cumene)	0.0033 mg/s	0.0000064 µg/m ³	100 µg/m ³	<0.001	S
2-Propanone (acetone)	4.68 mg/s	0.0091 µg/m ³	48000 µg/m ³	<0.001	S
Styrene	0.0031 mg/s	0.0000060 µg/m ³	400 µg/m ³	<0.001	S
Tetrachloroethene (perchloroethylene)	0.0070 mg/s	0.000014 µg/m ³	10000 µg/m ³	<0.001	G
Tetrachloromethane (carbon tetrachloride)	0.0016 mg/s	0.0000031 µg/m ³	7.2 µg/m ³	<0.001	S
Toluene	3.92 mg/s	0.0076 µg/m ³	2000 µg/m ³	<0.001	S
Tribromomethane (bromoform)*	0 mg/s	0 µg/m ³	165 µg/m ³	0	G
1,1,1-Trichloroethane (methyl chloroform)	0.0017 mg/s	0.0000033 µg/m ³	350000 µg/m ³	<0.001	S
Trichloroethene	0.0013 mg/s	0.0000025 µg/m ³	3500 µg/m ³	<0.001	S
Trichlorofluoromethane	0.00090 mg/s	0.0000017 µg/m ³	18000 µg/m ³	<0.001	G
Trichloromethane (chloroform)*	0 mg/s	0 µg/m ³	300 µg/m ³	0	S
Trichlorotrifluoroethane*	0 mg/s	0 µg/m ³	2400000 µg/m ³	0	S
1,2,4-Trimethylbenzene (pseudocumene)	0.0084 mg/s	0.000016 µg/m ³	500 µg/m ³	<0.001	G
Xylenes	0.48 mg/s	0.00093 µg/m ³	2300 µg/m ³	<0.001	S

S - Standard

G - Guideline

CARC - Carcinogen: emissions should be as low as possible

* These compounds were not detected in any of the emission samples (all analytical results were <MDL).

** No POI concentration standard for benzene currently in place in Ontario. The workplace exposure limit set by the HRSDC is 0.5 ppm based on 8-hour exposure in the workplace. The State of California has set an acceptable air quality standard of 71 µg/m³

