

# Appendix A: Illinois Toxic Emissions Inventory

---

## CALCULATION METHODS

### Mobile Source Emissions

Emissions for mobile sources were calculated for the categories of aircraft, off-road and on-road sources. A description of the calculation methods, assumptions and data sources for each source inventoried follows.

#### Aircraft

The number of operations (landings and takeoffs) for each airport were obtained from Illinois' 1999 ozone inventory. This data included operations for specific aircraft types and engine types for O'Hare and Midway airports in Chicago. The VOC emissions were converted to TOG and speciated to obtain the pollutants of interest.

#### Off-road Mobile Sources

The USEPA's 1999 NEI inventory for off-road mobile sources was used for this inventory. The 1999 inventory included the following additional categories that were not inventoried in previous inventories: locomotives, commercial marine vessel and snowmobiles.

#### On-road Mobile Sources

The USEPA's 1999 NEI inventory for on-road mobile sources was used for this inventory.

## MERCURY

No additional review of mercury emissions was performed for the on-road and non-road sources.

## INFORMATION

For more information about Illinois' emissions inventory, please contact:

Buzz Asselmeier  
Bureau of Air  
Illinois Environmental Protection Agency  
P.O. Box 19276  
Springfield, IL 62796-9276

(P) 217-782-5811  
(F) 217-782-6348  
(E) [buzz.asselmeier@epa.state.il.us](mailto:buzz.asselmeier@epa.state.il.us)

**Table A-2: Illinois - Statewide Emissions (lb/yr)**

	<b>Point Sources</b>	<b>Area Sources</b>	<b>Mobile Sources</b>	<b>Nonroad Sources</b>	<b>Total</b>
ACENAPHTHEN	14.60	11,044.73	22,558.71	2,376.78	15,691.82
ACENAPHTHYL	32.09	35,341.38	11,934.46	4,956.32	52,264.25
ACETALDEHYDE	42,035.55	8,662.23	3,716,471.05	1,844,016.42	5,611,185.25
ACETAMIDE		1.43			1.43
ACETONITRILE	122,068.00	2,084.57			124,152.57
ACETOPHENONE	14,472.91	101.04			14,573.95
ACROLEIN	29,391.24	153,307.01	299,595.68	221,696.99	703,990.91
ACRYLAMIDE	154.00				154.00
ACRYLIC ACID	40,667.00	0.04			40,667.04
ACRYLONITRIL	308,592.43	2,313.78			310,906.21
ALLYL CHLORI		111.22			111.22
ANILINE	1,736.00				1,736.00
ANTHRACENE	8.71	9,940.61	2,714.90	1,017.64	13,681.85
ANTIMONY	3,079.44				3,079.44
ARSENIC	24,296.98	112.10	1,499.44	797.38	26,705.89
ASBESTOS	499.00				499.00
ATRAZINE	287.00	1,347,840.00			1,348,127.00
BENZ(A)ANTHR	10,411.57	1,505.55	653.18	328.63	12,898.93
BENZ(GHI)PE	2.13	22,088.39	797.22	604.43	23,492.18
BENZENE	639,694.26	572,986.47	12,081,205.09	5,014,467.91	18,308,353.72
BENZO(A)PYRE	1,849.72	6,626.95	405.56	204.45	9,086.67
BENZO(B)FLUO	2.15	4,418.37	447.64	168.99	5,037.15
BENZO(K)FLUO	1.23	1,105.19	447.64	154.12	1,708.18
BENZYL CHLOR	27,976.44	50.01			28,026.46
BERYLLIUM	4,382.53	22.66		74.84	4,480.03
BIPHENYL	1,813.77	24,753.12			26,566.89
BROMOFORM	5,085.78				5,085.78
BROMOMETH	108,623.59	2,629,731.19			2,738,354.78
BUTADIENE,13	117,067.37	152.08	1,679,411.13	736,730.64	2,533,361.22
CADMIUM	29,494.41	528.91		83.27	30,106.59
CALCIUM CYAN	499.00				499.00
CARBON DISUL	3,509,529.64	26,774.00			3,536,303.64
CARBON TETRA	4,933.52	8,819.81			13,753.33
CARBONYL SUL	1,848.37				1,848.37
CATECHOL	237.00				237.00
CHLORINE	237,609.49				237,609.49
CHLOROBENZ	123,345.10	851,091.80			974,436.90
CHLOROETHANE	183,128.23	102,252.38			285,380.61
CHLOROFORM	5,352.88	52,172.44			57,525.33
CHLOROPRENE		147.50			147.50
CHROMIUM	36,799.02	641.43	627.99	71.98	38,140.42
CHROMIUM VI	3,610.33		417.73	37.08	4,065.14
CHRYSENE	8,629.69	11,044.79	353.40	221.05	20,248.93
CLACETOPHE,2	15.82				15.82
COBALT	7,417.33	37.38			7,454.71
COKE OVEN GS	447,895.74				447,895.74
COPPER	83,622.03	1,020.86	66,770.23		151,413.12
CRESOL MX IS	16,790.00	10.67			16,800.67
CRESOL,M	86.00				86.00

**Table A-2: Illinois - Statewide Emissions (lb/yr)**

	<b>Point Sources</b>	<b>Area Sources</b>	<b>Mobile Sources</b>	<b>Nonroad Sources</b>	<b>Total</b>
CRESOL,O	2,330.00				2,330.00
CRESOL,P	11,933.00				11,933.00
CUMENE	155,766.63	4413.76			160,180.39
CYANIDE	88,802.41				88,802.41
D,2,4		3,295,100.00			3,295,100.00
DIBENZAHAN	2.15	4,418.11	0.16	4.54	4,424.95
DIBENZOFURAN	423.00				423.00
DIBROMOET,12	150.94				150.94
DIBUTYL PHTH	3,872.67				3,872.67
DICHLORETH12	14,123.19	0.37			14,123.56
DICLBENZ,14	80,939.27	924,072.89			1,005,012.16
DICLETH,11-	14,672.05				14,672.05
DICLPROPE,13	171.17	1,895,301.76			1,895,472.93
DIETH SULFAT	8.00				8.00
DIETHANOLAMI	8,176.00				8,176.00
DIEYLHEX PHT	1,240.97				1,240.97
DIMETH PHTHA	2,841.00				2,841.00
DIMETH SULFA	4,658.51	8.01			4,666.51
DIMETHFORMAM	1,998.00	373.14			2,371.14
DIMETHYLANIL		1,974.66			1,974.66
DINITROPH,24	0.03				0.03
DINITRTOL,24	0.63	294.25			294.88
DIOXANE	10,903.00	224.59			11,127.59
EPICLHYDRIN	75,851.39	29.35			75,880.74
ETH ACRYLATE	4,885.00	11.56			4,896.56
ETHYLBENZENE	804,377.87	620,312.78	5,301,940.78	2,839,765.52	9,566,396.95
ETHYLENE GLY	159,975.35	2,877,601.82			3,037,577.17
ETHYLENE OXI	136,850.89	1,377.18			138,228.08
FLUORANTHENE	15,232.79	8,836.61	2,830.24	2,035.08	28,934.72
FLUORENE	76.89	15,462.75	4,713.06	3,975.02	24,227.72
FORMALDEHYDE	1,512,986.75	83,468.70	6,300,809.84	4,417,359.49	12,314,624.78
GLYCOL ETHRS	3,246,006.36	7,541,860.75			10,787,867.11
HCL	35,469,672.86	490,001.03			35,959,673.88
HEXAACL-1,3-C		3.56			3.56
HEXANE	6,666,821.12	2,336,013.54	4,147,390.07	1,879,386.48	15,029,611.21
HEXCL-13-BUT		4.45			4.45
HEXCLBENZENE		0.70			0.70
HF	2,399,117.80	152.57			2,399,270.37
HYDRAZINE	4.00				4.00
HYDROGEN SUL	76,181.66				76,181.66
HYDROQUINONE	644.00				644.00
INDN(123CDPY	2.21	22,088.66	221.53	189.51	22,501.92
ISOPHORONE	1,311.13	11,217.82			12,528.95
LEAD	113,614.98	274.47		416.46	114,305.91
MALEIC ANHYD	221,763.00				221,763.00
MANGANESE	235,368.72	358.36	355.25	149.57	236,231.90
MERCURY	14,816.96	528.96	1,621.57	712.24	17,679.72
METH ETH KET	4,693,338.50	4,287,499.12			8,980,837.63
METH HYDRAZI	6,522.77				6,522.77

**Table A-2: Illinois - Statewide Emissions (lb/yr)**

	<b>Point Sources</b>	<b>Area Sources</b>	<b>Mobile Sources</b>	<b>Nonroad Sources</b>	<b>Total</b>
METH IODIDE	1.44				1.44
METH ISOBUT	1765692.49	1153923.67			2919616.15
METH METHACR	45910.38	7772.77			53683.16
METH TERT BU	25392.92	637.73			26030.65
METHANOL	2354423.76	7648808.79			10003232.55
METHENE DIAN	499.00				499.00
METHYL CHLOR	183600.95	85210.31			268811.26
METHYLENE CL	1327102.17	2280999.68			3608101.85
NAPHTHALENE	185598.02	743959.61	312581.86	56963.48	1299102.96
NICKEL	51122.99	973.91	790.49	1833.45	54720.84
NITROBENZ		41.81			41.81
NITROPHENL, 4	0.02				0.02
NITROPROPA, 2		24.76			24.76
PCBS	1.17				1.17
PCDD	4.05				4.05
PCDF	1.65				1.65
PERC	1325433.22	3986801.60			5312234.82
PHENANTHRENE	161.24	130325.94	7758.75	8071.54	146317.47
PHENOL	590673.75	1104.39		12708.95	604487.09
PHOSGENE	negl				negl
PHOSPHORUS	1117.04				1117.04
PTHALIC ANH	144970.00				144970.00
PROPIONALDEH	14580.30	22.24	324207.71	401943.99	740754.24
PRPLENE DICH	1845.96	62.22			1908.18
PRPLENE OXID	1647.85	18290.51			19938.36
PYRENE	49.49	8837.37	3940.53	2238.91	15066.30
QUINOLINE	192.00				192.00
SELENIUM	62257.19	97.29		15.89	62370.36
STYRENE	2247734.66	53642.98	1099042.02	199402.96	3599822.62
TCDD, 2378	0.0009	0.0003	0.0139		0.0151
TCDF, 2378	0.0520	0.0079			0.0599
TCE, 111	232309.09	9356476.22			9588785.32
TETCLET, 1122	11852.42	11.56			11863.98
TOLUENE	10359724.74	47340116.01	35720418.37	14860143.30	108,280,402.42
TOLUENE24DII	1055.00				1055.00
TOLUENE24DII		11.56			11.56
TRICHLORETHY	1450099.43	3677623.46			5127722.89
TRICLBNZ, 124	11.18	526.41			537.59
TRICLETH, 112	122.98	7.12			130.10
TRIETHAMINE	110005.00	9938.49			119943.49
TRIFLURALIN		610560.00			610560.00
TRIME-PENTAN	1108.27	291589.57	13674815.53	6310627.27	20278140.64
VINLIDENE CL	19293.37	2557.39			21850.76
VINYL ACETAT	127909.61	460.59			128370.20
VINYL CHLOR	192620.08	42.70			192662.77
XYLENE, M	20795.46				20795.46
XYLENE, O	675870.47	4230797.73		10115.70	4916783.91
XYLENE, P	86.21				86.21
XYLENES ISO	4965572.64	13631934.09	20226634.61	1240357.00	51227711.33

## Illinois - Pollutant Codes

Code	Pollutant
ACENAPHTHEN	Acenaphthene
ACENAPHTHYL	Acenaphthylene
ACETALDEHYDE	Acetaldehyde
ACETAMIDE	Acetamide
ACETONITRILE	Acetonitrile
ACETOPHENONE	Acetophenone
ACROLEIN	Acrolein
ACRYLAMIDE	Acrylamide
ACRYLIC ACID	Acrylic Acid
ACRYLONITRIL	Acrylonitrile
ALLYL CHLORI	Allyl Chloride
ANILINE	Aniline
ANTHRACENE	Anthracene
ANTIMONY	Antimony
ARSENIC	Arsenic
ASBESTOS	Asbestos
ATRAZINE	Atrazine
BENZ(A)ANTHR	Benz(a)anthracene
BENZ(GHI)PE	Benzo(g,h,i)perylene
BENZENE	Benzene
BENZO(A)PYRE	Benzo(a)pyrene
BENZO(B)FLUO	Benzo(b)fluoranthene
BENZO(K)FLUO	Benzo(k)fluoranthene
BENZYL CHLOR	Benzyl Chloride
BERYLLIUM	Beryllium
BIPHENYL	Biphenyl
BROMOFORM	Bromoform
BROMOMETH	Bromomethane
BUTADIENE,13	1,3-Butadiene
CADMIUM	Cadmium
CALCIUM CYAN	Calcium Cyanamide
CARBON DISUL	Carbon Disulfide
CARBON TETRA	Carbon Tetrachloride
CARBONYL SUL	Carbonyl Sulfide
CATECHOL	Catechol
CHLORINE	Chlorine
CHLOROBENZ	Chlorobenzene
CHLOROETHANE	Chloroethane
CHLOROFORM	Chloroform
CHLOROPRENE	Chloroprene
CHROMIUM	Chromium
CHROMIUM VI	Chromium VI
CHRYSENE	Chrysene
CLACETOPHE,2	2-Chloroacetophenone
COBALT	Cobalt
COKE OVEN GS	Coke Oven gas
COPPER	Copper
CRESOL MX IS	Cresol Isomers
CRESOL,M	m-Cresol

## Illinois - Pollutant Codes

Code	Pollutant
CRESOL,O	o-Cresol
CRESOL,P	p-Cresol
CUMENE	Cumene
CYANIDE	Cyanide
D,2,4	2,4-D Salts and Esters
DIBENZAHAN	Dibenzo(a,h)anthracene
DIBENZOFURAN	Dibenzofuran
DIBROMOET,12	1,2-Dibromoethane
DIBUTYL PHTH	Dibutyl Phthalate
DICHLORETH12	1,2-Dichloroethane
DICLBENZ,14	1,4-Dichlorobenzene
DICLETH,11-	1,1-Dichloroethane
DICLPROPE,13	1,3-Dichloropropene
DIETH SULFAT	Diethyl Sulfate
DIETHANOLAMI	Diethanolamine
DIEYLHEX PHT	Diethylhexyl Phthalate
DIMETH PHTHA	Dimethyl Phthalate
DIMETH SULFA	Dimethyl Sulfate
DIMETHFORMAM	Dimethylformamide
DIMETHYLANIL	Dimethylaniline
DINITROPH,24	2,4-Dinitrophenol
DINITRTOL,24	2,4-Dinitrotoluene
DIOXANE	Dioxane
EPICLHYDRIN	Epichlorohydrin
ETH ACRYLATE	Ethyl Acrylate
ETHYLBENZENE	Ethylbenzene
ETHYLENE GLYCOL	Ethylene Glycol
ETHYLENE OXI	Ethylene Oxide
FLUORANTHENE	Fluroanthene
FLUORENE	Fluorene
FORMALDEHYDE	Formaldehyde
GLYCOL ETHRS	Glycol Ethers
HCL	Hydrochloric Chloride
HEXACL-1,3-C	1,2,3,4,5,5-Hexachloro-1,3-cyclopentadiene
HEXANE	Hexane
HEXCL-13-BUT	Hexachloro-1,3-butadiene
HEXCLBENZENE	Hexachlorobenzene
HF	Hydrogen Fluoride
HYDRAZINE	Hydrazine
HYDROGEN SUL	Hydrogen Sulfide
HYDROQUINONE	Hydroquinone
INDN(123CDPY	Indeno(1,2,3-c,d)pyrene
ISOPHORONE	Isophorone
LEAD	Lead
MALEIC ANHYD	Maleic Anhydride
MANGANESE	Manganese
MERCURY	Mercury
METH ETH KET	Methyl Ethyl Ketone
METH HYDRAZI	Methyl Hydrazine

## Illinois - Pollutant Codes

Code	Pollutant
METH IODIDE	Methyl Iodide
METH ISOBUT	Methyl Isobutyl Ketone
METH METHACR	Methyl Methacrylate
METH TERT BU	Methyl t-Butyl Ether
METHANOL	Methanol
METHENE DIAN	4,4-Methylene Dianiline
METHYL CHLOR	Methyl Chloride
METHYLENE CL	Methylene Chloride
NAPHTHALENE	Naphthalene
NICKEL	Nickel
NITROBENZ	Nitrobenzene
NITROPHENL,4	4-Nitrophenol
NITROPROPA,2	2-Nitropropane
PCBS	PCBs
PCDD	Polychlorinated dibenzodioxins
PCDF	Polychlorinated dibenzofurans
PERC	Perchloroethylene
PHENANTHRENE	Phenanthrene
PHENOL	Phenol
PHOSGENE	Phosgene
PHOSPHORUS	Phosphorus
PTHALIC ANH	Phthalic Anhydride
PROPRIONALDEH	Propionaldehyde
PRPLENE DICH	Propylene Dichloride
PRPLENE OXID	Propylene Oxide
PYRENE	Pyrene
QUINOLINE	Quinoline
SELENIUM	Selenium
STYRENE	Styrene
TCDD,2378	2,3,7,8-Tetrachlorodibenzodioxin
TCDF,2378	2,3,7,8-Tetrachlorodibenzofuran
TCE,111	1,1,1-Trichloroethane
TETCLET,1122	1,1,2,2-Tetrachloroethane
TOLUENE	Toluene
TOLUENE24DII	Toluene-2,4-Diisocyanate
TOLUIDINE,O-	o-Toluidine
TRICHLORETHY	Trichloroethylene
TRICLENZ,124	1,2,4-Trichlorobenzene
TRICLETH,112	1,1,2-Trichloroethane
TRIETHAMINE	Triethylamine
TRIFLURALIN	Trifluralin
TRIME-PENTAN	2,2,4-Trimethylpentane
VINLIDENE CL	Vinylidene Chloride
VINYL ACETAT	Vinyl Acetate
VINYL CHLOR	Vinyl Chloride
XYLENE,M	m-Xylene
XYLENE,O	o-Xylene
XYLENE,P	p-Xylene
XYLENES ISO	Xylene Isomers