

Louisville Metro Air Pollution Control District
April, 2021 Board Meeting

Volatile Organic Compound Data Summary for December, 2020

The data below are part of a pilot project by the Louisville Metro Air Pollution Control District to provide air toxics concentrations using a field-deployable automated Gas Chromatograph. The concentrations are produced by new applications of technology that continue to be evaluated. This report summarizes monitored data from select compounds collected by APCD's Automated Gas Chromatograph instrument located at the Algonquin Parkway site. Hourly measurements are summarized as monthly averages and maximum 24-hour concentrations in parts per billion by volume (ppbV).

APCD will use its air toxics monitoring data in routine monthly screenings for potential impacts from air toxics. Monitoring data will be compared to Benchmark Ambient Concentrations (BACs) under the Strategic Toxic Air Reduction (STAR) program and may be used to investigate emission sources and in future risk assessments, like the West Louisville Air Toxics Study (WLATS). A risk assessment may help determine how residents living, working, and going to school in the area may be exposed to harmful levels of ambient air toxics concentrations; identify what if any increased health risks they may face; and identify if additional emission reductions may be necessary. In some cases, APCD may conduct additional air toxics monitoring as part of a special study.

This data summary is based on preliminary data. The data are subject to change based on findings in subsequent data validation evaluation. As a result, compounds may be added or removed based on the assessed data quality via the QA process. **Compounds shown in green contain higher confidence in data quality while those shown in yellow^T have lower confidence.** All values are reported to two decimal places using standard rounding conventions; the % data recovered is provided as an initial indicator of representativeness for the intended time period.

Compound ^T	Ambient Data Summary			STAR BACs	
	Monthly Average	Max 24hr Avg	% Data Recovery	STAR Cancer BAC _C *	STAR Chronic NonCancer BAC _{NC} *
1,3-Butadiene	0.13	0.47	52.7	0.02	0.90
1,4-Dichlorobenzene	0.10	0.25	52.8	0.02	133.10
Acrylonitrile	0.00	0.00	52.8	0.01	0.92
Benzene	0.26	0.53	52.8	0.14	9.40
Bromoform	0.00	0.00	52.8	0.09	6.77
Carbon_Tetrachloride	0.42	1.03	43.8	0.03	0.02
Chloroform	0.01	0.06	52.6	0.01	61.48
Ethyl_Acrylate	0.05	0.33	52.8	N/A	7.33
Ethylbenzene	0.09	0.24	52.8	0.09	230.00
Methyl_Methacrylate	0.07	0.40	52.8	N/A	171.00
Styrene	0.04	0.21	51.3	0.40	234.75
Tetrachloroethylene	0.02	0.13	52.8	0.57	5.90
Toluene	0.78	2.10	52.8	N/A	1327.60
Trichloroethylene	0.00	0.00	52.7	0.04	0.37
Vinyl_Chloride	0.01	0.23	52.6	0.09	39.14

^T Compounds in yellow have lower confidence in data quality due to interference or contamination concerns

Notes:

*As used in the Strategic Toxic Air Reduction (STAR) Program, "benchmark ambient concentration" (BAC) means the concentration of a toxic air contaminant (TAC) that is determined pursuant to Regulation 5.20 to meet the environmental acceptability goals of Regulation 5.21. BACs are reported in micrograms per cubic meter ($\mu\text{g}/\text{m}^3$). The BACs above have been converted from micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) to parts per billion (ppb) at 25 degrees Celsius and 1 atmosphere.

The BAC for a carcinogen (BAC_C) is the concentration of a TAC that represents an additional lifetime cancer risk of one in one million (1×10^{-6}). The BAC_C is averaged on an annual basis.

The BAC for the noncarcinogenic effects of a TAC (BAC_{NC}) is the concentration of a TAC at or below which no adverse effects are expected. The BAC_{NC} represents a Hazard Quotient of 1.0. With the exception of ethyl acrylate, the BAC_{NC} is averaged on an annual basis; ethyl acrylate is averaged on a 24-hour basis.

A table of BACs used in the STAR program is available at www.louisvilleky.gov/document/20190103-bac-listpdf.

Compounds are "Category 1" TAC under the STAR Program except Ethylbenzene, which is a Category 2 TAC, and Styrene, Methyl methacrylate, and ethyl acrylate, which are Category 4 TACs.