

[If adopted, this would amend the July 19, 2006 version of Regulation 5.23]

REGULATION 5.23 Categories of Toxic Air Contaminants

**Air Pollution Control District of Jefferson County
Jefferson County, Kentucky**

Relates To: KRS Chapter 77 Air Pollution Control

Pursuant To: KRS Chapter 77 Air Pollution Control

Necessity and Function: KRS 77.180 authorizes the Air Pollution Control Board to adopt and enforce all orders, rules, and regulations necessary or proper to accomplish the purposes of KRS Chapter 77. This regulation identifies the categories of toxic air contaminants to be addressed in these regulations.

SECTION 1. Category 1 Toxic Air Contaminants

1.1 The *Category 1 Toxic Air Contaminants* list includes the compounds monitored in the 2000 to 2001 *West Louisville Air Toxics Study* at a concentration representative of a cancer risk greater than 1.0×10^{-6} or a non-cancer Hazard Quotient (HQ) greater than 1.0.

1.2 The *Category 1 Toxic Air Contaminants* list reads as follows:

Category 1 Toxic Air Contaminants

<u>CAS No.</u>	<u>Compound</u>
1. 107-13-1.....	Acrylonitrile
2. 7440-38-2.....	Arsenic
& various	and arsenic compounds
3. 71-43-2.....	Benzene
4. 75-25-2.....	Bromoform
5. 106-99-0.....	1,3-Butadiene
6. 7440-43-9.....	Cadmium
& various	and cadmium compounds
7. 56-23-5.....	Carbon tetrachloride
8. 67-66-3.....	Chloroform
9. 126-99-8.....	Chloroprene [2-Chloro-1,3-butadiene]
10. 7440-47-3.....	Chromium
& various	and chromium compounds
11. 106-46-7.....	1,4-Dichlorobenzene
12. 140-88-5.....	Ethyl acrylate
123. 50-00-0.....	Formaldehyde
134. 75-09-2.....	Methylene chloride [Dichloromethane]
145. 7440-02-0.....	Nickel
& various	and nickel compounds
156. 127-18-4.....	Perchloroethylene [Tetrachloroethylene]
167. 79-01-6.....	Trichloroethylene
178. 75-01-4.....	Vinyl chloride

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Category 1 Toxic Air Contaminants notes:

For all listings above that contain the word "compounds," the following applies:
Unless otherwise specified, these listings are defined as including any unique chemical substance that contains the named chemical (i.e., arsenic, cadmium, chromium, and nickel) as part of that chemical's infrastructure.

SECTION 2 Category 2 Toxic Air Contaminants

- 2.1 The *Category 2 Toxic Air Contaminants* list includes the compounds with 2002 Toxics Release Inventory (TRI) reported air emissions for Jefferson County, Kentucky, with an EPA Risk-Screening Environmental Indicators (RSEI) Full Model Relative Risk Score equal to or greater than 500 that are not included in *Category 1 Toxic Air Contaminants*.
- 2.2 The *Category 2 Toxic Air Contaminants* list reads as follows:

Category 2 Toxic Air Contaminants

<u>CAS No.</u>	<u>Compound</u>
1. 7429-90-5.....	Aluminum (fume or dust)
2. 7664-41-7.....	Ammonia
3. 7637-07-2.....	Boron trifluoride
4. 141-32-2.....	Butyl acrylate
5. 7782-50-5.....	Chlorine
6. 7440-48-4.....	Cobalt
& various	and cobalt compounds
7. 7440-50-8.....	Copper
& various	and copper compounds
8. Various.....	Diisocyanates ¹
9. Various.....	Glycol ethers ²
10. 7647-01-0.....	Hydrochloric acid [Hydrogen chloride]
11. 7664-39-3.....	Hydrofluoric acid [Hydrogen fluoride]
12. Various.....	Lead compounds
13. 7439-96-5.....	Manganese
& various	and manganese compounds
14. 91-20-3.....	Naphthalene
15. 7697-37-2.....	Nitric acid
16. 7664-93-9.....	Sulfuric acid
17. 108-88-3.....	Toluene
18. 95-63-6.....	1,2,4-Trimethylbenzene
19. 1330-20-7.....	Xylene (mixed isomers)
** 95-47-6.....	o-Xylene
** 108-38-3.....	m-Xylene
** 106-42-3.....	p-Xylene

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Category 2 Toxic Air Contaminants notes:

** The specific isomer is included in the "mixed isomers" listing.

For all listings above that contain the word "compounds," the following applies:
Unless otherwise specified, these listings are defined as including any unique chemical substance that contains the named chemical (i.e., cobalt, copper, lead, and manganese) as part of that chemical's infrastructure.

¹ Diisocyanates include the specific chemicals listed in the 2003 Reporting Year List of TRI Chemicals, available on the Internet at "http://www.epa.gov/tri/chemical/RY2003ChemicalList.pdf".

² Includes mono- and di-ethers of ethylene glycol, diethylene glycol, and triethylene glycol



where:

n = 1, 2, or 3;

R = alkyl C7 or less, or

R = phenyl or alkyl substituted phenyl; and

R' = H or alkyl C7 or less, or

OR' consisting of carboxylic acid ester, sulfate, phosphate, nitrate, or sulfonate;

but excludes ethylene glycol monobutyl ether (EGBE, CAS No. 111-76-2).

SECTION 3 Category 3 Toxic Air Contaminants

3.1 The *Category 3 Toxic Air Contaminants* list includes the compounds identified by the EPA pursuant to Section 112(k) of the Clean Air Act as presenting significant risks to public health in urban areas that are not included in *Category 1 Toxic Air Contaminants* or *Category 2 Toxic Air Contaminants*.

3.2 The *Category 3 Toxic Air Contaminants* list reads as follows:

Category 3 Toxic Air Contaminants

<u>CAS No.</u>	<u>Compound</u>
1. 75-07-0.....	Acetaldehyde
2. 107-02-8.....	Acrolein
3. 7440-41-7.....	Beryllium
& various	and beryllium compounds
4. None.....	Coke oven emissions
5. 542-75-6.....	1,3-Dichloropropene
6. None.....	Diesel particulate matter
7. 106-93-4.....	Ethylene dibromide [1,2-Dibromoethane]
8. 107-06-2.....	Ethylene dichloride [1,2-Dichloroethane]
9. 75-21-8.....	Ethylene oxide

Category 3 Toxic Air Contaminants

<u>CAS No.</u>	<u>Compound</u>
10. 118-74-1.....	Hexachlorobenzene
11. 302-01-2.....	Hydrazine
12. 7439-97-6.....	Mercury
& various	and mercury compounds
13. 1336-36-3.....	Polychlorinated biphenyls [PCBs]
14. 50-32-8.....	Polycyclic organic matter ¹ [POM] (Benzo[a]pyrene)
& various	(also represented as 7-PAH)
15. 78-87-5.....	Propylene dichloride [1,2-Dichloropropane]
16. 91-22-5.....	Quinoline
17. 79-34-5.....	1, 1, 2, 2-Tetrachloroethane

Category 3 Toxic Air Contaminants notes:

For all listings above that contain the word "compounds," the following applies: Unless otherwise specified, these listings are defined as including any unique chemical substance that contains the named chemical (i.e., beryllium and mercury) as part of that chemical's infrastructure.

¹ Includes organic compounds with more than one benzene ring, and which have a boiling point greater than or equal to 100°C. The seven polycyclic aromatic hydrocarbon (7-PAH) compounds are Benz[a]anthracene, Benzo[b]fluoranthene, Benzo[k]fluoranthene, Benzo[a]pyrene, Chrysene, Dibenz[a,h]anthracene, and Indeno[1,2,3-cd]pyrene.

SECTION 4 Category 4 Toxic Air Contaminants

- 4.1 The *Category 4 Toxic Air Contaminants* list includes the Hazardous Air Pollutants (HAPs) listed by the EPA pursuant to Section 112(b) of the Clean Air Act that are not included in *Category 1 Toxic Air Contaminants*, *Category 2 Toxic Air Contaminants*, or *Category 3 Toxic Air Contaminants*.
- 4.2 The *Category 4 Toxic Air Contaminants* list reads as follows:

Category 4 Toxic Air Contaminants

<u>CAS No.</u>	<u>Compound</u>
1. 60-35-5.....	Acetamide
2. 75-05-8.....	Acetonitrile
3. 98-86-2.....	Acetophenone
4. 53-96-3.....	2-Acetylaminofluorene
5. 79-06-1.....	Acrylamide
6. 79-10-7.....	Acrylic acid

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	<u>CAS No.</u>	<u>Compound</u>
7.	107-05-1.....	Allyl chloride
8.	92-67-1.....	4-Aminobiphenyl
9.	62-53-3.....	Aniline
10.	90-04-0.....	o-Anisidine
11.	7440-36-0.....	Antimony
	& various	and antimony compounds
12.	1332-21-4.....	Asbestos
13.	151-56-4.....	Aziridine [Ethyleneimine]
14.	114-26-1.....	Baygon [Propoxur]
15.	92-87-5.....	Benzidine
16.	106-51-4.....	p-Benzoquinone [Quinone]
17.	98-07-7.....	Benzotrichloride
18.	100-44-7.....	Benzyl chloride
19.	92-52-4.....	Biphenyl
20.	117-81-7.....	Bis (2-ethylhexyl) phthalate [DEHP]
21.	111-44-4.....	Bis (2-chloroethyl) ether [Dichloroethylether]
22.	542-88-1.....	Bis (chloromethyl) ether
23.	74-83-9.....	Bromomethane [Methyl bromide]
24.	156-62-7.....	Calcium cyanamide
25.	133-06-2.....	Captan
26.	63-25-2.....	Carbaryl
27.	75-15-0.....	Carbon disulfide
28.	463-58-1.....	Carbonyl sulfide
29.	120-80-9.....	Catechol
30.	133-90-4.....	Chloramben
31.	57-74-9.....	Chlordane
32.	8001-35-2.....	Chlorinated camphene [Toxaphene]
33.	79-11-8.....	Chloroacetic acid
34.	532-27-4.....	2-Chloroacetophenone
35.	108-90-7.....	Chlorobenzene
36.	510-15-6.....	Chlorobenzilate
37.	106-89-8.....	1-Chloro-2,3-epoxypropane [Epichlorohydrin]
38.	75-00-3.....	Chloroethane [Ethyl chloride]
39.	74-87-3.....	Chloromethane [Methyl chloride]
40.	107-30-2.....	Chloromethyl methyl ether [CMME]
41.	1319-77-3.....	Cresol/Cresylic acid (mixed isomers)
**	95-48-7.....	o-Cresol
**	108-39-4.....	m-Cresol
**	106-44-5.....	p-Cresol
42.	98-82-8.....	Cumene [Isopropylbenzene]

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<u>CAS No.</u>	<u>Compound</u>
43. 72-55-9.....	DDE [1,1-Dichloro-2,2-bis (p-chlorophenyl) ethylene]
44. 334-88-3.....	Diazomethane
45. 132-64-9.....	Dibenzofuran
46. 96-12-8.....	1,2-Dibromo-3-chloropropane
47. 84-74-2.....	Dibutylphthalate
48. 91-94-1.....	3,3'-Dichlorobenzidine
* 72-55-9.....	1,1-Dichloro-2,2-bis (p-chlorophenyl) ethylene [DDE]
49. 75-34-3.....	1,1-Dichloroethane [Ethylidene dichloride]
50. 75-35-4.....	1,1-Dichloroethylene [Vinylidene chloride]
* 111-44-4.....	Dichloroethyl ether [Bis (2-chloroethyl) ether]
51. 94-75-7.....	2,4-Dichlorophenoxyacetic acid [2,4-D]
& various	including salts and esters
52. 62-73-7.....	Dichlorvos
53. 111-42-2.....	Diethanolamine
54. 123-91-1.....	1,4-Diethyleneoxide [1,4-Dioxane]
55. 64-67-5.....	Diethyl sulfate
56. 119-90-4.....	3,3'-Dimethoxybenzidine
57. 60-11-7.....	4-Dimethylaminoazobenzene
58. 121-69-7.....	N,N-Dimethylaniline
59. 119-93-7.....	3,3'-Dimethylbenzidine
60. 79-44-7.....	Dimethylcarbamoyl chloride
61. 68-12-2.....	N,N-Dimethylformamide [DMF]
62. 57-14-7.....	1,1-Dimethylhydrazine
63. 131-11-3.....	Dimethyl phthalate
64. 77-78-1.....	Dimethyl sulfate
65. 534-52-1.....	4,6-Dinitro-o-cresol
& various	including salts
66. 51-28-5.....	2,4-Dinitrophenol
67. 121-14-2.....	2,4-Dinitrotoluene
* 123-91-1.....	1,4-Dioxane [1,4-Diethyleneoxide]
68. 122-66-7.....	1,2-Diphenylhydrazine
* 106-89-8.....	Epichlorohydrin [1-Chloro-2,3-epoxypropane]
69. 106-88-7.....	1,2-Epoxybutane
<u>70.</u> <u>140-88-5</u>	<u>Ethyl acrylate</u>
<u>710.</u> 100-41-4.....	Ethylbenzene
<u>721.</u> 51-79-6.....	Ethyl carbamate [Urethane]
* 75-00-3.....	Ethyl chloride [Chloroethane]
<u>732.</u> 107-21-1.....	Ethylene glycol

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<u>CAS No.</u>	<u>Compound</u>
* 151-56-4.....	Ethyleneimine [Aziridine]
743. 96-45-7.....	Ethylene thiourea
* 75-34-3.....	Ethylidene dichloride [1,1-Dichloroethane]
754. 76-44-8.....	Heptachlor
765. 87-68-3.....	Hexachlorobutadiene
<u>776.</u> 58-89-9.....	1,2,3,4,5,6-Hexachlorocyclohexane
& various	—All stereo isomers, including Lindane
778. 77-47-4.....	Hexachlorocyclopentadiene
798. 67-72-1.....	Hexachloroethane
<u>8079.</u> 822-06-0.....	Hexamethylene-1,6-diisocyanate
810. 680-31-9.....	Hexamethylphosphoramide
<u>821.</u> 110-54-3.....	Hexane
832. 108-10-1.....	Hexone [Methyl isobutyl ketone]
843. 123-31-9.....	Hydroquinone
854. 74-88-4.....	Iodomethane [Methyl iodide]
865. 78-59-1.....	Isophorone
* 98-82-8.....	Isopropylbenzene [Cumene]
* 58-89-9.....	Lindane and all stereo isomers
& various	.. see 1,2,3,4,5,6-Hexachlorocyclohexane
876. 108-31-6.....	Maleic anhydride
887. 67-56-1.....	Methanol
898. 72-43-5.....	Methoxychlor
<u>9089.</u> 75-55-8.....	2-Methylaziridine [1,2-Propylenimine]
* 74-83-9.....	Methyl bromide [Bromomethane]
* 74-87-3.....	Methyl chloride [Chloromethane]
910. 71-55-6.....	Methyl chloroform [1,1,1-Trichloroethane]
<u>921.</u> 60-34-4.....	Methylhydrazine
* 74-88-4.....	Methyl iodide [Iodomethane]
* 108-10-1.....	Methyl isobutyl ketone [Hexone]
932. 624-83-9.....	Methyl isocyanate
943. 80-62-6.....	Methyl methacrylate [MMA]
954. 1634-04-4.....	Methyl tert-butyl ether [MTBE]
965. 101-14-4.....	4,4'-Methylene bis (2-chloroaniline)
976. 101-77-9.....	4,4'-Methylenedianiline
987. 98-95-3.....	Nitrobenzene
989. 92-93-3.....	4-Nitrobiphenyl
<u>-10099.</u> 100-02-7.....	4-Nitrophenol
1010. 79-46-9.....	2-Nitropropane
1021. 684-93-5.....	N-Nitroso-N-methylurea
1032. 62-75-9.....	N-Nitrosodimethylamine

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<u>CAS No.</u>	<u>Compound</u>
1043.	59-89-2.....N-Nitrosomorpholine
1054.	56-38-2.....Parathion
1065.	82-68-8.....Pentachloronitrobenzene [Quintobenzene]
1076.	87-86-5.....Pentachlorophenol
1087.	108-95-2.....Phenol
1098.	106-50-3.....p-Phenylenediamine
11009.	75-44-5.....Phosgene
1110.	7803-51-2.....Phosphine
1121.	7723-14-0.....Phosphorus
	& various..... and phosphorus compounds
1132.	85-44-9.....Phthalic anhydride
1143.	1120-71-4.....1,3-Propane sultone
1154.	57-57-8.....beta-Propiolactone
1165.	123-38-6.....Propionaldehyde
*	114-26-1.....Propoxur [Baygon]
1176.	75-56-9.....Propylene oxide
*	75-55-8.....1,2-Propylenimine [2-Methylaziridine]
*	106-51-4.....Quinone [p-Benzoquinone]
*	82-68-8.....Quintobenzene [Pentachloronitrobenzene]
1187.	100-42-5.....Styrene
1198.	96-09-3.....Styrene oxide
12019.	1746-01-6.....2,3,7,8-Tetrachlorodibenzo-p-dioxin
1210.	7550-45-0.....Titanium tetrachloride
1221.	95-80-7.....Toluene-2,4-diamine
1232.	584-84-9.....2,4-Toluene diisocyanate [TDI]
1243.	95-53-4.....o-Toluidine
*	8001-35-2.....Toxaphene [Chlorinated camphene]
1254.	120-82-1.....1,2,4-Trichlorobenzene
*	71-55-6.....1,1,1-Trichloroethane [Methyl chloroform]
1265.	79-00-5.....1,1,2-Trichloroethane
1276.	95-95-4.....2,4,5-Trichlorophenol
1287.	88-06-2.....2,4,6-Trichlorophenol
1298.	121-44-8.....Triethylamine
13029.	1582-09-8.....Trifluralin
1310.	540-84-1.....2,2,4-Trimethylpentane
*	51-79-6.....Urethane [Ethyl carbamate)]
1321.	108-05-4.....Vinyl acetate
1332.	593-60-2.....Vinyl bromide
*	75-35-4.....Vinylidene chloride [1,1-Dichloroethylene]
1343.	57-12-5.....Cyanide
	& various..... and cyanide compounds ¹

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<u>CAS No.</u>	<u>Compound</u>
1354. N/A.....	Fine mineral fibers ²
1365.10043-92-2	Radon
& various	and other radionuclides ³
1376. 7782-49-2.....	Selenium
& various	and selenium compounds

Category 4 Toxic Air Contaminants notes:

- * This compound is also listed under a different name and the other listing has a listing number.
- ** The specific isomer is included in the “mixed isomers” listing.

For all listings above that contain the word "compounds," the following applies: Unless otherwise specified, these listings are defined as including any unique chemical substance that contains the named chemical (i.e., antimony, cyanide, phosphorus, and selenium) as part of that chemical's infrastructure.

- ¹ X'CN where X = H' or any other group where a formal dissociation may occur. For example, KCN or Ca(CN)₂
- ² Includes mineral fiber emissions from facilities manufacturing or processing glass, rock, or slag fibers (or other mineral derived fibers) of average diameter 1 micrometer or less.
- ³ A type of atom which spontaneously undergoes radioactive decay.

SECTION 5 Exemptions from the Definition of Toxic Air Contaminant

As used in these regulations, the following substances shall not be considered to be a toxic air contaminant:

- 5.1 Any substance for which there is a national ambient air quality standard, but only to the extent that a particular substance is treated in a generic fashion, for example, as particulate matter or a volatile organic compound,
- 5.2 Carbon dioxide,
- 5.3 Ethane,
- 5.4 Grain dust,
- 5.5 Helium,
- 5.6 Hydrofluorocarbons,
- 5.76 Hydrogen,
- 5.8 Greenhouse gases,
- 5.97 Liquified petroleum gas,
- 5.108 Methane,
- 5.119 Nitrogen,
- 5.12 Nitrous oxide,
- 5.130 Oxygen,
- 5.14 Perfluorocarbons,

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- 5.1~~5~~⁴ Propane,
- 5.16 Sulfur hexafluoride, and
- 5.1~~7~~² Water vapor.

SECTION 6 Implementation Guidance

- 6.1 If a TAC is a compound that is included in a listed compound group, for example, a metal compound group, and a benchmark ambient concentration (BAC) is derived for the compound group, then that BAC shall be the default BAC for a compound in that group unless a BAC for the specific compound is derived pursuant to the methodology in Regulation 5.20.
- 6.2 If a TAC is a compound that is included in two listed compound groups, then environmental acceptability shall be demonstrated based upon the more stringent BAC. If the two compound groups applicable to that TAC are listed in different TAC categories, then the requirements of the lower numbered category (Category 2 is a lower numbered category than Category 3) shall apply.
- 6.3 The owner or operator of a process or process equipment that has the potential to emit chromium or a chromium compound may, using information that is derived using one of the methods in Regulation 1.06 *Stationary Source Self Monitoring, Emissions Inventory Development, and Reporting* section 3.2, speciate the chromium emissions by oxidation state. If the chromium is not speciated by oxidation state, then the hexavalent oxidation state shall be assumed.

Adopted v1/6-21-05, effective 7-1-05; amended v2/7-19-06, v3/ - - .