

US EPA ARCHIVE DOCUMENT

1996 Modeled Exposure Concentrations for Massachusetts

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- The exposure estimates presented below are representative of midrange estimates of population exposures. Due to a number of factors, some individuals may have substantially higher or lower exposures. It is important to note that the model, as applied on the national scale, is not designed to quantify these extreme values of individual exposures.
- Note that for certain chemicals, exposure pathways other than inhalation as well as indoor sources of air toxics may contribute substantially to total exposures of concern. This assessment does not address these other routes of exposure (i.e., ingestion or dermal) or inhalation exposure resulting from indoor sources.
- The emissions used in this assessment do not reflect potentially significant emission reductions that have taken effect since 1996, including those from: 1) mobile source regulations which are being phased in over time; 2) many of the air toxics regulations EPA has issued for major industrial sources; 3) State or industry initiatives; and 4) any facility closures.
- Methods of estimating emissions as well as simplified modeling assumptions may introduce significant uncertainties into each component of the assessment.
[For a discussion of limitations please see http://www.epa.gov/ttn/atw/nata/natsalim2.html](http://www.epa.gov/ttn/atw/nata/natsalim2.html)
- Because of these uncertainties, EPA will not use the results of this assessment to determine source-specific contributions or to set regulatory requirements. However, EPA expects to use these results to inform decisions about the priorities of the air toxics program as well as to guide the collection of additional data that could lead to regulatory decisions.

				Estimated Annual Median Exposure Concentrations (ug/m3) for Massachusetts												
State	County	FIPS	Urban or Rural	1,1,2,2-TCA	1,3-Butadiene	1,3-Dichloropropene	Acetaldehyde	Acrolein	Acrylonitrile	Arsenic	Benzene	Beryllium	Cadmium	Carbon Tetrachloride	Chloroform	Chromium
National	All	99999	-	2.33E-04	4.79E-02	5.20E-02	4.82E-01	7.21E-02	5.62E-04	4.83E-05	1.19E+00	8.35E-06	3.90E-05	6.41E-01	6.90E-02	5.15E-04
National	All Urban Counties	99998	U	3.50E-04	5.93E-02	6.60E-02	6.45E-01	8.89E-02	8.39E-04	6.25E-05	1.41E+00	1.08E-05	5.90E-05	6.41E-01	6.96E-02	8.25E-04
National	All Rural Counties	99998	R	3.62E-05	1.30E-02	7.09E-03	1.15E-01	3.03E-02	7.64E-05	1.01E-05	6.01E-01	1.09E-06	4.79E-06	6.40E-01	6.80E-02	5.05E-05
Massachusetts	State Total	25000	-	2.55E-03	5.42E-02	8.02E-02	6.99E-01	1.01E-01	4.56E-03	5.56E-05	1.50E+00	1.16E-05	5.79E-05	6.40E-01	7.06E-02	1.28E-03
Massachusetts	State Urban Counties	25000	U	2.61E-03	5.71E-02	8.53E-02	7.28E-01	1.06E-01	4.67E-03	5.91E-05	1.57E+00	1.21E-05	6.02E-05	6.40E-01	7.06E-02	1.31E-03
Massachusetts	State Rural Counties	25000	R	8.93E-04	2.62E-02	2.45E-02	2.20E-01	4.19E-02	1.57E-03	1.03E-05	8.89E-01	2.85E-06	1.95E-05	6.40E-01	6.88E-02	1.28E-04
Massachusetts	Barnstable County	25001	R	7.83E-04	3.00E-02	2.45E-02	2.77E-01	4.44E-02	1.38E-03	1.01E-05	9.38E-01	2.63E-06	1.62E-05	6.39E-01	6.86E-02	8.48E-05
Massachusetts	Berkshire County	25003	R	1.26E-03	1.84E-02	2.84E-02	1.78E-01	3.95E-02	2.18E-03	1.28E-05	7.66E-01	6.33E-06	3.06E-05	6.41E-01	7.21E-02	7.29E-04
Massachusetts	Bristol County	25005	U	2.24E-03	6.48E-02	8.69E-02	6.22E-01	9.26E-02	4.04E-03	1.10E-04	1.48E+00	1.18E-05	4.99E-04	6.41E-01	7.02E-02	1.93E-03
Massachusetts	Dukes County	25007	R	4.39E-04	1.67E-02	1.17E-02	1.54E-01	2.90E-02	7.68E-04	5.77E-06	6.95E-01	1.17E-06	1.35E-05	6.41E-01	6.82E-02	9.12E-05
Massachusetts	Essex County	25009	U	1.85E-03	6.23E-02	9.36E-02	8.19E-01	1.17E-01	3.27E-03	5.56E-05	1.68E+00	1.25E-05	4.62E-05	6.40E-01	7.02E-02	1.49E-03
Massachusetts	Franklin County	25011	U	9.25E-04	6.87E-03	1.61E-02	1.69E-01	2.51E-02	1.62E-03	1.11E-05	5.85E-01	2.09E-06	1.22E-05	6.40E-01	6.84E-02	1.98E-04
Massachusetts	Hampden County	25013	U	2.53E-03	4.55E-02	7.58E-02	6.35E-01	8.17E-02	4.44E-03	5.37E-05	1.29E+00	1.10E-05	5.40E-05	6.40E-01	7.05E-02	1.96E-03
Massachusetts	Hampshire County	25015	U	2.10E-03	1.90E-02	4.11E-02	3.39E-01	4.81E-02	3.69E-03	2.83E-05	8.39E-01	5.14E-06	4.20E-05	6.40E-01	6.96E-02	3.87E-04
Massachusetts	Middlesex County	25017	U	3.41E-03	6.80E-02	1.06E-01	8.83E-01	1.23E-01	6.02E-03	5.82E-05	1.82E+00	1.57E-05	5.60E-05	6.41E-01	7.12E-02	1.30E-03
Massachusetts	Nantucket County	25019	R	3.27E-04	3.01E-02	1.16E-02	1.20E-01	2.74E-02	5.71E-04	4.74E-06	7.37E-01	1.20E-06	2.92E-06	6.36E-01	6.81E-02	7.94E-05
Massachusetts	Norfolk County	25021	U	3.27E-03	5.43E-02	8.40E-02	8.08E-01	1.19E-01	5.85E-03	5.58E-05	1.57E+00	1.16E-05	7.15E-05	6.41E-01	7.12E-02	1.14E-03
Massachusetts	Plymouth County	25023	U	2.25E-03	3.56E-02	6.06E-02	5.81E-01	8.14E-02	4.00E-03	4.87E-05	1.23E+00	7.68E-06	5.78E-05	6.41E-01	7.01E-02	5.79E-04
Massachusetts	Suffolk County	25025	U	2.59E-03	1.38E-01	1.71E-01	1.19E+00	1.75E-01	4.73E-03	1.19E-04	2.56E+00	2.60E-05	1.42E-04	6.40E-01	7.29E-02	1.45E-03
Massachusetts	Worcester County	25027	U	2.09E-03	2.53E-02	4.23E-02	2.76E-01	4.50E-02	3.75E-03	1.91E-05	9.17E-01	4.49E-06	1.84E-05	6.40E-01	6.90E-02	9.76E-04

1996 Modeled Exposure Concentrations for Massachusetts

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				Estimated Annual Median Exposure Concentrations (ug/m3) for Massachusetts												
State	County	FIPS	Urban or Rural	Coke Oven Emissions	Diesel PM	Ethylene Dibromide	Ethylene Dichloride	Ethylene Oxide	Formaldehyde	Hexachlorobenzene	Hydrazine	Lead	Manganese	Mercury	Methylene Chloride	Nickel
National	All	99999	-	0.00E+00	1.07E+00	6.08E-03	5.27E-02	1.25E-03	6.77E-01	7.51E-05	3.71E-08	1.54E-03	1.06E-03	1.33E-03	2.72E-01	7.43E-04
National	All Urban Counties	99998	U	0.00E+00	1.30E+00	6.08E-03	5.28E-02	1.80E-03	8.22E-01	7.51E-05	6.61E-08	2.50E-03	1.32E-03	1.40E-03	3.22E-01	1.10E-03
National	All Rural Counties	99998	R	0.00E+00	4.63E-01	6.08E-03	5.26E-02	1.05E-04	3.45E-01	7.51E-05	9.29E-10	1.45E-04	2.38E-04	1.21E-03	1.40E-01	8.37E-05
Massachusetts	State Total	25000	-	0.00E+00	1.51E+00	6.08E-03	5.31E-02	2.18E-03	1.01E+00	7.50E-05	3.08E-07	2.07E-03	1.11E-03	1.62E-03	5.45E-01	1.16E-03
Massachusetts	State Urban Counties	25000	U	0.00E+00	1.56E+00	6.08E-03	5.32E-02	2.31E-03	1.05E+00	7.50E-05	3.24E-07	2.15E-03	1.15E-03	1.64E-03	5.81E-01	1.26E-03
Massachusetts	State Rural Counties	25000	R	0.00E+00	8.37E-01	6.08E-03	5.28E-02	3.38E-04	4.65E-01	7.50E-05	3.20E-09	7.63E-04	3.03E-04	1.28E-03	2.26E-01	2.16E-04
Massachusetts	Barnstable County	25001	R	0.00E+00	7.82E-01	6.08E-03	5.28E-02	3.21E-04	5.04E-01	7.50E-05	2.98E-09	8.72E-04	3.03E-04	1.26E-03	2.18E-01	2.17E-04
Massachusetts	Berkshire County	25003	R	0.00E+00	9.29E-01	6.08E-03	5.28E-02	6.20E-04	4.18E-01	7.50E-05	1.87E-07	4.68E-04	3.87E-04	1.33E-03	2.56E-01	2.27E-04
Massachusetts	Bristol County	25005	U	0.00E+00	1.37E+00	6.08E-03	5.30E-02	1.40E-03	9.39E-01	7.50E-05	1.01E-06	4.63E-03	1.12E-03	1.50E-03	5.10E-01	1.04E-03
Massachusetts	Dukes County	25007	R	0.00E+00	5.63E-01	6.09E-03	5.28E-02	1.59E-04	3.78E-01	7.51E-05	9.68E-10	1.57E-03	1.51E-04	1.22E-03	1.66E-01	1.75E-04
Massachusetts	Essex County	25009	U	0.00E+00	1.61E+00	6.08E-03	5.31E-02	2.12E-03	1.13E+00	7.50E-05	3.04E-06	2.51E-03	1.16E-03	1.64E-03	6.35E-01	1.38E-03
Massachusetts	Franklin County	25011	U	0.00E+00	8.42E-01	6.09E-03	5.26E-02	7.39E-04	3.60E-01	7.50E-05	4.32E-09	2.96E-04	2.50E-04	1.26E-03	1.94E-01	1.80E-04
Massachusetts	Hampden County	25013	U	0.00E+00	1.36E+00	6.08E-03	5.33E-02	2.00E-03	8.46E-01	7.50E-05	1.08E-07	1.45E-03	1.10E-03	1.55E-03	4.74E-01	9.30E-04
Massachusetts	Hampshire County	25015	U	0.00E+00	1.08E+00	6.08E-03	5.31E-02	9.33E-04	5.51E-01	7.50E-05	1.50E-07	9.27E-04	5.32E-04	1.41E-03	3.32E-01	3.80E-04
Massachusetts	Middlesex County	25017	U	0.00E+00	1.73E+00	6.08E-03	5.34E-02	2.92E-03	1.21E+00	7.50E-05	3.49E-07	1.66E-03	1.32E-03	1.76E-03	6.87E-01	1.49E-03
Massachusetts	Nantucket County	25019	R	0.00E+00	5.99E-01	6.08E-03	5.29E-02	2.15E-04	4.13E-01	7.50E-05	1.89E-11	6.48E-04	1.43E-04	1.21E-03	1.65E-01	1.03E-04
Massachusetts	Norfolk County	25021	U	0.00E+00	1.71E+00	6.08E-03	5.33E-02	2.68E-03	1.13E+00	7.50E-05	4.30E-07	3.91E-03	1.20E-03	1.72E-03	5.60E-01	1.57E-03
Massachusetts	Plymouth County	25023	U	0.00E+00	1.23E+00	6.08E-03	5.30E-02	1.56E-03	8.27E-01	7.50E-05	6.58E-08	1.66E-03	7.83E-04	1.50E-03	3.97E-01	6.96E-04
Massachusetts	Suffolk County	25025	U	0.00E+00	3.89E+00	6.08E-03	5.32E-02	9.49E-03	1.77E+00	7.50E-05	2.87E-07	8.21E-03	2.32E-03	2.46E-03	8.50E-01	2.80E-03
Massachusetts	Worcester County	25027	U	0.00E+00	1.18E+00	6.08E-03	5.30E-02	1.10E-03	5.46E-01	7.50E-05	1.41E-07	8.81E-04	4.84E-04	1.34E-03	3.32E-01	4.87E-04

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State	County	FIPS	Urban or Rural	PCBS	Perchloroethylene	POM (total)	Propylene Dichloride	Quinoline	Trichloroethylene	Vinyl Chloride					
National	All	99999	-	3.00E-04	1.84E-01	4.27E-02	3.11E-05	1.85E-07	9.86E-02	7.61E-04					
National	All Urban Counties	99998	U	3.00E-04	2.13E-01	5.26E-02	4.73E-05	3.22E-07	1.12E-01	1.16E-03					
National	All Rural Counties	99998	R	3.00E-04	1.14E-01	9.18E-03	4.85E-06	1.07E-08	7.06E-02	1.05E-04					
Massachusetts	State Total	25000	-	3.00E-04	3.98E-01	5.82E-02	2.89E-04	5.25E-07	3.22E-01	6.22E-03					
Massachusetts	State Urban Counties	25000	U	3.00E-04	4.18E-01	6.12E-02	2.95E-04	5.68E-07	3.42E-01	6.33E-03					
Massachusetts	State Rural Counties	25000	R	3.00E-04	1.80E-01	1.74E-02	9.86E-05	2.14E-08	1.33E-01	2.10E-03					
Massachusetts	Barnstable County	25001	R	3.00E-04	1.80E-01	1.74E-02	8.67E-05	2.14E-08	1.34E-01	1.86E-03					
Massachusetts	Berkshire County	25003	R	3.00E-04	2.00E-01	2.34E-02	1.38E-04	2.48E-08	1.44E-01	2.97E-03					
Massachusetts	Bristol County	25005	U	3.00E-04	3.95E-01	5.80E-02	2.53E-04	7.20E-07	3.49E-01	5.33E-03					
Massachusetts	Dukes County	25007	R	3.00E-04	1.37E-01	9.77E-03	4.83E-05	1.60E-08	9.85E-02	1.03E-03					
Massachusetts	Essex County	25009	U	3.00E-04	4.12E-01	6.47E-02	2.15E-04	7.14E-07	3.45E-01	5.04E-03					
Massachusetts	Franklin County	25011	U	3.00E-04	1.56E-01	1.51E-02	1.02E-04	5.81E-08	1.11E-01	2.18E-03					
Massachusetts	Hampden County	25013	U	3.00E-04	3.66E-01	5.50E-02	2.83E-04	5.10E-07	2.48E-01	6.25E-03					
Massachusetts	Hampshire County	25015	U	3.00E-04	2.48E-01	3.11E-02	2.38E-04	5.62E-07	1.84E-01	5.19E-03					
Massachusetts	Middlesex County	25017	U	3.00E-04	4.92E-01	7.27E-02	3.84E-04	6.81E-07	3.98E-01	8.30E-03					
Massachusetts	Nantucket County	25019	R	3.00E-04	1.32E-01	8.44E-03	3.57E-05	3.66E-10	9.29E-02	7.68E-04					
Massachusetts	Norfolk County	25021	U	3.00E-04	4.29E-01	5.87E-02	3.63E-04	4.69E-07	3.28E-01	7.79E-03					
Massachusetts	Plymouth County	25023	U	3.00E-04	2.98E-01	4.26E-02	2.50E-04	1.89E-07	2.51E-01	5.35E-03					
Massachusetts	Suffolk County	25025	U	3.00E-04	6.29E-01	1.18E-01	2.97E-04	6.48E-07	5.02E-01	6.26E-03					
Massachusetts	Worcester County	25027	U	3.00E-04	2.27E-01	2.76E-02	2.30E-04	1.13E-07	1.76E-01	5.09E-03					