

Canadian Health Measures Survey: Indoor air volatile organic compound data, 2012 and 2013

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In 2012 and 2013, the Canadian Health Measures Survey (CHMS) measured the residential air concentration of 88 volatile organic compounds (VOCs), including a group of VOCs known as BTEX (benzene, toluene, ethylbenzene, *m*-, *p*-xylenes, and *o*-xylene).

Results from the CHMS indicate that the mean indoor air concentration of toluene in Canadian households was 17.59 micrograms per cubic metre ($\mu\text{g}/\text{m}^3$), which is below the Health Canada indoor air guideline value of 2,300 $\mu\text{g}/\text{m}^3$. *M*-, *p*-xylenes had the next highest concentration at 11.22 $\mu\text{g}/\text{m}^3$, followed by *o*-xylene (3.83 $\mu\text{g}/\text{m}^3$), and ethylbenzene (3.21 $\mu\text{g}/\text{m}^3$). Benzene was the BTEX compound with the lowest concentration in indoor air at 2.22 $\mu\text{g}/\text{m}^3$.

Table 1
Residential indoor air concentrations of BTEX¹ compounds, household population aged 3 to 79, 2012 and 2013

	Limit of detection	Mean	Geometric mean ²	Percentile					
				10th	25th	50th	75th	90th	95th
	%	micrograms (μg) per cubic metre							
Benzene	1.77	2.22	1.18	0.36	0.58 ^E	1.14	2.46	5.24	7.42
Toluene	0.03	17.59	8.70	2.30	3.94	7.90	17.62 ^E	40.67 ^E	65.81 ^E
Ethylbenzene	0.07	3.21	1.32	0.32	0.57 ^E	1.12	2.81	6.76 ^E	9.64 ^E
<i>M</i> -, <i>p</i> -xylenes	0.04	11.22	4.55	1.06	1.85	3.73	10.10	26.12 ^E	38.61
<i>O</i> -xylene	0.08	3.83	1.46	0.35	0.61 ^E	1.20	3.22 ^E	8.13 ^E	11.53

^E use with caution

1. Benzene, toluene, ethylbenzene, *m*-, *p*-xylenes and *o*-xylene.

2. The geometric mean is less influenced by extreme values than the traditional arithmetic mean; it provides a better estimate of the central tendency for highly skewed data. This type of distribution is common in the measurement of environmental chemicals.

Source(s): Canadian Health Measures Survey (5071).

Note to readers

The Canadian Health Measures Survey was conducted from January 2012 to December 2013.

Volatile organic compounds (VOCs) are released into the residential air from various sources that are common around the home, such as paints, cigarette smoke, building materials and vehicle emissions. Some VOCs, namely benzene and toluene, are known to be toxic, but only at very high concentrations. However, the direct link between VOCs and health problems has yet to be confirmed.

Definitions, data sources and methods: survey number 5071.

Data on 88 volatile organic compounds measured in the residential air of respondents are now available upon request. These data are available both at the household and at the respondent level.



For more information, or to enquire about the concepts, methods or data quality of this release, contact us (toll-free 1-800-263-1136; 514-283-8300; infostats@statcan.gc.ca) or Media Relations (613-951-4636; mediahotline@statcan.gc.ca).