



# 2004 Air Toxics Summary

New Jersey Department of Environmental Protection

## INTRODUCTION

Air pollutants can be divided into two categories: the criteria pollutants (ozone, sulfur dioxide, carbon monoxide, nitrogen dioxide, particulate matter, and lead); and air toxics. The criteria pollutants have been addressed at the national level for many years. The United States Environmental Protection Agency (USEPA) has set National Ambient Air Quality Standards (NAAQS) for them, and they are subject to a standard planning process that includes monitoring, reporting, and control requirements. Each of these pollutants is discussed in its own section of this NJDEP 2004 Air Quality Report.

Air toxics are basically all the other chemicals released into the air that have the potential to cause adverse health effects in humans. These effects cover a wide range of conditions, from lung irritation to birth defects to cancer. There are no NAAQS for these pollutants, but in 1990 the U.S. Congress directed the USEPA to begin to address a list of almost 200 air toxics by developing control technology standards for specific categories of sources that emit them. These air toxics are known as the Clean Air Act Hazardous Air Pollutants (HAPs). You can get more information about HAPs at the USEPA Air Toxics web site at [www.epa.gov/ttn/atw](http://www.epa.gov/ttn/atw). NJDEP also has several web pages dedicated to air toxics. They can be accessed at [www.state.nj.us/dep/airmon/airtoxics](http://www.state.nj.us/dep/airmon/airtoxics).

## HEALTH EFFECTS

People exposed to significant amounts of air toxics may have an increased chance of getting cancer or experiencing other serious health effects. The non-cancer health effects can range from respiratory, neurological, reproductive, developmental, or immune system damage, to irritation and effects on specific organs. In addition to inhalation exposure, there can be risks from the deposition of toxic pollutants onto soils or surface waters. There, they can be taken up by plants and animals, which are later consumed by humans.

The effects on human health resulting from exposure to specific air toxics can be estimated by using chemical-

specific "health benchmarks." These are developed by the USEPA and other agencies by looking at numerous health studies for a chemical. For carcinogens, the health benchmark is set at the concentration of the pollutant that corresponds to a one in a million increase in the risk of getting cancer if a person was to breathe that concentration over his or her entire lifetime. The health benchmark for non-carcinogens is set at a concentration not expected to have any adverse health effects, also known as the reference concentration. Health benchmarks for each of the air toxics are listed in Table 4 (see page 10-11). If ambient air concentrations exceed the set benchmarks then further action is warranted.

## SOURCES OF AIR TOXICS

A few years ago, USEPA began a national study of air toxics, the National-Scale Air Toxics Assessment (NATA). In an effort to determine people's exposure to air toxics around the country, USEPA first prepared a comprehensive inventory of air toxics emissions from all man-made sources in 1996. The 1996 emissions inventory for New Jersey was briefly reviewed and revised by NJDEP before being finalized. Although there are likely to be some errors in the details of such a massive undertaking, the emissions inventory still can give us an indication of the most important sources of air toxic emissions in our state. The pie chart in Figure 1 (see page 2), based on the 1996 NATA emissions estimates, shows that mobile sources are the largest contributors of air toxics emissions in New Jersey.

On-road mobile sources (cars, and trucks) account for 35% of the emissions, and off-road mobile sources (airplanes, trains, construction equipment, lawnmowers, boats, dirt bikes, etc.) contribute 33%. Area sources (residential, commercial, and small industrial sources) represent 25% of the inventory, and major point sources (such as factories and power plants) account for the remaining 7%.

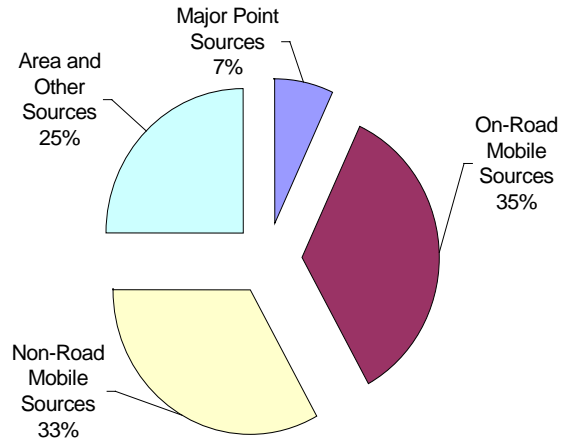
Air toxics come from many different sources - not only manufacturing, but also other kinds of human activity. When New Jersey's emissions estimates are broken down

by county (see Figure 2) it is evident that the areas with the largest air toxic emissions are generally those with the largest populations. This is directly related to high levels of vehicle use, solvent use, heating, and other population-related activities in those counties.

## ESTIMATING AIR TOXICS EXPOSURE

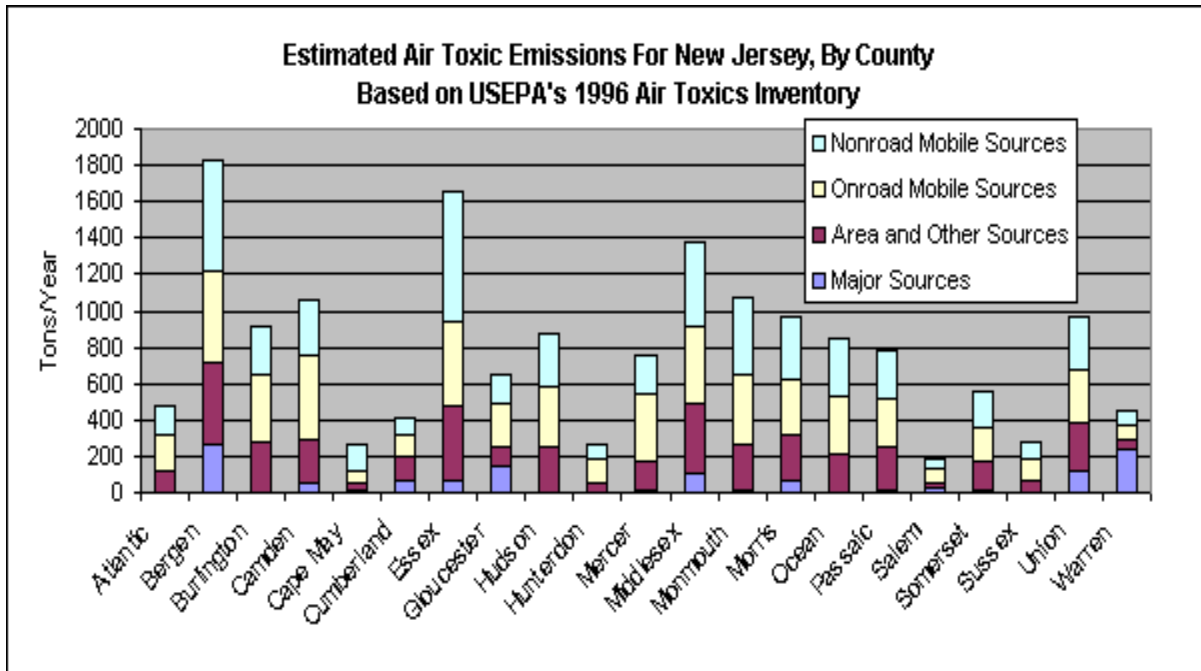
The next step in USEPA's NATA project was to use the emissions information in an air dispersion model. The model estimates the concentrations of air toxics that people may be exposed to in different parts of the country. The map in Figure 3 shows the predicted concentrations of benzene throughout New Jersey. The high concentration areas tend to overlap the more densely populated areas of the state, following the pattern of emissions. Not all air toxics follow this pattern, as some are more closely associated with individual point sources, but in general, larger populations result in greater emissions of, and exposure to, air toxics.

**Figure 1**  
1996 Air Toxics Emissions Estimates for New Jersey

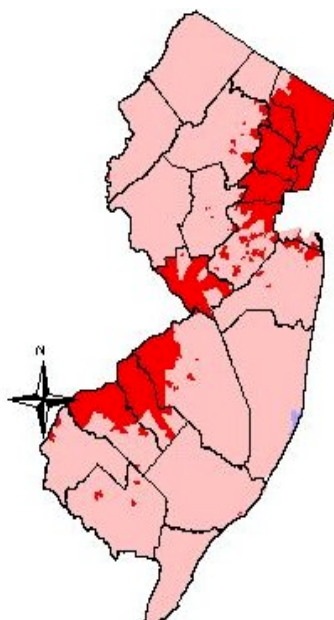


Source: USEPA's National Air Toxics Assessment, 1996

**Figure 2**

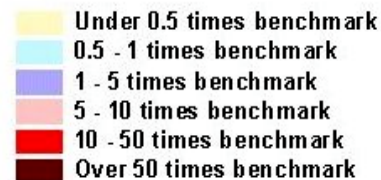


Our preliminary analysis of the state and county NATA indicates that nineteen chemicals were predicted to exceed their health benchmarks in one or more counties in 1996. Eighteen of these are considered to be cancer causing (carcinogenic) chemicals, and one (acrolein) is not. Estimated air concentrations of these 19 pollutants vary around the state, depending on the type of sources that emit them. This is summarized in Table 1.



**Figure 3**  
NATA PREDICTED CONCENTRATIONS  
IN NEW JERSEY FOR 1996

**Benzene**



Maximum concentration is 4.5 micrograms per cubic meter, or 35 times the health benchmark

Health Benchmark = 0.13ug/m<sup>3</sup>

**Table 1**

Air Toxics of Greatest Concern in New Jersey  
Based on 1996 National Air Toxics Assessment

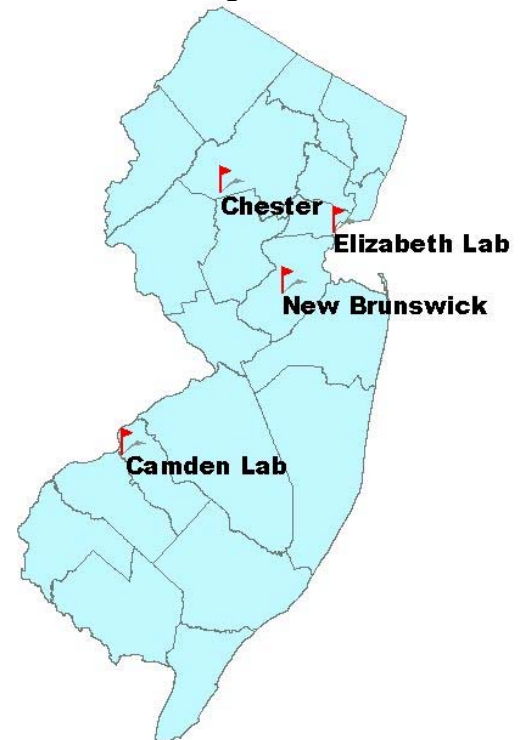
Pollutant of Concern	Extent	Primary Source of Emissions
Benzene	Statewide	Mobile; Background Concentration
1,3-Butadiene	Statewide	On-Road Mobile
Carbon tetrachloride	Statewide	Background Concentration
Chloroform	Statewide	Background Concentration; Point
Diesel particulate matter	Statewide	Off-Road Mobile
Ethylene dibromide	Statewide	Background Concentration
Ethylene dichloride	Statewide	Background Concentration
Formaldehyde	Statewide	Mobile
Acrolein	20 Counties	Mobile
Polycyclic organic matter	20 Counties	Area
Chromium compounds	17 Counties	Area
Acetaldehyde	13 Counties	Mobile
Tetrachloroethylene	11 Counties	Area; Background Concentration
7-PAH	5 Counties	Area
Arsenic compounds	4 Counties	Area; Point
Cadmium compounds	4 Counties	Area
Nickel compounds	4 Counties	Area
Beryllium compounds	1 County	Area
Hydrazine	1 County	Area

## AIR TOXICS MONITORING PROGRAM

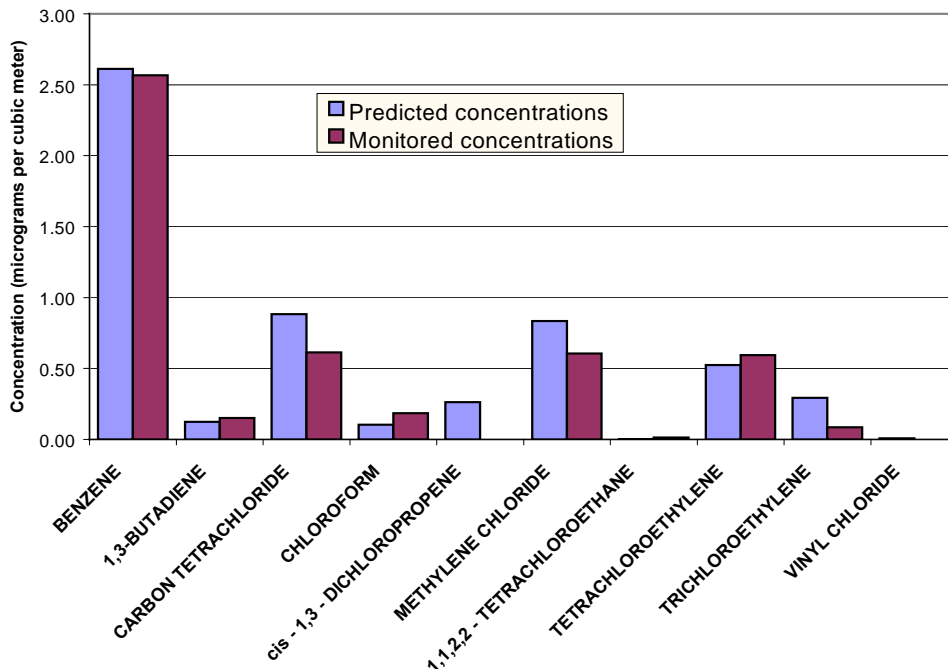
NJDEP has established four air toxics monitoring sites around the state. They are located in Camden, Elizabeth, New Brunswick and Chester (see Figure 4). The Camden Lab site has been measuring several toxic volatile organic compounds (VOCs) since 1989. The Elizabeth Lab site began measuring VOCs in 2000, and the New Brunswick and Chester sites became operational in July 2001. Analysis of toxic metals at all four sites also began in 2001.

A comparison of the concentrations predicted by NATA and actual monitored levels can be made for the Camden Lab site. In 1996, thirteen of the compounds evaluated in NATA were measured in Camden. Table 2 compares the NATA predictions with the measured concentrations for 1996. Measured 2004 levels, and the percent of change from 1996, are also shown. Figure 5 also shows the comparison of predicted values for some toxic compounds and actual measured concentrations at Camden in 1996. It appears from this analysis that the agreement between predicted and monitored concentrations is remarkably good. Also, for most of the thirteen air toxics in Table 2, the 2004 levels measured at the Camden Lab were substantially lower than the concentrations measured in 1996.

**Figure 4  
2004 Air Toxics  
Monitoring Network**



**Figure 5  
Air Toxics Levels Measured in 1996 at Camden,  
New Jersey Compared to NATA Predicted Levels**



**Table 2**  
**Comparison of NATA Predicted to Measured Levels in Camden, NJ**

NA – Not Available  
 $\mu\text{g}/\text{m}^3$  - Micrograms Per Cubic Meter

Pollutant (HAP)	NATA Predicted 1996, $\mu\text{g}/\text{m}^3$	Measured 1996 Level, $\mu\text{g}/\text{m}^3$	Measured 2004 Level, $\mu\text{g}/\text{m}^3$	Percent Change in Measured Levels in 1996 and 2004
Acetaldehyde	1.74	4.53	9.12	+101.3%
Acrylonitrile	0.003	NA	0.02 <sup>a</sup>	NA
Benzene	2.61	2.57	1.45	-43.6% <sup>b</sup>
1,3-Butadiene	0.12	0.15	0.06 <sup>a</sup>	-60.0% <sup>b</sup>
Carbon Tetrachloride	0.88	0.61	0.53	-13.1% <sup>b</sup>
Chloroform	0.10	0.18	0.02 <sup>a</sup>	-88.9% <sup>b</sup>
cis-1,3-Dichloropropene	0.26	0.00 <sup>a</sup>	0.00 <sup>a</sup>	00.0%
Formaldehyde	2.20	14.63	7.43	-49.2% <sup>b</sup>
Methylene Chloride	0.83	0.61	0.39	-36.1% <sup>b</sup>
1,1,2,2-Tetrachloroethane	0.00	0.01 <sup>a</sup>	0.00 <sup>a</sup>	-100.0% <sup>b</sup>
Tetrachloroethylene	0.52	0.59	0.26	-55.9% <sup>b</sup>
Trichloroethylene	0.29	0.09	0.27	+200.0%
Vinyl Chloride	0.01	0.00 <sup>a</sup>	0.01 <sup>a</sup>	+100.0%

<sup>a</sup> Measurement fell below detection limits.

<sup>b</sup> Negative values for percent change mean measured levels went down from 1996 to 2004

## AIR TOXICS MONITORING RESULTS FOR 2004

The results of the air toxics monitoring program for 2004 are shown in Table 3. This table shows the average concentration for each air toxic measured at the four New Jersey monitoring sites. All values are in parts per billion by volume (ppbv). More detailed tables (Tables 4-7) that show additional statistics, detection limit information, health benchmarks used by NJDEP, and levels in both ppbv and micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) can be found at the end of this section. The ppbv units are more common for monitoring results, while  $\mu\text{g}/\text{m}^3$  units are generally used in

modeling and health studies. Note that many of the compounds that were tested were often below the detection limit of the method used. Concentrations below the detection limit, including zero values, were used in the calculation of the annual average concentrations.

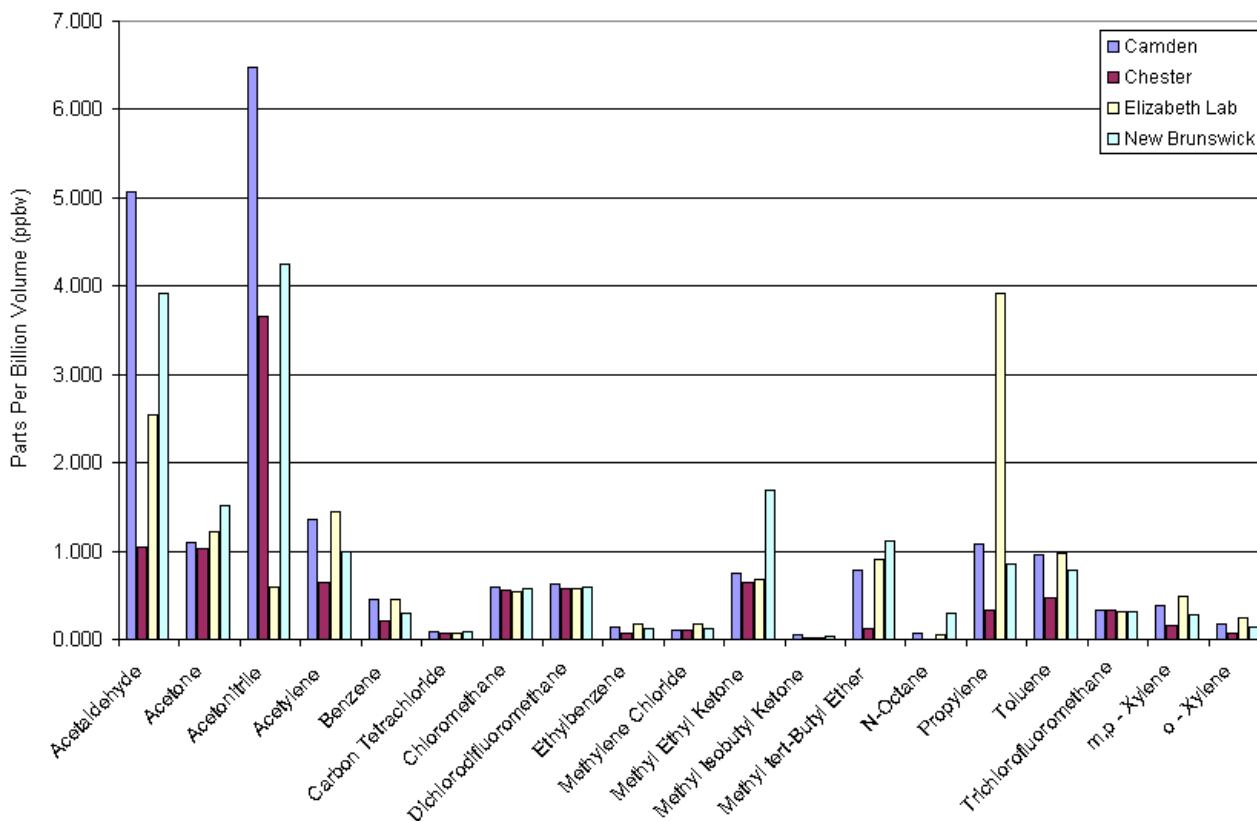
Reported averages for which a significant portion of the data (more than 50%) was below the detection limit should be viewed with extreme caution. Median values (the value of the middle sample value when the results are ranked) are reported along with the mean (average) concentrations, because for some compounds only a

single or very few high values were recorded. These high values will tend to increase the average concentration significantly but would have less effect on the median value. In such cases, the median value may be a better indicator of long term exposures, on which most of the health benchmarks for air toxics are based. The average concentrations for some of the more prevalent air toxics are graphed in Figure 6.

The Chester site has the lowest concentrations for the

majority of the prevalent air toxics. In contrast Camden and Elizabeth had the highest number of compounds (eight) with average concentrations that exceeded their health benchmark. The toxic air pollutants that exceeded the health benchmark at all sites included acetaldehyde, benzene, carbon tetrachloride, chloromethane, and formaldehyde. New Brunswick was the only site to exceed the Methyl Tert-butyl Ether benchmark while only Camden and Elizabeth exceeded benchmarks for 1,3 Butadiene and Tetrachloroethylene.

**Figure 6**  
**Selected Toxic Volatile Organics**  
**2004 Annual Averages**  
**New Jersey**



**Table 3  
New Jersey Air Toxics Summary – 2004**

**Annual Average Concentration  
ppbv – Parts Per Billion by Volume**

<b>Pollutant</b>	<b>Camden Lab</b>	<b>Chester</b>	<b>Elizabeth Lab</b>	<b>New Brunswick</b>
Acetaldehyde	5.06	1.04	2.55	3.92
Acetone	1.10	1.03	1.22	1.52
Acetonitrile	6.48	3.66	0.60	4.25
Acetylene	1.35	0.65	1.45	1.00
Acrylonitrile	0.01	0.01	0.01	0.01
tert-Amyl Methyl Ether	0.00	0.00	0.00	0.00
Benzaldehyde	0.07	0.03	0.04	0.03
Benzene	0.45	0.21	0.45	0.30
Bromochloromethane	0.00	0.00	0.00	0.00
Bromodichloromethane	0.00	0.00	0.00	0.00
Bromoform	0.00	0.00	0.00	0.00
Bromomethane	0.02	0.00	0.00	0.00
1,3-Butadiene	0.03	0.00	0.05	0.00
Butyraldehyde	0.15	0.12	0.15	0.23
Carbon Tetrachloride	0.08	0.07	0.07	0.08
Chlorobenzene	0.00	0.00	0.00	0.00
Chloroethane	0.00	0.00	0.00	0.12
Chloroform	0.00	0.00	0.01	0.01
Chloromethane	0.59	0.56	0.55	0.57
Chloromethylbenzene	0.00	0.00	0.00	0.00
Chloroprene	0.00	0.00	0.00	0.00
Crotonaldehyde	0.06	0.13	0.08	0.15
Dibromochloromethane	0.00	0.00	0.00	0.00
1,2-Dibromoethane	0.00	0.00	0.00	0.00
m-Dichlorobenzene	0.00	0.00	0.00	0.00
o-Dichlorobenzene	0.00	0.00	0.00	0.00
p-Dichlorobenzene	0.01	0.00	0.00	0.00
1,1-Dichloroethane	0.00	0.00	0.00	0.00
1,1-Dichloroethene	0.01	0.00	0.00	0.00
cis-1,2-Dichloroethylene	0.00	0.00	0.00	0.00
trans-1,2-Dichloroethylene	0.00	0.00	0.00	0.00
Dichlorodifluoromethane	0.63	0.57	0.58	0.60
1,2-Dichloroethane	0.00	0.00	0.00	0.00
1,2-Dichloropropane	0.00	0.00	0.00	0.00
cis-1,3-Dichloropropene	0.00	0.00	0.00	0.00
trans-1,3-Dichloropropene	0.00	0.01	0.00	0.00
Dichlorotetrafluoroethane	0.00	0.00	0.00	0.00
2,5-Dimethylbenzaldehyde	0.01	0.00	0.01	0.00
Ethyl Acrylate	0.00	0.00	0.00	0.00
Ethylbenzene	0.14	0.06	0.17	0.12
Ethyl tert-Butyl Ether	0.00	0.00	0.00	0.00
Formaldehyde	6.05	2.65	3.58	4.69

**Table 3 (Continued)**  
**New Jersey Air Toxics Summary – 2004**

**Annual Average Concentration**  
**ppbv – Parts Per Billion by Volume**

<b>Pollutant</b>	<b>Camden Lab</b>	<b>Chester</b>	<b>Elizabeth Lab</b>	<b>New Brunswick</b>
Hexachloro-1,3-butadiene	0.00	0.00	0.00	0.00
Hexaldehyde	0.04	0.03	0.05	0.03
Isovaleraldehyde	0.00	0.00	0.00	0.02
Methylene Chloride	0.11	0.11	0.18	0.11
Methyl Ethyl Ketone	0.74	0.64	0.69	1.69
Methyl Isobutyl Ketone	0.05	0.02	0.02	0.04
Methyl Methacrylate	0.00	0.00	0.28	0.01
Methyl tert-Butyl Ether	0.78	0.11	0.91	1.11
n-Octane	0.07	0.01	0.06	0.29
Propionaldehyde	0.14	0.11	0.12	0.25
Propylene	1.08	0.33	3.92	0.85
Styrene	0.08	0.03	0.04	0.04
1,1,2,2-Tetrachloroethane	0.00	0.00	0.00	0.00
Tetrachloroethylene	0.04	0.01	0.04	0.02
Tolualdehydes	0.05	0.02	0.03	0.03
Toluene	0.95	0.47	0.97	0.79
1,2,4-Trichlorobenzene	0.00	0.00	0.00	0.00
1,1,1-Trichloroethane	0.00	0.00	0.00	0.00
1,1,2-Trichloroethane	0.00	0.00	0.00	0.00
Trichloroethylene	0.05	0.00	0.00	0.00
Trichlorofluoromethane	0.33	0.34	0.31	0.31
Trichlorotrifluoroethane	0.09	0.08	0.08	0.08
1,2,4-Trimethylbenzene	0.17	0.03	0.14	0.13
1,3,5-Trimethylbenzene	0.05	0.01	0.04	0.04
Valeraldehyde	0.04	0.02	0.11	0.05
Vinyl chloride	0.00	0.00	0.00	0.00
m,p-Xylene	0.39	0.16	0.49	0.28
o-Xylene	0.17	0.07	0.24	0.13

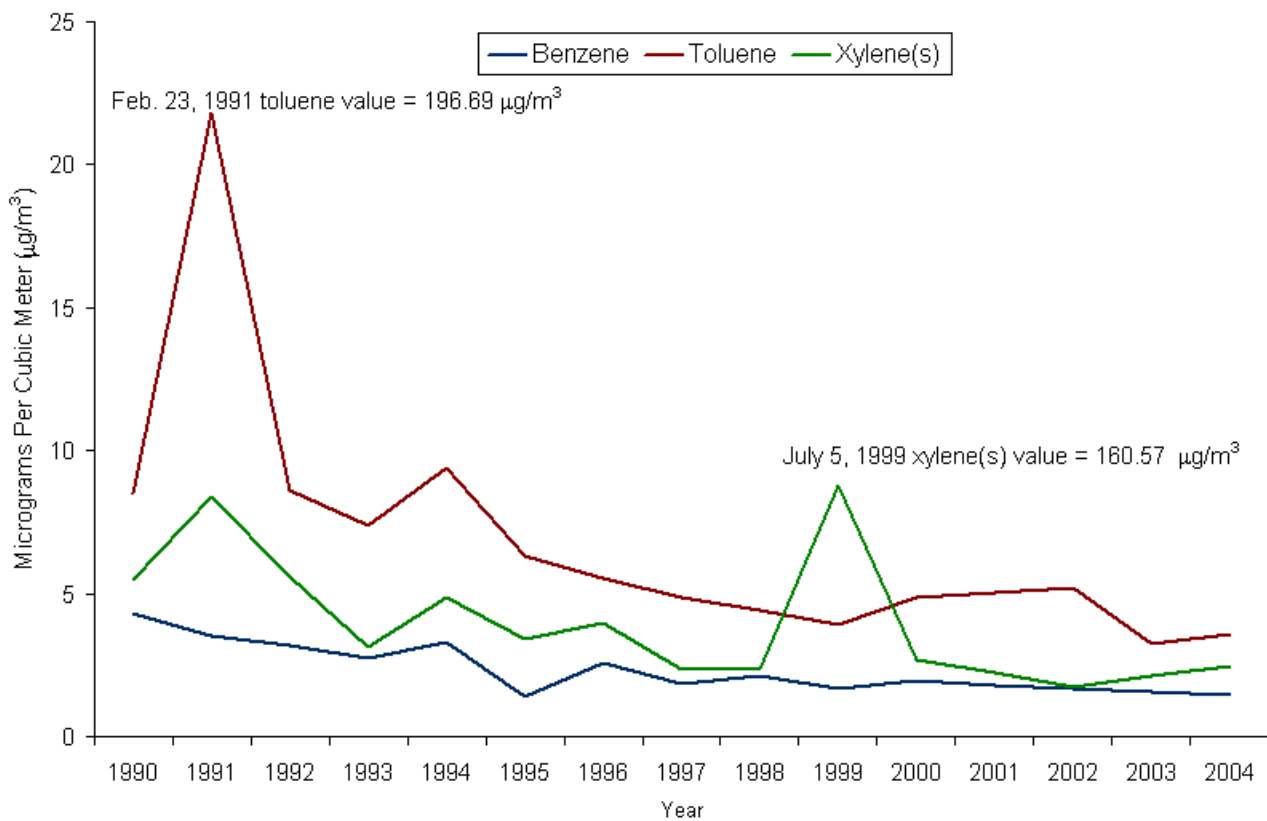


## TRENDS

The site in Camden is the only monitoring location that has been measuring air toxics for an extended period. The graph in Figure 7 shows the change in concentrations for three of the most prevalent air toxics (benzene, toluene, and xylene) from 1990 to 2004. The graph shows that while average concentrations can vary significantly from year to year, the overall trend is downward. High individual

samples may also result in high annual averages in some years. Concentrations of most air toxics have declined significantly over the last ten years. Because air toxics comprise such a large and diverse group of compounds, however, these general trends may not hold for other pollutants in different areas of the state.

**Figure 7**  
**Annual Averages for Selected Hazardous Air Pollutants (HAPs) at Camden Lab from 1990-2004**



**Table 4**  
**Air Toxics Data 2004**  
**January – September**  
**Camden Lab, New Jersey**

$\mu\text{g}/\text{m}^3$  – Micrograms Per Cubic Meter  
ppbv – Parts Per Billion by Volume

Compounds in Bold had Annual Mean Concentrations Greater Than Their Accepted Health Benchmark

Pollutant	Detection Limit ppbv	% Detects	Benchmark <sup>1</sup> $\mu\text{g}/\text{m}^3$	Mean <sup>2,3</sup> $\mu\text{g}/\text{m}^3$	Mean ppbv	Median ppbv	Max. ppbv
<b>Acetaldehyde</b>	<b>0.005</b>	<b>100.0</b>	<b>0.45</b>	<b>9.12</b>	<b>5.06</b>	<b>1.84</b>	<b>29.10</b>
Acetone	0.002	100.0	31000	2.60	1.10	0.76	7.09
Acetonitrile	0.25	47.5	60	10.88	6.48	0.00	83.00
Acetylene	0.13	100.0		1.44	1.35	1.16	9.71
<b>Acrylonitrile</b>	<b>0.21</b>	<b>4.9</b>	<b>0.015</b>	<b>0.02</b>	<b>0.01</b>	<b>0.00</b>	<b>0.18</b>
tert-Amyl Methyl Ether	0.12	3.3		0.02	0.00	0.00	0.18
Benzaldehyde	0.003	98.1		0.29	0.07	0.03	0.71
<b>Benzene</b>	<b>0.04</b>	<b>100.0</b>	<b>0.13</b>	<b>1.45</b>	<b>0.45</b>	<b>0.39</b>	<b>2.13</b>
Bromochloromethane	0.12	0.0		0.00	0.00	0.00	0.00
Bromodichloromethane	0.06	0.0		0.00	0.00	0.00	0.00
Bromoform	0.08	0.0	0.91	0.00	0.00	0.00	0.00
Bromomethane	0.09	14.8	5	0.10	0.02	0.00	0.31
<b>1,3-Butadiene</b>	<b>0.07</b>	<b>27.9</b>	<b>0.033</b>	<b>0.06</b>	<b>0.03</b>	<b>0.00</b>	<b>0.22</b>
Butyraldehyde	0.011	100.0		0.44	0.15	0.04	1.33
<b>Carbon Tetrachloride</b>	<b>0.08</b>	<b>91.8</b>	<b>0.067</b>	<b>0.53</b>	<b>0.08</b>	<b>0.09</b>	<b>0.15</b>
Chlorobenzene	0.06	0.0	1000	0.00	0.00	0.00	0.00
Chloroethane	0.08	1.6		0.01	0.00	0.00	0.24
Chloroform	0.05	6.6	0.043	0.02	0.00	0.00	0.07
<b>Chloromethane</b>	<b>0.05</b>	<b>98.4</b>	<b>0.56</b>	<b>1.23</b>	<b>0.59</b>	<b>0.60</b>	<b>0.89</b>
Chloromethylbenzene	0.07	0.0		0.00	0.00	0.00	0.00
Chloroprene	0.01	0.0	1	0.00	0.00	0.00	0.00
Crotonaldehyde	0.005	98.1		0.18	0.06	0.02	0.43
Dibromochloromethane	0.08	0.0		0.00	0.00	0.00	0.00
1,2-Dibromoethane	0.08	0.0	0.0017	0.00	0.00	0.00	0.00
m-Dichlorobenzene	0.05	0.0		0.00	0.00	0.00	0.00
o-Dichlorobenzene	0.06	0.0	200	0.00	0.00	0.00	0.00
p-Dichlorobenzene	0.09	13.1	0.091	0.08	0.01	0.00	0.19
1,1-Dichloroethane	0.08	0.0	0.63	0.00	0.00	0.00	0.00
1,1-Dichloroethene	0.1	1.6	200	0.02	0.01	0.00	0.31
cis-1,2-Dichloroethylene	0.1	0.0		0.00	0.00	0.00	0.00
trans-1,2-Dichloroethylene	0.06	0.0		0.00	0.00	0.00	0.00
Dichlorodifluoromethane	0.04	100.0	200	3.10	0.63	0.62	0.84
1,2-Dichloroethane	0.06	0.0	0.038	0.00	0.00	0.00	0.00
1,2-Dichloropropane	0.07	0.0	0.1	0.00	0.00	0.00	0.00
cis-1,3-Dichloropropene	0.1	0.0	0.25	0.00	0.00	0.00	0.00
trans-1,3-Dichloropropene	0.11	4.9	0.25	0.02	0.00	0.00	0.10
Dichlorotetrafluoroethane	0.05	0.0		0.00	0.00	0.00	0.00
2,5-Dimethylbenzaldehyde	0.004	18.9		0.06	0.01	0.00	0.10

**Table 4 – (Continued)  
Air Toxics Data – 2004  
Camden, New Jersey**

µg/m<sup>3</sup> - Micrograms Per Cubic Meter  
ppbv - Parts Per Billion by Volume

Compounds in Bold had Annual Mean Concentrations Greater Than Their Accepted Health Benchmark

Pollutant	Detection Limit Ppbv	% Detects	Benchmark <sup>1</sup> µg/m <sup>3</sup>	Mean <sup>2,3</sup> µg/m <sup>3</sup>	Mean ppbv	Median ppbv	Max. ppbv
Ethyl Acrylate	0.16	0.0	2	0.00	0.00	0.00	0.00
Ethylbenzene	0.04	100.0		0.60	0.14	0.11	0.66
Ethyl tert-Butyl Ether	0.15	0.0		0.00	0.00	0.00	0.00
<b>Formaldehyde</b>	<b>0.016</b>	<b>100.0</b>	<b>0.077</b>	<b>7.43</b>	<b>6.05</b>	<b>0.72</b>	<b>40.30</b>
Hexachloro-1,3-butadiene	0.06	0.0	0.045	0.00	0.00	0.00	0.00
Hexaldehyde	0.003	100.0		0.18	0.04	0.02	0.78
Isovaleraldehyde	0.004	9.4		0.01	0.00	0.00	0.04
Methylene Chloride	0.06	65.6	2.1	0.39	0.11	0.09	0.88
Methyl Ethyl Ketone	0.15	88.5		2.19	0.74	0.58	3.20
Methyl Isobutyl Ketone	0.15	29.5		0.22	0.05	0.00	0.38
Methyl Methacrylate	0.18	0.0	700	0.00	0.00	0.00	0.00
Methyl tert-Butyl Ether	0.18	93.4	3.8	2.82	0.78	0.56	5.02
n-Octane	0.06	47.5		0.33	0.07	0.00	0.86
Propionaldehyde	0.005	60.4		0.33	0.14	0.01	1.00
Propylene	0.05	100.0	3000	1.86	1.08	0.78	5.31
Styrene	0.07	77.0	1.8	0.33	0.08	0.06	1.23
1,1,2,2-Tetrachloroethane	0.06	0.0	0.017	0.00	0.00	0.00	0.00
<b>Tetrachloroethylene</b>	<b>0.06</b>	<b>37.7</b>	<b>0.17</b>	<b>0.26</b>	<b>0.04</b>	<b>0.00</b>	<b>0.44</b>
Tolualdehydes	0.009	67.9		0.26	0.05	0.01	0.38
Toluene	0.06	98.4	400	3.59	0.95	0.74	4.39
1,2,4-Trichlorobenzene	0.06	0.0	200	0.00	0.00	0.00	0.00
1,1,1-Trichloroethane	0.06	1.6	1000	0.01	0.00	0.00	0.08
1,1,2-Trichloroethane	0.06	0.0	0.063	0.00	0.00	0.00	0.00
Trichloroethylene	0.07	32.8	0.5	0.27	0.05	0.00	0.47
Trichlorofluoromethane	0.04	98.4	700	1.84	0.33	0.33	0.57
Trichlorotrifluoroethane	0.07	86.9		0.67	0.09	0.09	0.27
1,2,4-Trimethylbenzene	0.07	96.7		0.81	0.17	0.14	0.91
1,3,5-Trimethylbenzene	0.07	73.8		0.25	0.05	0.05	0.29
Valeraldehyde	0.05	67.9		0.14	0.04	0.01	0.53
Vinyl chloride	0.06	3.3	0.11	0.01	0.00	0.00	0.17
m,p-Xylene	0.05	100.0	100	1.69	0.39	0.30	2.13
o-Xylene	0.05	100.0	100	0.75	0.17	0.14	0.94

<sup>1,2,3</sup> See table end notes on Air Toxics page 18

**Table 5**  
**Air Toxics Data – 2004**  
**Chester, New Jersey**

$\mu\text{g}/\text{m}^3$  – Micrograms Per Cubic Meter  
ppbv – Parts Per Billion by Volume

Compounds in Bold had Annual Mean Concentrations Greater Than Their Accepted Health Benchmark

Pollutant	Detection Limit ppbv	% Detects	Benchmark <sup>1</sup> $\mu\text{g}/\text{m}^3$	Mean <sup>2,3</sup> $\mu\text{g}/\text{m}^3$	Mean ppbv	Median ppbv	Max. ppbv
<b>Acetaldehyde</b>	<b>0.005</b>	<b>100.0</b>	<b>0.45</b>	<b>1.88</b>	<b>1.04</b>	<b>0.68</b>	<b>16.10</b>
Acetone	0.002	100.0	31000	2.44	1.03	0.90	9.22
Acetonitrile	0.25	57.9	60	6.15	3.66	0.35	38.70
Acetylene	0.13	98.2		0.69	0.65	0.55	1.84
<b>Acrylonitrile</b>	<b>0.21</b>	<b>3.5</b>	<b>0.015</b>	<b>0.02</b>	<b>0.01</b>	<b>0.00</b>	<b>0.47</b>
tert-Amyl Methyl Ether	0.12	0.0		0.00	0.00	0.00	0.00
Benzaldehyde	0.003	94.4		0.13	0.03	0.02	0.37
<b>Benzene</b>	<b>0.04</b>	<b>96.5</b>	<b>0.13</b>	<b>0.67</b>	<b>0.21</b>	<b>0.19</b>	<b>0.52</b>
Bromochloromethane	0.12	0.0		0.00	0.00	0.00	0.00
Bromodichloromethane	0.06	0.0		0.00	0.00	0.00	0.00
Bromoform	0.08	0.0	0.91	0.00	0.00	0.00	0.00
Bromomethane	0.09	1.8	5	0.01	0.00	0.00	0.12
1,3-Butadiene	0.07	3.5	0.033	0.01	0.00	0.00	0.10
Butyraldehyde	0.011	100.0		0.37	0.12	0.09	1.37
<b>Carbon Tetrachloride</b>	<b>0.08</b>	<b>78.9</b>	<b>0.067</b>	<b>0.47</b>	<b>0.07</b>	<b>0.08</b>	<b>0.18</b>
Chlorobenzene	0.06	0.0	1000	0.00	0.00	0.00	0.00
Chloroethane	0.08	1.8		0.01	0.00	0.00	0.23
Chloroform	0.05	3.5	0.043	0.01	0.00	0.00	0.09
<b>Chloromethane</b>	<b>0.05</b>	<b>100.0</b>	<b>0.56</b>	<b>1.16</b>	<b>0.56</b>	<b>0.55</b>	<b>1.46</b>
Chloromethylbenzene	0.07	0.0		0.00	0.00	0.00	0.00
Chloroprene	0.01	0.0	1	0.00	0.00	0.00	0.00
Crotonaldehyde	0.005	98.1		0.37	0.13	0.03	2.91
Dibromochloromethane	0.08	0.0		0.00	0.00	0.00	0.00
1,2-Dibromoethane	0.08	0.0	0.0017	0.00	0.00	0.00	0.00
m-Dichlorobenzene	0.05	0.0		0.00	0.00	0.00	0.00
o-Dichlorobenzene	0.06	0.0	200	0.00	0.00	0.00	0.00
p-Dichlorobenzene	0.09	0.0	0.091	0.00	0.00	0.00	0.00
1,1-Dichloroethane	0.08	0.0	0.63	0.00	0.00	0.00	0.00
1,1-Dichloroethene	0.1	0.0	200	0.00	0.00	0.00	0.00
cis-1,2-Dichloroethylene	0.1	0.0		0.00	0.00	0.00	0.00
trans-1,2-Dichloroethylene	0.06	0.0		0.00	0.00	0.00	0.00
Dichlorodifluoromethane	0.04	98.2	200	2.82	0.57	0.60	0.81
1,2-Dichloroethane	0.06	0.0	0.038	0.00	0.00	0.00	0.00
1,2-Dichloropropane	0.07	0.0	0.1	0.00	0.00	0.00	0.00
cis-1,3-Dichloropropene	0.1	0.0	0.25	0.00	0.00	0.00	0.00
trans-1,3-Dichloropropene	0.11	7.0	0.25	0.03	0.01	0.00	0.12
Dichlorotetrafluoroethane	0.05	0.0		0.00	0.00	0.00	0.00
2,5-Dimethylbenzaldehyde	0.004	3.7		0.01	0.00	0.00	0.11

**Table 5 – (Continued)  
Air Toxics Data – 2004  
Chester, New Jersey**

$\mu\text{g}/\text{m}^3$  - Micrograms Per Cubic Meter  
ppbv - Parts Per Billion by Volume

Compounds in Bold had Annual Mean Concentrations Greater Than Their Accepted Health Benchmark

Pollutant	Detection Limit ppbv	% Detects	Benchmark <sup>1</sup> $\mu\text{g}/\text{m}^3$	Mean <sup>2,3</sup> $\mu\text{g}/\text{m}^3$	Mean ppbv	Median ppbv	Max. ppbv
Ethyl Acrylate	0.16	0.0	2	0.00	0.00	0.00	0.00
Ethylbenzene	0.04	78.9		0.27	0.06	0.06	0.53
Ethyl tert-Butyl Ether	0.15	0.0		0.00	0.00	0.00	0.00
<b>Formaldehyde</b>	<b>0.016</b>	<b>100.0</b>	<b>0.077</b>	<b>3.25</b>	<b>2.65</b>	<b>1.14</b>	<b>46.50</b>
Hexachloro-1,3-butadiene	0.06	0.0	0.045	0.00	0.00	0.00	0.00
Hexaldehyde	0.003	98.1		0.14	0.03	0.03	0.31
Isovaleraldehyde	0.004	29.6		0.01	0.00	0.00	0.04
Methylene Chloride	0.06	45.6	2.1	0.38	0.11	0.00	1.59
Methyl Ethyl Ketone	0.15	80.7		1.89	0.64	0.47	8.30
Methyl Isobutyl Ketone	0.15	8.8		0.08	0.02	0.00	0.31
Methyl Methacrylate	0.18	0.0	700	0.00	0.00	0.00	0.00
Methyl tert-Butyl Ether	0.18	54.4	3.8	0.41	0.11	0.08	0.45
n-Octane	0.06	8.8		0.03	0.01	0.00	0.09
Propionaldehyde	0.005	98.1		0.27	0.11	0.06	1.79
Propylene	0.05	98.2	3000	0.57	0.33	0.27	1.00
Styrene	0.07	29.8	1.8	0.14	0.03	0.00	0.78
1,1,2,2-Tetrachloroethane	0.06	0.0	0.017	0.00	0.00	0.00	0.00
Tetrachloroethylene	0.06	17.5	0.17	0.09	0.01	0.00	0.12
Tolualdehydes	0.009	87.0		0.11	0.02	0.02	0.20
Toluene	0.06	100.0	400	1.76	0.47	0.28	6.41
1,2,4-Trichlorobenzene	0.06	0.0	200	0.00	0.00	0.00	0.00
1,1,1-Trichloroethane	0.06	1.8	1000	0.01	0.00	0.00	0.10
1,1,2-Trichloroethane	0.06	0.0	0.063	0.00	0.00	0.00	0.00
Trichloroethylene	0.07	3.5	0.5	0.01	0.00	0.00	0.05
Trichlorofluoromethane	0.04	100.0	700	1.88	0.34	0.30	1.30
Trichlorotrifluoroethane	0.07	78.9		0.59	0.08	0.09	0.19
1,2,4-Trimethylbenzene	0.07	29.8		0.16	0.03	0.00	0.27
1,3,5-Trimethylbenzene	0.07	10.5		0.03	0.01	0.00	0.08
Valeraldehyde	0.05	83.3		0.08	0.02	0.02	0.38
Vinyl chloride	0.06	0.0	0.11	0.00	0.00	0.00	0.00
M,p-Xylene	0.05	94.7	100	0.68	0.16	0.13	0.89
o-Xylene	0.05	86.0	100	0.30	0.07	0.06	0.35

<sup>1,2,3</sup> See table end notes on Air Toxics page 18

**Table 6  
Air Toxics Data – 2004  
Elizabeth Lab, New Jersey**

$\mu\text{g}/\text{m}^3$  – Micrograms Per Cubic Meter  
ppbv – Parts Per Billion by Volume

Compounds in Bold had Annual Mean Concentrations Greater Than Their Accepted Health Benchmark

Pollutant	Detection Limit ppbv	% Detects	Benchmark <sup>1</sup> $\mu\text{g}/\text{m}^3$	Mean <sup>2,3</sup> $\mu\text{g}/\text{m}^3$	Mean ppbv	Median ppbv	Max. ppbv
<b>Acetaldehyde</b>	<b>0.005</b>	<b>100.0</b>	<b>0.45</b>	<b>4.59</b>	<b>2.55</b>	<b>2.36</b>	<b>6.24</b>
Acetone	0.002	100.0	31000	2.91	1.22	1.05	4.15
Acetonitrile	0.25	44.1	60	1.00	0.60	0.00	4.78
Acetylene	0.13	98.3		1.54	1.45	1.42	5.96
<b>Acrylonitrile</b>	<b>0.21</b>	<b>6.8</b>	<b>0.015</b>	<b>0.02</b>	<b>0.01</b>	<b>0.00</b>	<b>0.32</b>
tert-Amyl Methyl Ether	0.12	3.4		0.01	0.00	0.00	0.10
Benzaldehyde	0.003	100.0		0.17	0.04	0.04	0.11
<b>Benzene</b>	<b>0.04</b>	<b>98.3</b>	<b>0.13</b>	<b>1.45</b>	<b>0.45</b>	<b>0.41</b>	<b>1.30</b>
Bromochloromethane	0.12	0.0		0.00	0.00	0.00	0.00
Bromodichloromethane	0.06	0.0		0.00	0.00	0.00	0.00
Bromoform	0.08	0.0	0.91	0.00	0.00	0.00	0.00
Bromomethane	0.09	0.0	5	0.00	0.00	0.00	0.00
<b>1,3-Butadiene</b>	<b>0.07</b>	<b>44.1</b>	<b>0.033</b>	<b>0.11</b>	<b>0.05</b>	<b>0.00</b>	<b>0.23</b>
Butyraldehyde	0.011	100.0		0.44	0.15	0.11	0.81
<b>Carbon Tetrachloride</b>	<b>0.08</b>	<b>84.7</b>	<b>0.067</b>	<b>0.46</b>	<b>0.07</b>	<b>0.08</b>	<b>0.14</b>
Chlorobenzene	0.06	0.0	1000	0.00	0.00	0.00	0.00
Chloroethane	0.08	0.0		0.00	0.00	0.00	0.00
Chloroform	0.05	11.9	0.043	0.03	0.01	0.00	0.08
<b>Chloromethane</b>	<b>0.05</b>	<b>96.6</b>	<b>0.56</b>	<b>1.13</b>	<b>0.55</b>	<b>0.56</b>	<b>0.81</b>
Chloromethylbenzene	0.07	0.0		0.00	0.00	0.00	0.00
Chloroprene	0.01	0.0	1	0.00	0.00	0.00	0.00
Crotonaldehyde	0.005	100.0		0.23	0.08	0.05	0.29
Dibromochloromethane	0.08	0.0		0.00	0.00	0.00	0.00
1,2-Dibromoethane	0.08	0.0	0.0017	0.00	0.00	0.00	0.00
m-Dichlorobenzene	0.05	0.0		0.00	0.00	0.00	0.00
o-Dichlorobenzene	0.06	0.0	200	0.00	0.00	0.00	0.00
p-Dichlorobenzene	0.09	5.1	0.091	0.03	0.00	0.00	0.13
1,1-Dichloroethane	0.08	0.0	0.63	0.00	0.00	0.00	0.00
1,1-Dichloroethene	0.1	0.0	200	0.00	0.00	0.00	0.00
cis-1,2-Dichloroethylene	0.1	1.7		0.01	0.00	0.00	0.12
trans-1,2-Dichloroethylene	0.06	0.0		0.00	0.00	0.00	0.00
Dichlorodifluoromethane	0.04	100.0	200	2.86	0.58	0.60	0.85
1,2-Dichloroethane	0.06	0.0	0.038	0.00	0.00	0.00	0.00
1,2-Dichloropropane	0.07	0.0	0.1	0.00	0.00	0.00	0.00
cis-1,3-Dichloropropene	0.1	0.0	0.25	0.00	0.00	0.00	0.00
trans-1,3-Dichloropropene	0.11	5.1	0.25	0.02	0.00	0.00	0.10
Dichlorotetrafluoroethane	0.05	0.0		0.00	0.00	0.00	0.00
2,5-Dimethylbenzaldehyde	0.004	44.1		0.03	0.01	0.00	0.13

**Table 6 – (Continued)**  
**Air Toxics Data – 2004**  
**Elizabeth Lab, New Jersey**

$\mu\text{g}/\text{m}^3$  – Micrograms Per Cubic Meter  
ppbv – Parts Per Billion by Volume

Compounds in Bold had Annual Mean Concentrations Greater Than Their Accepted Health Benchmark

Pollutant	Detection Limit ppbv	% Detects	Benchmark <sup>1</sup> $\mu\text{g}/\text{m}^3$	Mean <sup>2,3</sup> $\mu\text{g}/\text{m}^3$	Mean ppbv	Median ppbv	Max. ppbv
Ethyl Acrylate	0.16	0.0	2	0.00	0.00	0.00	0.00
Ethylbenzene	0.04	96.6		0.72	0.17	0.15	0.55
Ethyl tert-Butyl Ether	0.15	0.0		0.00	0.00	0.00	0.00
<b>Formaldehyde</b>	<b>0.016</b>	<b>100.0</b>	<b>0.077</b>	<b>4.39</b>	<b>3.58</b>	<b>3.30</b>	<b>9.46</b>
Hexachloro-1,3-butadiene	0.06	0.0	0.045	0.00	0.00	0.00	0.00
Hexaldehyde	0.003	100.0		0.19	0.05	0.04	0.19
Isovaleraldehyde	0.004	27.1		0.01	0.00	0.00	0.02
Methylene Chloride	0.06	83.1	2.1	0.63	0.18	0.15	0.55
Methyl Ethyl Ketone	0.15	84.7		2.02	0.69	0.62	4.04
Methyl Isobutyl Ketone	0.15	18.6		0.10	0.02	0.00	0.25
Methyl Methacrylate	0.18	6.8	700	0.98	0.28	0.00	10.20
Methyl tert-Butyl Ether	0.18	91.5	3.8	3.29	0.91	0.65	4.04
n-Octane	0.06	49.2		0.28	0.06	0.00	0.27
Propionaldehyde	0.005	93.2		0.28	0.12	0.10	0.67
Propylene	0.05	100.0	3000	6.75	3.92	1.56	17.30
Styrene	0.07	69.5	1.8	0.18	0.04	0.05	0.13
1,1,2,2-Tetrachloroethane	0.06	0.0	0.017	0.00	0.00	0.00	0.00
<b>Tetrachloroethylene</b>	<b>0.06</b>	<b>42.4</b>	<b>0.17</b>	<b>0.24</b>	<b>0.04</b>	<b>0.00</b>	<b>0.19</b>
Tolualdehydes	0.009	96.6		0.15	0.03	0.03	0.08
Toluene	0.06	100.0	400	3.67	0.97	0.85	3.56
1,2,4-Trichlorobenzene	0.06	0.0	200	0.00	0.00	0.00	0.00
1,1,1-Trichloroethane	0.06	5.1	1000	0.01	0.00	0.00	0.06
1,1,2-Trichloroethane	0.06	0.0	0.063	0.00	0.00	0.00	0.00
Trichloroethylene	0.07	6.8	0.5	0.02	0.00	0.00	0.06
Trichlorofluoromethane	0.04	98.3	700	1.76	0.31	0.32	0.68
Trichlorotrifluoroethane	0.07	81.4		0.59	0.08	0.09	0.13
1,2,4-Trimethylbenzene	0.07	91.5		0.69	0.14	0.13	0.48
1,3,5-Trimethylbenzene	0.07	71.2		0.22	0.04	0.04	0.15
Valeraldehyde	0.05	100.0		0.38	0.11	0.04	1.20
Vinyl chloride	0.06	0.0	0.11	0.00	0.00	0.00	0.00
m,p-Xylene	0.05	98.3	100	2.14	0.49	0.44	1.55
o-Xylene	0.05	98.3	100	1.02	0.24	0.22	0.68

<sup>1,2,3</sup> See table end notes on Air Toxics page 18

**Table 7**  
**Air Toxics Data – 2004**  
**New Brunswick, New Jersey**

$\mu\text{g}/\text{m}^3$  – Micrograms Per Cubic Meter  
ppbv – Parts Per Billion by Volume

Compounds in Bold had Annual Mean Concentrations Greater Than Their Accepted Health Benchmark

Pollutant	Detection Limit ppbv	% Detects	Benchmark <sup>1</sup> $\mu\text{g}/\text{m}^3$	Mean <sup>2,3</sup> $\mu\text{g}/\text{m}^3$	Mean ppbv	Median ppbv	Max. ppbv
<b>Acetaldehyde</b>	<b>0.005</b>	<b>100.0</b>	<b>0.45</b>	<b>7.06</b>	<b>3.92</b>	<b>2.31</b>	<b>61.60</b>
Acetone	0.002	100.0	31000	3.61	1.52	1.24	14.70
Acetonitrile	0.25	61.7	60	7.14	4.25	0.82	140.00
Acetylene	0.13	100.0		1.06	1.00	0.87	4.12
Acrylonitrile	0.21	3.3	0.015	0.01	0.01	0.00	0.23
tert-Amyl Methyl Ether	0.12	0.0		0.00	0.00	0.00	0.00
Benzaldehyde	0.003	88.1		0.14	0.03	0.02	0.49
<b>Benzene</b>	<b>0.04</b>	<b>100.0</b>	<b>0.13</b>	<b>0.95</b>	<b>0.30</b>	<b>0.27</b>	<b>0.88</b>
Bromochloromethane	0.12	0.0		0.00	0.00	0.00	0.00
Bromodichloromethane	0.06	0.0		0.00	0.00	0.00	0.00
Bromoform	0.08	0.0	0.91	0.00	0.00	0.00	0.00
Bromomethane	0.09	0.0	5	0.00	0.00	0.00	0.00
1,3-Butadiene	0.07	6.7	0.033	0.01	0.00	0.00	0.07
Butyraldehyde	0.011	100.0		0.69	0.23	0.13	3.72
<b>Carbon Tetrachloride</b>	<b>0.08</b>	<b>91.7</b>	<b>0.067</b>	<b>0.52</b>	<b>0.08</b>	<b>0.09</b>	<b>0.14</b>
Chlorobenzene	0.06	0.0	1000	0.00	0.00	0.00	0.00
Chloroethane	0.08	1.7		0.31	0.12	0.00	7.09
Chloroform	0.05	13.3	0.043	0.03	0.01	0.00	0.06
<b>Chloromethane</b>	<b>0.05</b>	<b>98.3</b>	<b>0.56</b>	<b>1.18</b>	<b>0.57</b>	<b>0.56</b>	<b>1.94</b>
Chloromethylbenzene	0.07	0.0		0.00	0.00	0.00	0.00
Chloroprene	0.01	0.0	1	0.00	0.00	0.00	0.00
Crotonaldehyde	0.005	100.0		0.43	0.15	0.05	3.52
Dibromochloromethane	0.08	0.0		0.00	0.00	0.00	0.00
1,2-Dibromoethane	0.08	0.0	0.0017	0.00	0.00	0.00	0.00
m-Dichlorobenzene	0.05	0.0		0.00	0.00	0.00	0.00
o-Dichlorobenzene	0.06	0.0	200	0.00	0.00	0.00	0.00
p-Dichlorobenzene	0.09	0.0	0.091	0.00	0.00	0.00	0.00
1,1-Dichloroethane	0.08	0.0	0.63	0.00	0.00	0.00	0.00
1,1-Dichloroethene	0.1	0.0	200	0.00	0.00	0.00	0.00
cis-1,2-Dichloroethylene	0.1	0.0		0.00	0.00	0.00	0.00
trans-1,2-Dichloroethylene	0.06	0.0		0.00	0.00	0.00	0.00
Dichlorodifluoromethane	0.04	100.0	200	2.95	0.60	0.58	0.83
1,2-Dichloroethane	0.06	0.0	0.038	0.00	0.00	0.00	0.00
1,2-Dichloropropane	0.07	1.7	0.1	0.01	0.00	0.00	0.07
cis-1,3-Dichloropropene	0.1	0.0	0.25	0.00	0.00	0.00	0.00
trans-1,3-Dichloropropene	0.11	5.0	0.25	0.02	0.00	0.00	0.10
Dichlorotetrafluoroethane	0.05	0.0		0.00	0.00	0.00	0.00
2,5-Dimethylbenzaldehyde	0.004	25.4		0.01	0.00	0.00	0.03



**Table 7 – (Continued)**  
**Air Toxics Data – 2004**  
**New Brunswick, New Jersey**

$\mu\text{g}/\text{m}^3$  – Micrograms Per Cubic Meter  
ppbv – Parts Per Billion by Volume

Compounds in Bold had Annual Mean Concentrations Greater Than Their Accepted Health Benchmark

Pollutant	Detection Limit ppbv	% Detects	Benchmark <sup>1</sup> $\mu\text{g}/\text{m}^3$	Mean <sup>2,3</sup> $\mu\text{g}/\text{m}^3$	Mean ppbv	Median ppbv	Max. ppbv
Ethyl Acrylate	0.16	0.0	2	0.00	0.00	0.00	0.00
Ethylbenzene	0.04	96.7		0.52	0.12	0.10	0.78
Ethyl tert-Butyl Ether	0.15	0.0		0.00	0.00	0.00	0.00
<b>Formaldehyde</b>	<b>0.016</b>	<b>100.0</b>	<b>0.077</b>	<b>5.76</b>	<b>4.69</b>	<b>2.66</b>	<b>78.10</b>
Hexachloro-1,3-butadiene	0.06	0.0	0.045	0.00	0.00	0.00	0.00
Hexaldehyde	0.003	86.4		0.12	0.03	0.02	0.46
Isovaleraldehyde	0.004	49.2		0.06	0.02	0.00	0.40
Methylene Chloride	0.06	81.7	2.1	0.40	0.11	0.10	0.44
Methyl Ethyl Ketone	0.15	86.7		4.98	1.69	0.44	56.70
Methyl Isobutyl Ketone	0.15	5.0		0.18	0.04	0.00	2.39
Methyl Methacrylate	0.18	1.7	700	0.04	0.01	0.00	0.75
<b>Methyl tert-Butyl Ether</b>	<b>0.18</b>	<b>90.0</b>	<b>3.8</b>	<b>4.00</b>	<b>1.11</b>	<b>0.26</b>	<b>48.60</b>
n-Octane	0.06	20.0		1.37	0.29	0.00	16.60
Propionaldehyde	0.005	94.9		0.60	0.25	0.11	4.77
Propylene	0.05	100.0	3000	1.47	0.85	0.47	18.40
Styrene	0.07	51.7	1.8	0.17	0.04	0.04	0.91
1,1,2,2-Tetrachloroethane	0.06	0.0	0.017	0.00	0.00	0.00	0.00
Tetrachloroethylene	0.06	28.3	0.17	0.16	0.02	0.00	0.21
Tolualdehydes	0.009	81.4		0.14	0.03	0.02	0.39
Toluene	0.06	100.0	400	2.98	0.79	0.57	6.30
1,2,4-Trichlorobenzene	0.06	0.0	200	0.00	0.00	0.00	0.00
1,1,1-Trichloroethane	0.06	0.0	1000	0.00	0.00	0.00	0.00
1,1,2-Trichloroethane	0.06	0.0	0.063	0.00	0.00	0.00	0.00
Trichloroethylene	0.07	3.3	0.5	0.01	0.00	0.00	0.11
Trichlorofluoromethane	0.04	100.0	700	1.73	0.31	0.30	0.85
Trichlorotrifluoroethane	0.07	86.7		0.64	0.08	0.10	0.13
1,2,4-Trimethylbenzene	0.07	80.0		0.65	0.13	0.09	2.50
1,3,5-Trimethylbenzene	0.07	53.3		0.20	0.04	0.04	0.75
Valeraldehyde	0.05	89.8		0.18	0.05	0.02	0.88
Vinyl chloride	0.06	0.0	0.11	0.00	0.00	0.00	0.00
m,p-Xylene	0.05	98.3	100	1.23	0.28	0.22	2.71
o-Xylene	0.05	98.3	100	0.57	0.13	0.11	1.48

<sup>1,2,3</sup> See table end notes on Air Toxics page 18

## END NOTES FOR TABLES 4-7

<sup>1</sup> The Heath Benchmark is defined as the chemical-specific air concentration above which there may be human health concerns. For a carcinogen (cancer-causing chemical), the health benchmark is set at the air concentration that would cause no more than a one in a million increase in the likelihood of getting cancer, even after a lifetime of exposure. For a non-carcinogen, the health benchmark is the maximum air concentration to which exposure is likely to cause no harm, even if that exposure occurs on a daily basis for a lifetime.

<sup>2</sup> Individual 24-hour pollutant concentrations were reported by the analyzing laboratory in ppbv (parts per billion by volume) and were converted to  $\mu\text{g}/\text{m}^3$  using the following formula:

$$\frac{\mu\text{g}}{\text{m}^3} = \frac{(\text{ppbv})(\text{MolecularWeight})}{24.45}$$

where Molecular Weight is the molecular weight of a pollutant in grams, and 24.45 is the molar volume of an ideal gas in liters at the standard temperature of 25°C.

<sup>3</sup> For a valid 24-hour sampling event when the analyzing laboratory reports the term “Not Detected” for a particular pollutant, the concentration of 0.0 ppbv is assigned to that pollutant. These zero concentrations were included in the calculation of annual averages and medians for each pollutant regardless of percent detection.

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