

# Comparison of Sidestream Cigarette Smoke<sup>1</sup> and Air Pollution from Industry<sup>2</sup>, Canada, 1996

Each year in Canada, sidestream smoke from burning cigarettes deposits tonnes of toxic and carcinogenic chemicals into the air. The **52 billion cigarettes** smoked each year deliver almost **5000 tonnes of pollutants** into the atmosphere.

There are three measurable parts to cigarette smoke: sidestream, mainstream (inhaled), and exhaled smoke.

- Sidestream smoke consists of particles and gases released from the lit end of a cigarette only;
- Mainstream smoke is inhaled by the smoker, and
- Exhaled smoke is breathed out by the smoker, and contains the chemicals not absorbed by his or her body.

The tables below show only sidestream smoke values. The actual amount of air pollution caused by burning cigarettes is much higher.

To compare cigarette smoke pollution to industrial sources, these tables draw on the National Pollutant Release Inventory (NPRI) of chemicals discharged by major industrial sectors. This inventory is produced yearly by Environment Canada.

Chemical emissions from cigarettes were found to be comparable to pollutants released from industry. In fact, emissions of certain chemicals from cigarettes are higher than those from industries normally considered to be major polluters, such as the petroleum or mining industry!

The following tables show emission levels ranked according to NPRI data for 1996. A list of fewer than 9 industrial sources results from the minimum values used by Environment Canada for the NPRI list.

ACETALDEHYDE		
		<i>tonnes</i>
1	Chemical Products	96.34
2	Paper & Allied Products	95.72
<b>3</b>	<b>Cigarettes</b>	<b>83.24</b>
4	Primary Textile	39.00
5	Food	30.70

ACETONE		
		<i>tonnes</i>
1	Chemical Products	2240.10
2	Transportation Equipment	764.35
3	Plastic Products	318.23
4	Mining	284.00
5	Paper & Allied Products	79.11
6	Wood	74.32
<b>7</b>	<b>Cigarettes</b>	<b>48.61</b>
8	Fabricated Metal	42.57
9	Printing, Publishing & Allied	34.07
10	Primary Metal	33.34
11	Refined Petroleum & Coal	25.00

ACRYLONITRILE*		
		<i>tonnes</i>
<b>1</b>	<b>Cigarettes</b>	<b>4.57</b>
2	Plastic Products	1.84

AMMONIA		
		<i>tonnes</i>
1	Chemical Products	14395.84
2	Mining	955.53
3	Primary Metal	727.57
4	Crude Petroleum & Natural Gas	496.24
5	Paper & Allied Products	467.71
6	Other Utility	342.31
<b>7</b>	<b>Cigarettes</b>	<b>259.21</b>
8	Refined Petroleum & Coal	236.22
9	Non-Metallic Mineral Products	231.92
10	Food Industry	135.34

\* Designated toxic/carcinogenic under CEPA.

## Comparison of Sidestream Cigarette Smoke and Air Pollution from Industry (continued)

BENZENE*		
		tonnes
1	Primary Metal	904.25
2	Refined Petroleum & Coal	399.41
3	Chemical Products	291.04
4	Crude Petroleum & Natural Gas	271.48
5	Rubber Products	195.54
6	Paper & Allied Products	104.41
7	Wood	24.96
8	<b>Cigarettes</b>	<b>14.42</b>

1,3-BUTADIENE*		
		tonnes
1	Chemical Products	101.64
2	Refined Petroleum & Coal	22.57
3	<b>Cigarettes</b>	<b>10.12</b>
4	Crude Petroleum & Natural Gas	3.88
5	Plastic Products	0.11

CRESOL (ALL ISOMERS)		
		tonnes
1	<b>Cigarettes</b>	<b>5.89</b>
2	Electrical & Electronic	2.05
3	Transportation Equipment	0.10
4	Chemical Products	0.10

FORMALDEHYDE*		
		tonnes
1	Wood	827.88
2	Chemical Products	133.13
3	Non-Metallic Mineral Products	106.30
4	<b>Cigarettes</b>	<b>21.61</b>
5	Electrical & Electronic	21.18
6	Transportation Equipment	14.20
7	Paper & Allied Products	6.46
8	Wholesale	5.18
9	Plastic Products	1.66

HYDROGEN CYANIDE		
		tonnes
1	Mining	96.63
2	<b>Cigarettes</b>	<b>5.62</b>

STYRENE		
		tonnes
1	Plastic Products	340.24
2	Transportation Equipment	262.24
3	Chemical Products	107.02
4	Wood	12.15
5	<b>Cigarettes</b>	<b>5.27</b>
6	Refined Petroleum & Coal	4.92
7	Primary Metal	1.34
8	Service Industries Incidental To Mineral Extraction	0.81

\* Designated toxic/carcinogenic under the Canadian Environmental Protection Act.

1. Excludes exhaled and mainstream smoke. Based on average sidestream emissions (BC Ministry of Health, December 1998) and Total Domestic Cigarette/Fine-Cut Sales 1996 (Health Canada, Office of Tobacco Control)
2. Environment Canada. Supplementary Table 4: NPRI Pollutants Released by Industrial Sector in 1996.