

TITLE 35: ENVIRONMENTAL PROTECTION
SUBTITLE B: AIR POLLUTION
CHAPTER I: POLLUTION CONTROL BOARD
SUBCHAPTER f: TOXIC AIR CONTAMINANTS

PART 232
TOXIC AIR CONTAMINANTS

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 Risk Information System (IRIS) as of December 31, 1989 (United
 States Environmental Protection Agency, Office of Health and
 Environmental Assessment)

AUTHORITY: Implementing Section 9.5 and authorized by Section 27 of the
Environmental Protection Act [415 ILCS 5/9.5 and 27].

SOURCE: Adopted in R90-1 at 16 Ill. Reg. 16592, effective October 18, 1992;
amended in R96-4 at 21 Ill. Reg. 6237, effective May 12, 1997.

SUBPART A: GENERAL PROVISIONS

Section 232.100 Introduction

This Part establishes a program to identify toxic air contaminants. This Part includes a list of toxic air contaminants (Section 232.Appendix A), the procedures to determine a toxic air contaminant and the procedures to amend the list.

Section 232.110 Incorporations by Reference

- a) The following materials are incorporated by reference:**

**American Conference of Governmental Industrial Hygienists (ACGIH).
Threshold Limit Values and Biological Exposure Indices for 1989-90
(1989). Document can be obtained from: 6500 Glenway Avenue,
Building D-7, Cincinnati, Ohio 45211-4438.**

Good Laboratory Practice Standards, 21 CFR 58 (1990).

Good Laboratory Practice Standards, 40 CFR 160 (1989).

Good Laboratory Practice Standards, 40 CFR 792 (1990).

**Organization for Economic Co-operation and Development (OECD).
OECD Guidelines For Testing of Chemicals, Appendix: Good
Laboratory Practice [c(81)30(Final)] (November, 1989). Document can
be obtained from: OECD Publications and Information Centre, 2001 L**

Street, N.W., Suite 700, Washington, D.C. 20036-4095.

United States Department of Health and Human Services, Public Health Service, National Toxicological Program (NTP). Fifth Annual Report on Carcinogens (1989). Document can be obtained from: National Technical Information Service, 5285 Port Royal Road, Springfield, Virginia 22161.

World Health Organization, International Agency for Research on Cancer (IARC). Monographs on the Evaluation of Carcinogenic Risks to Humans, Overall Evaluations of Carcinogenicity: An Updating of IARC Monographs Volumes 1 to 42, Supplement 7 (1987). Document can be obtained from: WHO Publications Centre USA, 49 Sheridan Avenue, Albany, New York 12210.

- b) This Section incorporates no future editions or amendments.

Section 232.120 Definitions

The definitions of 35 Ill. Adm. Code 201 and 211 apply to this Part, as well as the definitions contained in this Section. Where a definition contained in this Section is more specific than those found in 35 Ill. Adm. Code 201 and 211, it must take precedence in application of this Part.

"ACGIH" means the American Conference of Governmental Industrial Hygienists.

"Adverse health effect" means a health injury or disease that may be produced by exposure to a contaminant. This includes any decrement in the function of an organ or organ system or any subclinical organ lesion that is likely to lead to a decrement in an organ or organ system function.

"Commercial fuel" means:

Any fuel offered for final sale for use in combustion processes;

Any gaseous or liquid fuel generated as a by-product at a source for which the source has been issued an operating permit to use such fuel internally in combustion processes, including internal combustion engines; or

Any waste derived fuel for which an operating permit has been issued and which represents no more than five percent (.05) by weight on a daily basis of total fuel used in combustion processes by a source.

"Critical gestation days" means the days during which the formation and differentiation of organs and organ systems occurs during embryonic development.

"Fugitive emissions" is defined according to 35 Ill. Adm. Code 203.124.

"IARC" means the World Health Organization's International Agency for Research on Cancer.

"IRIS" means the USEPA's Integrated Risk Information System.

"Illinois Toxic Air Contaminant" (ITAC) means any toxic air contaminant listed pursuant to 35 Ill. Adm. Code 232, excluding, specifically: coke oven gas; any hazardous air pollutant (HAP) now or hereafter listed under Section 112(b) of the Clean Air Act (CAA) (1990); and any pollutant or contaminant listed as a compound of concern under the Great Waters and Coastal Waters Program under Section 112(m) of the CAA.

"ITAC Source Report" means the report that the Agency provides to the source that lists data fields for the information required in the emissions report for Subpart D of this Part, and contains the information, if any, that previously has been reported to the Agency for those data fields.

"LC50" means the concentration in the air of a contaminant that kills, or is estimated to kill, 50% (.50) of a population of laboratory animals where the exposure is brief (8 hours or less) and where the route of exposure is inhalation.

"LD50" means the dose of a contaminant that kills, or is estimated to kill, 50% (.50) of a population of laboratory animals where the route of exposure is ingestion.

"Lowest observed adverse effect level" means the lowest experimentally determined dose at which a statistically or biologically significant indication of the toxic effect of concern is observed.

"Manufacture" means, for the purposes of Subpart D of this Part, to produce, prepare, or compound a listed ITAC, and includes coincidental production of an ITAC (e.g., as a by-product or impurity) as a result of the manufacture, processing or otherwise use or treatment of one or more chemical substances not an ITAC. An ITAC intentionally

incorporated into a product is considered to be manufactured.

"NTP" means the United States Department of Health and Human Services, Public Health Services' National Toxicological Program.

"No observed effect" means the condition where no adverse health effect has been detected.

"Otherwise use" means, for the purposes of Subpart D of this Part, any activity involving a listed ITAC at a source that does not fall within the definition of "manufacture" or "process."

"Process" means, for the purposes of Subpart D of this Part, the preparation of an ITAC after its manufacture for distribution in commerce in the same physical state as, or in a different form or physical state from, that in which it was received by the source, or preparation that produces a change in physical state or chemical form.

"Toxic air contaminant" (TAC) means a contaminant identified pursuant to Section 232.200 or Section 232.501 of this Part and listed in Appendix A of this Part.

(Source: Amended at 21 Ill. Reg. 6237, effective May 12, 1997.)

Section 232.130 Applicability

The requirements of this Part do not apply to the following:

- a) RETAIL DRY CLEANING OPERATIONS;**
- b) RETAIL AND NONCOMMERCIAL STORAGE AND HANDLING OF MOTOR FUELS;**
- c) COMBUSTION PROCESSES USING ONLY COMMERCIAL FUEL, INCLUDING INTERNAL COMBUSTION ENGINES; AND**
- d) INCIDENTAL OR MINOR SOURCES INCLUDING LABORATORY-SCALE OPERATIONS, AND SUCH OTHER SOURCES OR CATEGORIES OF SOURCES WHICH ARE DETERMINED BY THE BOARD TO BE OF MINOR SIGNIFICANCE. (Section 9.5(e) of the Act)**

SUBPART B: DETERMINATION OF A TOXIC AIR CONTAMINANT

Section 232.200 Characteristics for Determining a Toxic Air Contaminant

- a) Contaminants found by the Board to be Toxic Air Contaminants pursuant to subsections (b) or (c), below, shall be listed in Appendix A.
- b) A TOXIC AIR CONTAMINANT IS A CONTAMINANT WHICH THE BOARD FINDS MAY CAUSE OR SIGNIFICANTLY CONTRIBUTE TO AN INCREASE IN MORTALITY OR AN INCREASE IN SERIOUS IRREVERSIBLE OR INCAPACITATING REVERSIBLE ILLNESS, OR MAY POSE A SIGNIFICANT THREAT TO HUMAN HEALTH. (Section 9.5(c) of the Act)
- c) The Board shall find that a contaminant is a Toxic Air Contaminant upon a determination that:
 - 1) The contaminant has a Toxicity Score of 3 or greater using the procedures for determining the Toxicity Score described in Section 232.310; or
 - 2) The contaminant is classified as a carcinogen according to Section 232.320; and
 - 3) The contaminant meets the statutory definition set forth in subsection (b), above.
- d) Any person can petition the Board to list or delist a toxic air contaminant pursuant to the requirements of Section 232.500. The Board will consider such a petition a proposal for rulemaking subject to the requirements of 35 Ill. Adm. Code 102.

SUBPART C: PROCEDURES FOR EVALUATING CHARACTERISTICS OF A TOXIC AIR CONTAMINANT

Section 232.300 Purpose

This Subpart identifies the procedures used to evaluate the characteristics of a toxic air contaminant. The Agency will use these procedures in proposing to list or delist toxic air contaminants in Section 232. Appendix A.

Section 232.310 Procedures for Determining the Toxicity Score

The Toxicity Score is the sum of the Acute Lethality Score and the Chronic Toxicity Score. The Acute Lethality Score is a number which indicates a contaminant's potential to cause death. The Chronic Toxicity Score is a number which indicates a contaminant's potential to cause adverse health effects after chronic exposure.

- a) Procedure for Determining the Acute Lethality Score
 - 1) The Acute Lethality Score is derived from toxicological studies using laboratory rats. One of two routes of exposure is used: inhalation or ingestion. Values derived from inhalation are used in preference to values derived from ingestion.
 - 2) The Acute Lethality Score is derived from the following table:

Inhalation Concentration (LC50)	Acute Lethality Score
Less than: 500 mg/cu. m	3
500-4,999 mg/cu. m	2
5,000-50,000 mg/cu. m	1
Greater than: 50,000 mg/cu. m	0

or, if the above data are not available:

Ingestion Dose (LD50)	Acute Lethality Score
Less than: 50 mg/kg	3
50-499 mg/kg	2
500-5,000 mg/kg	1
Greater than: 5,000 mg/kg	0

b) Procedure for Determining the Chronic Toxicity Score

The Chronic Toxicity Score is the product of the Lowest Toxic Dose Score and the Severity of Effects Score.

1) Procedure for Determining the Lowest Toxic Dose Score

The Lowest Toxic Dose Score is a number based upon the lowest dose of a contaminant that causes an observable adverse health effect.

The Lowest Toxic Dose Score is derived from the following table:

Dose	Lowest Toxic Dose Score
Less than: 5 mg/kg/day	1
5-50 mg/kg/day	2/3
Greater than: 50 mg/kg/day	1/3

2) Procedure for Determining the Severity of Effects Score

The Severity of Effects Score is a number based upon the category of organ(s) affected and the level of effect upon the organ(s).

A) Organ Categories

There are three categories of organs or organ systems which are identified as follows:

- i) Category I includes: organs, the impairment or loss of which is fatal or usually cannot be compensated for by the body; gonads, the loss of which prevents the transmission of genetic material; and, adverse reproductive outcome

including stillbirth, miscarriage, or reduced litter size (animal studies). The Category I organs are: Lungs, Heart, Brain, Spinal Cord, Kidneys, Liver, Bone Marrow, and Gonads.

- ii) Category II includes: organs, the impairment or loss of which may be fatal, but which can be compensated for by drug or replacement therapy; adverse effect on an immune function which may be life threatening; changes in the composition or function of blood constituents which may be life threatening; and, certain fetotoxic effects including premature birth, reduced birth weight, and reduced morphometric parameters. The Category II organs are: Adrenals, Thyroids, Parathyroids, Pituitary, Pancreas, Esophagus, Stomach, Small Intestine, Large Intestine, Lymph Nodes, Thymus, Trachea.
- iii) Category III includes: organs, the impairment or loss of which is not life threatening but may result in functional or emotional handicaps; adverse effect on an immune function which is not life threatening; changes in composition or function of blood which are not life threatening but may result in functional handicaps. Category III organs include, but are not limited to: Oviducts, Epididymides, Uterus, Prostate, Seminal Vesicles, Ductus Deferens, Penis, Vagina, Eyes, Bone, Nose, Peripheral Nerves, Muscles, Urinary Bladder, Blood Vessels, Ears, Gallbladder, Larynx, Mammary Glands, Salivary Glands, Skin, Spleen, Tongue, Teeth, Ureter, Urethra, Pharynx.

B) Levels of Effect

There are four levels of effect: Serious Irreversible ("SI"); Serious Reversible ("SR"); Non-serious Irreversible ("NI"); and Non-serious Reversible ("NR").

- i) A serious effect is an incapacitating condition or a condition which significantly contributes to an increase in mortality.
- ii) A non-serious effect is a non-incapacitating condition or a condition which is unlikely to contribute to an increase in mortality.
- iii) An irreversible effect is one that is permanent or would require medical treatment to correct.
- iv) A reversible effect is a temporary effect.

- C) **Table of Severity of Effects Scores**
The Severity of Effects Score for any level of effect observed in an organ belonging to a specified organ category is derived from the following table:

		Organ Category		
		I	II	III
Level of Effect	SI	6	5	4
	SR	5	4	3
	NI	4	3	2
	NR	3	2	1
No Observed Effect		0	0	0

- D) When a study identifies an adverse health effect on multiple organs within the same category at the lowest observed adverse effect level, the Severity of Effects Score is increased by a value of 1. In no event can the Severity of Effects Score be greater than 6.
- 3) Additional procedures for calculating the Chronic Toxicity Score are described in Section 232. Appendix B.

Section 232.320 Carcinogen Classification

- a) For purposes of this Part, the Agency will consider a contaminant to be a carcinogen if it is classified in the following manner:
- 1) A Category A1 or A2 Carcinogen by AGCIH; or
 - 2) A Category 1 or 2A/2B Carcinogen by IARC; or
 - 3) A "Human Carcinogen" or "Anticipated Human Carcinogen" by NTP; or
 - 4) A Category A or B1/B2 Carcinogen by the United States Environmental Protection Agency (USEPA) in IRIS or a Final Rule issued in a Federal Register notice by the USEPA as of the effective date of this regulation.
- b) The references ACGIH, IARC, and NTP are incorporated by reference in Section 232.110. The reference IRIS is the United States Environmental Protection Agency, Office of Health and Environmental Assessment, Integrated Risk Information System. The categories A, B1, and B2 carcinogens of IRIS as of December 31, 1989, are listed in Section 232. Appendix C.

SUBPART D: SOURCE IDENTIFICATION AND REPORTING REQUIREMENTS

Section 232.400 Purpose

This Subpart establishes identification and reporting requirements for new and existing sources that emit Illinois Toxic Air Contaminants.

(Source: Added at 21 Ill. Reg. 6237, effective May 12, 1997.)

Section 232.410 Applicability

- a) This Subpart shall apply to any owner or operator of a source that manufactures, processes or imports 25,000 lbs. or more of any individual ITAC in any calendar year or otherwise uses 10,000 lbs. of any individual ITAC in any calendar year.**
- b) This Subpart shall not apply to the following:**
 - 1) Retail dry cleaning operations;**
 - 2) Retail and noncommercial storage and handling of motor fuels;**
 - 3) Combustion processes, including internal combustion engines, using only commercial fuel;**
 - 4) Equipment and operations which are exempt from permitting requirements pursuant to 35 Ill. Adm. Code 201.146;**
 - 5) Components of commercial and non-commercial agrichemical facility operations that are permitted under 8 Ill. Adm. Code 255 by the Department of Agriculture and endorsed by the Illinois Environmental Protection Agency pursuant to Section 39.4 of the Act; [415 ILCS 5/39.4.]**
 - 6) Farm storage or application of agricultural chemicals and distribution facilities not covered by 8 Ill. Adm. Code 255 that are used for storage or distribution of agrichemicals; and**
 - 7) The requirements of this Subpart shall not apply to the application of registered pesticides.**
- c) If an ITAC is present in a mixture of chemicals at a source at a concentration below 1% (0.01) by weight, or .1% (0.001) by weight in the case of an ITAC which is a carcinogen listed in Appendix C of this Part, an owner or operator subject to this Subpart is not required to consider the quantity of the ITAC in such mixture when determining whether an applicable threshold has been met under subsection (a) of this Section or in determining the amount of emissions to be reported under Section 232.430 of this Part.**

(Source: Added at 21 Ill. Reg. 6237, effective May 12, 1997.)

Section 232.420 ITAC Source Report

- a) On or before July 1, 1997, the Agency shall provide to the owner or operator of a source that is expected to be subject to this Subpart the ITAC Source Report. The ITAC Source Report shall contain all data fields for the information required under this Subpart.
- b) The information on emissions provided by the owner or operator of a source in the emissions report submitted pursuant to Section 232.430 of this Part shall be based on the best information available to the owner or operator and that is reflective of the operations of the source and its ITAC emissions.

(Source: Added at 21 Ill. Reg. 6237, effective May 12, 1997.)

Section 232.421 Emissions Report Certification

All emission reports filed pursuant to this Subpart shall contain the following certification statement: "I hereby certify that I have reviewed the attached documents and that, to the best of my knowledge and belief, the submitted information is true and complete and that the amounts and values in this report are accurate based on reasonable estimates using data available to the preparers of this report." The certification statement shall be signed by an individual responsible for the certification of the accuracy of the emissions report who will take legal responsibility for the information verified or reported therein. The certification statement shall be accompanied by the full name, title, actual signature, date of signature, and a telephone number of the individual signing the emissions report.

(Source: Added at 21 Ill. Reg. 6237 effective May 12, 1997.)

Section 232.423 Failure to Receive an ITAC Source Report

Failure to receive the ITAC Source Report from the Agency shall not relieve an owner or operator from the obligation to file a complete emissions report. Any owner or operator who does not receive the ITAC Source Report on or before July 1, 1997, may contact the Agency to request the ITAC Source Report.

(Source: Added at 21 Ill. Reg. 6237, effective May 12, 1997.)

Section 232.430 Emissions Report

- a) On or before October 1, 1997, the owner or operator of a source subject to this Subpart shall file an emissions report for the calendar year 1996 which shall include the following information:

- 1) **Source identification information and the source's actual annual emissions of each ITAC (identified by generic name and Chemical Abstract Service (CAS) number) expressed in tons per year (TPY), and the source's annual fugitive emissions of each ITAC, expressed in TPY, for each ITAC that exceeds the threshold for applicability as set forth in Section 232.410 of this Part. In determining the actual annual emissions of each ITAC, the source may exclude emissions of such ITAC from all emission units with de minimis emissions of ITACs; or**
 - 2) **If the owner or operator of a source subject to this Subpart so elects, the owner or operator may choose to submit the relevant portions of the USEPA's Emergency Planning and Community Right to Know Act (EPCRA) Form R in lieu of the report required under subsection (a)(1) of this Section. If the owner or operator so elects, the reporting of emissions under Form R may be reported in pounds per year rather than in tons per year (TPY) as required in subsection (a)(1) of this Section.**
- b) **The following emissions of ITACs shall be considered to be de minimis and shall not be subject to reporting requirements under this Subpart:**
 - 1) **Emissions of ITACs from an emission unit which, in the aggregate, are less than one-half (0.5) TPY;**
 - 2) **Emissions from a process unit resulting from a process vent stream with ITAC concentrations that are always less than one-tenth of one percent (0.001) by weight on a daily basis, if such concentrations include any carcinogen listed in Appendix C of this Part;**
 - 3) **Emissions from a process unit resulting from a process vent stream with ITAC concentrations that are always less than one percent (0.01) by weight on a daily basis, if such concentrations do not include any carcinogen listed in Appendix C of this Part;**
or
 - 4) **Fugitive emissions of ITACs from a process unit which, in the aggregate, are less than one-half (0.5) TPY.**
- c) **If a source becomes subject to this Subpart on or after the effective date of this Subpart, the owner or operator of the source shall submit an emissions report to the Agency on or before July 1 of the year following the date the source becomes subject to this Subpart for the period from the date the source first becomes subject to this Subpart through the end of the calendar year before the year the first report from such source is due under this Subpart. Such emissions report shall contain all of the information listed in subsections (a)(1) or (a)(2) of this Section and any additional information requested by the Agency pursuant to Section 232.450 of this Part. Any such emissions report shall satisfy the requirements Subpart D of this Part.**

- d) **An owner or operator of a source subject to this Subpart shall submit to the Agency a revised emissions report on or before July 1 of the year following the occurrence of any of the following:**
 - 1) **If the source's actual annual emissions of any individual ITAC or any combination of ITACs required to be reported under this Subpart increases by more than one-half (0.50) TPY or one (1) TPY, respectively, from the sources' emissions of ITACs initially reported under this Subpart; or**
 - 2) **If the source emits an ITAC that exceeds the threshold for applicability as set forth in Section 232.410 of this Part which was not previously reported in the source's initial report of its emissions of ITACs or in any subsequent revised report of its emissions of ITACs required to be submitted pursuant to this subsection (d).**
- e) **Any revised emissions report required to be submitted under subsection (d) of this Section shall contain all of the information listed in subsection (a) of this Section and any additional information requested by the Agency pursuant to Section 232.450 of this Part. Any revised emissions report shall satisfy the requirements of Subpart D.**
- f) **By July 1 of the calendar year following any modification or change to an emission unit requiring a revision to an existing permit or a new permit which may result in an increase in emissions of a previously reported ITAC by ten percent (.10) or more, an owner or operator of a source subject to this Subpart shall submit to the Agency a revised emissions report which includes the information required under this Section 232.430.**

(Source: Added at 21 Ill. Reg. 6237, effective May 12, 1997.)

Section 232.440 Use of Available Data

- a) **In order to provide the information requested by the Agency pursuant to Section 232.450 of this Part, the owner or operator of a source may:**
 - 1) **Use reasonable engineering estimates of total emissions of individual ITACs pursuant to an emissions determination method, if, in each case, the owner or operator of a source specifies the emissions determination method used to estimate total emissions and certifies that such data represents the best available information and is true and accurate to the best of his/her knowledge; or**
 - 2) **If available, use monitoring or measuring data collected pursuant to other provisions of law or regulation.**
- b) **Nothing in this Subpart requires the monitoring or measurement of the quantities, concentrations, or frequency of emissions of any ITAC**

beyond any monitoring or measurement required under other provisions of law or regulation.

(Source: Added at 21 Ill. Reg. 6237, effective May 12, 1997.)

Section 232.450 Retention of Records/Additional Information

- a) For purposes of modeling and conducting assessments of information submitted under this Subpart, the Agency may request supporting documentation or additional information for any emissions report submitted by a source, including:
 - 1) An identification by generic name and Chemical Abstract Service (CAS) number the source's emissions of each ITAC by emission unit, with maximum hourly emission rates in lbs/hr and actual annual emissions in TPY and the source's fugitive emissions of each ITAC in TPY;
 - 2) Operating data, exhaust point information and, if applicable, control device information for each emission unit; and
 - 3) Copies of engineering estimate calculations, mass balance calculations, and any other information or documentation used by the owner or operator of a source in preparing an emissions report.
- b) All records and calculations upon which the data submitted in the emissions report are based must be retained by the source for a minimum of three (3) years following the filing of a complete report. The owner or operator of a source shall provide the requested information in a format acceptable to the Agency within 60 days after the receipt of the request.
- c) Nothing in this Section shall be interpreted to impose upon any source subject to this Subpart any additional monitoring which is not otherwise required by applicable rules or a permit condition.

(Source: Added at 21 Ill. Reg. 6237, effective May 12, 1997.)

Section 232.460 Reporting of Errors

If, after submitting any emissions report required by this Subpart, the owner or operator of a source discovers any error in the data reported, the owner or operator shall notify the Agency of the error in writing and shall provide the Agency with the correct data. The notification and correction shall be conveyed to the Agency within sixty (60) days after the owner's or operator's discovery of the error. The corrected data shall be certified in accordance with Section 232.421 of this Part.

(Source: Added at 21 Ill. Reg. 6237, effective May 12, 1997.)

SUBPART E: LISTING AND DELISTING

Section 232.500 Procedures for Listing and Delisting Toxic Air Contaminants

- a) Any person may submit a regulatory proposal to the Board to list or delist a toxic air contaminant.
- b) The proposal to list a contaminant as a toxic air contaminant, or to delist a toxic air contaminant, must include, at a minimum, the following:
 - 1) The contaminant or toxic air contaminant name and Chemical Abstract Service Number where applicable;
 - 2) The basis for listing or delisting pursuant to Section 232.200(b) or (c). This shall include but is not limited to a showing of one of the following:
 - A) The toxicity score or carcinogen classification is correctly determined pursuant to the Subpart C procedures;
 - B) The Subpart C procedure for determining a toxicity score or carcinogen classification is not appropriate for the contaminant;
 - C) The Subpart C procedure for determining a toxicity score or carcinogen classification is incorrectly applied for the contaminant;
 - D) The studies used are inadequate for the purposes of the Subpart C procedure; or
 - E) Additional or new studies should be considered in a determination to list or delist a contaminant.
 - 3) A copy of each study or report used to justify the proposal.
- c) The Agency shall participate in each proposal to list or delist a toxic air contaminant and must provide the Board with a recommendation as to advisability of listing or delisting. Such recommendation must include a toxicity scoring pursuant to Section 232.300 and a carcinogen classification pursuant to Section 232.310.
- d) The Agency will propose an update of the list of toxic air contaminants to the Board no less frequently than once every 2 years.

Section 232.501 Listing of Federal Hazardous Air Pollutants, Great Lakes Commission Toxic Compounds and Great Waters Program Toxic Compounds

Notwithstanding the provisions of Section 232.500 of this Subpart, all chemicals listed as "hazardous air pollutants" under Section 112(b) of the CAA (1990) (42 U.S.C. 7412(b)), and all chemicals targeted as toxic compounds or chemicals by the Great Lakes Commission or under the United States Environmental Protection Agency's "Great Waters" Program which are not currently listed as toxic air contaminants under

this Part, are hereby listed as toxic air contaminants under Appendix A of this Part. The listing of hazardous air pollutants and other toxic compounds or chemicals as toxic air contaminants under this Section is without reference to the listing procedures of Section 232.500 of this Subpart.

(Source: Added at 21 Ill. Reg. 6237, effective May 12, 1997.)Section
232.APPENDIX A List of Toxic Air Contaminants

Chemical Name	CAS Number
Acetaldehyde	75-07-0*
Acetamide	60-35-5*
Acetonitrile	75-05-8*
Acetophenone	98-86-2*
2-Acetylaminofluorene	53-96-3*
Acrolein	107-02-8*
Acrylamide	79-06-1*
Acrylic acid	79-10-7*
Acrylonitrile	107-13-1*
Aldrin	309-00-2**
Allyl chloride	107-05-1*
2-Aminoanthraquinone	117-79-3
4-Aminoazobenzene	60-09-3
o-Aminoazotoluene	93-56-3
4-Aminobiphenyl	92-67-1*
1-Amino-2-methylantraquinone	82-28-0
Amitrole	61-82-5
Aniline	62-53-3*
o-Anisidine	90-04-0*
o-Anisidine hydrochloride	134-29-2
Antimony	7440-36-0
Arsenic	7440-38-2**
Asbestos	1332-21-4*
Azobenzene	103-33-3
Benzo(a)anthracene	56-55-3**
Benzene	71-43-2*
Benzidine	92-87-5*
Benzo(a)pyrene	50-32-8**
Benzo(b)fluoranthene [3,4-Benzofluoranthene]	205-99-2**
Benzo(j)fluoranthene	205-82-3
Benzo(k)fluoranthene [11,12-Benzofluoranthene]	207-08-9**
1,12-Benzoperylene	191-24-2
Benzotrichloride	98-07-7*
Benzyl chloride	100-44-7*

Benzyl violet	1694-09-3
Beryllium	7440-41-7
Beryllium oxide	1304-56-9*
Biphenyl	92-52-4*
Bis(chloromethyl)ether	542-88-1*
Boron trifluoride	7637-07-2
Bromoform	75-25-2*
4-Bromophenyl phenyl ether	101-55-3**
1,3-Butadiene	106-99-0*
Butyl benzyl phthalate	85-68-7
beta-Butyrolactone	3068-88-0
C.I. Basic Red 9 monohydrochloride	569-61-9
Cadmium	7440-43-9**
Cadmium oxide	1306-19-0*
Calcium cyanamide	156-62-7*
Caprolactam	105-60-2
Captan	133-06-2*
Carbaryl	63-25-2*
Carbofuran	1563-66-2
Carbon black	1333-86-4
Carbon disulfide	75-15-0*
Carbon tetrachloride	56-23-5††
Carbonyl sulfide	463-58-1*
Carbosulfan	55285-14-8
Catechol	120-80-9*
Chloramben	133-90-4*
Chlordane	57-74-9††
Chlorinated dibenzodioxins	--
Chlorinated dibenzofurans	--
Chlorendic acid	115-28-6
Alpha-Chlorinated toluenes	--
Chlorinated paraffins [C12, 60% chlorine]	108171-26-2
Chlorine	7782-50-5*
Chloroacetic acid	79-11-18*
2-Chloroacetophenone	532-27-4*
Chlorobenzene	108-90-7*
Chlorobenzilate	510-15-6*
Chloroform	67-66-3*
Chloromethyl methyl ether	107-30-2*
3,4-Chloro-2-methylpropene	563-47-3
4-Chloro-o-phenylenediamine	95-83-0
p-Chloro-o-toluidine	95-69-2
4-Chlorophenyl phenyl ether	7005-72-3**
Chloroprene	126-99-8*

Chromium	7440-47-3**
Chromium (VI)	18540-29-9††
Chrysene	218-01-9**
Coal tar (pitch) volatiles	65996-93-2
Cobalt	7440-48-4**
Coke Oven Emissions	--††
Copper	7440-50-8**
p-Cresidine	120-71-8
Creosote (Coal)	8001-58-9
Cresol (mixed isomers) [Cresols/Cresylic acid (isomers and mixture)]	1319-77-3*
o-Cresol	95-48-7*
m-Cresol	108-39-4*
p-Cresol	106-44-5*
Cumene	98-82-8*
Cyanazine	21725-46-2
Cyclohexanone	108-94-1
DDD	72-54-8
DDE	3547-04-4*
4,4'-DDE	72-55-9**
DDT	50-29-3**
Di-n-octyl phthalate	117-84-0**
2,4-Diaminoanisole	615-05-4
2,4-Diaminoanisole sulfate	39156-41-7
4,4'-Diaminodiphenyl ether	101-80-4
2,4-Diaminotoluene	95-80-7*
Diazomethane	334-88-3*
Dibenzo(a,h)acridine	226-36-8
Dibenzo(a,j)acridine	224-42-0
Dibenzo(a,h)anthracene [1,2:5.6-Dibenzanthracene]	53-70-3**
Dibenzo(a,e)pyrene	192-65-4
Dibenzo(a,h)pyrene	189-64-0
Dibenzo(a,i)pyrene	189-55-9
Dibenzo(a,l)pyrene	191-30-0
Dibenzofurans	132-64-9*
Dibutyl phthalate	84-74-2††
1,2-Dibromo-3-chloropropane	96-12-8*
1,2-Dibromoethane [Ethylene dibromide]	106-93-4*
1,4-Dichlorobenzene(p-)	106-46-7*
3,3'-Dichlorobenzidine	91-94-1*
3,3'-Dichlorobenzidine dihydrochloride	612-83-9
Dichloroethyl ether [Bis(2-chloroethyl)ether]	111-44-4*
2,4-Dichlorophenoxyacetic acid [2,4-D,salts and esters]	94-75-7*
1,2-Dichloropropane [Propylene dichloride]	78-87-5*
1,3-Dichloropropylene [1,3-Dichloropropene]	542-75-6*

Dichlorovos	62-73-7*
Dieldrin	60-57-1**
Diepoxybutane	1464-53-5
Diethanolamine	111-42-2*
N,N-Diethyl aniline [N,N-Dimethylaniline]	121-69-7*
1,2-Diethylhydrazine	1615-80-1
Di(2-ethylhexyl) Phthalate [Bis(2-ethylhexyl) phthalate (DEHP)]	117-81-7††
Diethyl sulfate	64-67-5*
Diglycidyl resorcinol ether	101-90-6
3,3'-Dimethoxybenzidine [Dianisidine]	119-90-4*
Dimethyl acetamide	127-19-5
Dimethyl phthalate	131-11-3*
4-Dimethylaminoazobenzene [Dimethyl aminoazo-benzene]	60-11-7*
3,3'-Dimethylbenzidine [o-Tolidine]	119-93-7*
Dimethylcarbamoyl chloride	79-44-7*
N,N-Dimethyl formamide	68-12-2*
1,1-Dimethylhydrazine	57-14-7*
1,2-Dimethylhydrazine	540-73-8
Dimethyl sulfate	77-78-1*
Dinitrocresol [4,6-Dinitro-o-cresol, and salts]	534-52-1*
2,4-Dinitrophenol	51-28-5*
2,4-Dinitrotoluene	121-14-2*
1,4-Dioxane [1,4-Diethyleneoxide]	123-91-1*
1,2-Diphenylhydrazine	122-66-7*
Disulfoton	298-04-4
Endothall	145-73-3
Endrin	72-20-8**
Epichlorohydrin	106-89-8*
1,2-Epoxybutane	106-88-7*
2-Ethoxyethanol	110-80-5
Ethyl acrylate	140-88-5††
Ethyl benzene	100-41-4††
Ethyl chloride [Chloroethane]	75-00-3*
Ethylene dichloride [1,2-Dichloroethane]	107-06-2††
Ethylene glycol	107-21-1*
Ethyleneimine [Aziridine]	151-56-4*
Ethylene oxide	75-21-8*
Ethylene thiourea	96-45-7*
Ethylidene dichloride [1,1-Dichloroethane]	75-34-3*
Etridiazole	2593-15-9
FMC-67825	95465-99-9
Fluorine	7782-41-4
Folpet	133-07-3
Formaldehyde	50-00-0*

Furmecyclox	60568-05-0
Heptachlor	76-44-8††
Heptachlor epoxide	1024-57-3**
Hexachlorobenzene	118-74-1††
Hexachloro-1,3-butadiene [Hexachlorobutadiene]	87-68-3††
Hexachlorocyclopentadiene	77-47-4*
Hexachlorodibenzo-p-dioxin	19408-74-3
Hexachloroethane	67-72-1††
Hexamethylene-1,6-diisocyanate	822-06-0*
Hexamethylphosphoramide	680-31-9*
Hexane	110-54-3*
Hydrazine	302-01-2*
Hydrazine sulfate	10034-93-2
Hydrochloric acid (aerosol)	7647-01-0*
Hydrogen cyanide	74-90-8
Hydrogen fluoride [Hydrofluoric acid]	7664-39-3*
Hydroquinone	123-31-9*
Indeno(1,2,3-cd) pyrene	193-39-5**
Isophorone	78-59-1*
Isophorone diisocyanate	4098-71-9
Lead	7439-92-1**
Lindane-[Hexachlorocyclohexane-alpha]	319-84-6**
Lindane-[Hexachlorocyclohexane-beta]	319-85-7**
Lindane-[Hexachlorocyclohexane-gamma] [Lindane all isomers]	58-89-9††
Lindane-[Hexachlorocyclohexane-mixed isomers]	608-73-1
Linuron	330-55-2
Malathion	121-75-5
Maleic anhydride	108-31-6*
Manganese	7439-96-5**
Mercury	7439-97-6**
Methanol	67-56-1*
Methoxychlor	72-43-5††
2-Methoxyethanol	109-86-4
2-Methoxyethanol acetate	110-49-6
Methyl bromide [Bromomethane]	74-83-9*
Methyl chloride [Chloromethane]	74-87-3††
Methyl chloroform [1,1,1-Trichloroethane]	71-55-6††
Methyl ethyl ketone [2-Butanone]	78-93-3*
Methyl isobutyl ketone [Hexone]	108-10-1*
Methyl isocyanate	624-83-9*
Methyl methacrylate	80-62-6*
Methyl tert-butyl ether	1634-04-4*
5-Methylchrysene	3697-24-3
4,4'-Methylenebis(2-chloroaniline)	101-14-4*

Methylenebis(phenylisocyanate) [Methylenediphenyl diisocyanate (MDI)]	101-68-8*
4,4'-Methylenebis(N,N'-dimethylbenzenamine)	101-61-1
Methylene chloride [Dichloromethane]	75-09-2††
4,4'-Methylenedianiline	101-77-9*
4,4'-Methylenedianiline dihydrochloride	13552-44-8
Methyl hydrazine	60-34-4*
Methyl iodide [Iodomethane]	74-88-4*
Methyl mercaptan	74-93-1
N-Methyl-N'-nitro-N-nitrosoguanidine	70-25-7
Metolachlor	51218-45-2
Michler's Ketone	90-94-8
Mirex	2385-85-5**
Monoethanolamine	141-43-5
Naphthalene	91-20-3††
beta-Naphthylamide	91-59-8
Nickel	7440-02-0**
Nitric acid	7697-37-2
Nitrilotriacetic acid	139-13-9
Nitrobenzene	98-95-3*
4-Nitrobiphenyl	92-93-3*
5-Nitro-o-anisidine	99-59-2
2-Nitropropane	79-46-9*
4-Nitrophenol	100-02-7*
N-Nitroso-n-butyl-N-(3-carboxypropyl) amine	38252-74-3
N-Nitroso-n-butyl-N-(4-hydroxybutyl) amine	3817-11-6
N-Nitrosodi-n-butylamine	924-16-3
N-Nitrosodiethanolamine	1116-54-7
N-Nitrosodiethylamine	55-18-5
N-Nitrosodimethylamine	62-75-9*
N-Nitrosodiphenylamine	86-30-6
N-Nitrosodi-n-propylamine	621-64-7
N-Nitroso-N-ethylurea	759-73-9
3-(N-Nitrosomethylamino) propionitrile	60153-49-3
N-Nitrosomethylethylamine	10595-95-6
N-Nitroso-N-methylurea	684-93-5*
N-Nitrosomethylvinylamine	4549-40-0
N-Nitrosomorpholine	59-89-2*
N-Nitrosornicotine	16543-55-8
N-Nitrosopiperidine	100-75-4
N-Nitrosopyrrolidine	930-55-2
N-Nitrososarcosine	13256-22-9
Nitrofen	11836-75-5
Octachlorostyrene	2908-74-4**

PCDDs (Total polychlorinated dibenzodioxins)	--**
PCDFs (Total polychlorinated dibenzofurans)	--**
PAHs (Total polycyclic aromatic hydrocarbons)	--**
Parathion	56-38-2††
Pentachlorobenzene	608-93-5**
Pentachloronitrobenzene [Quintobenzene]	82-68-8††
Pentachlorophenol	87-86-5††
Peracetic acid	79-21-0
Phenol	108-95-2††
p-Phenylenediamine	106-50-3*
Phenylhydrazine	100-63-0
Phorate	298-02-2
Phosgene	75-44-5*
Phosphine	7803-51-2*
Phosphorus	7723-14-0*
Phosphorus oxychloride	10025-87-3
Phosphorus pentachloride	10026-13-8
Photomirex	39801-14-4**
Phthalic anhydride	85-44-9*
Polybrominated biphenyls	--
Polychlorinated biphenyls [Aroclors]	1336-36-3††
Potassium bromate	7758-01-2
Propane sultone [1,3-Propane sultone]	1120-71-4*
beta-Propiolactone	57-57-8*
Propionaldehyde	123-38-6*
Propoxur [Baygon]	114-26-1*
Propyleneimine [1,2-Propylenimine, (2-Methylaziridine)]	75-55-8*
Propylene oxide	75-56-9*
Pyrene	129-00-0
Quinoline	91-22-5*
Quinone	106-51-4*
Selenium	7782-49-2
Sodium borate	1303-96-4
Styrene	100-42-5*
Styrene oxide	96-09-3*
Sulfalate	95-06-7
Sulfuric acid (aerosol)	7664-93-9
Terbufos	13071-79-9
1,2,3,4-Tetrachlorobenzene	634-66-2**
1,2,4,5-Tetrachlorobenzene	95-94-3**
1,1,2,2-Tetrachloroethane	79-34-5*
Tetrachloroethylene [Perchloroethylene]	127-18-4††
2,3,7,8-Tetrachlorodibenzo-p-dioxin [2,3,7,8-TCDD]	1746-01-6††
4,4'-Thiodianiline	139-65-1

Thiophenol	108-98-5
Thiourea	62-56-6
Thorium dioxide	1314-20-1
Titanium tetrachloride	7550-45-0*
Toluene	108-88-3††
Toluene-2,4-diisocyanate [2,4-Toluene diisocyanate]	584-84-9*
Toluene-2,6-diisocyanate	91-08-7
o-Toluidine	95-53-4*
o-Toluidine hydrochloride	636-21-5
p-Toluidine	106-49-0
Toxaphene	8001-35-2††
1,2,4-Trichlorobenzene	120-82-1*
1,1,2-Trichloroethane	79-00-5*
Trichloroethylene	79-01-6††
2,4,5-Trichlorophenol	95-95-4††
2,4,6-Trichlorophenol	88-06-2††
Triethylamine	121-44-8*
Trifluralin	1582-09-8††
Trimethyl benzene	25551-13-7
1,2,4-Trimethyl benzene	95-63-6
2,4,6-Trinitrotoluene	118-96-7
2,2,4-Trimethylpentane	540-84-1*
Tris(2,3-dibromopropyl) phosphate	126-72-7
Trypan blue	72-57-1
Urethane [Ethyl carbamate]	51-79-6*
Vinyl acetate	108-05-4*
Vinyl bromide	593-60-2*
Vinyl chloride	75-01-4*
Vinylidene chloride [1,1-Dichloroethylene]	75-35-4*
Xylenes (isomers and mixture)	1330-20-7*
o-Xylenes	95-47-6*
m-Xylenes	108-38-3*
p-Xylenes	106-42-3*

Antimony compounds*

--

Includes any unique chemical substance that contains antimony as part of that chemical's infrastructure

Arsenic compounds*

--

Includes any unique chemical substance that contains arsenic as part of that chemical's infrastructure

Beryllium compounds*	--
Includes any unique chemical substance that contains beryllium as part of that chemical's infrastructure	
Cadmium compounds*	--
Includes any unique chemical substance that contains cadmium as part of that chemical's infrastructure	
Chromium compounds*	--
Includes any unique chemical substance that contains chromium as part of that chemical's infrastructure	
Cobalt compounds*	--
Includes any unique chemical substance that contains cobalt as part of that chemical's infrastructure	
Cyanide compounds*	--
x(pos) CN(neg) where X = H(pos) or any other group where a formal dissociation can be made. For example, KCN or Ca(CN) ₂	
Glycol ethers*	--
Includes any unique chemical substance that contains glycol as part of that chemical's infrastructure. Includes mono- and di- ethers of ethylene glycol, diethylene glycol, and triethylene glycol R(OCH ₂ CH ₂) _n -OR' where n = 1,2, or 3 R = alkyl or aryl groups R' = R, H, or groups which, when removed, yield glycol ethers with the structure: R(OCH ₂ CH ₂) _n -OH. Polymers are excluded from the glycol category.	
Fine mineral fibers	--
Includes mineral fiber emissions from	

facilities manufacturing or processing glass, rock, or slag fibers (or other mineral derived fibers) having the average diameter of 1 micrometer or less.

Lead compounds*	--
Includes any unique chemical substance that contains lead as part of that chemical's infrastructure	
Manganese compounds*	--††
Includes any unique chemical substance that contains manganese as part of that chemical's infrastructure	
Mercury compounds*	--
Includes any unique chemical substance that contains mercury as part of that chemical's infrastructure	
Nickel compounds*	--††
Includes any unique chemical substance that contains nickel as part of that chemical's infrastructure	
Polycyclic Organic Matter (POM)*	--††
Includes organic compounds having more than one benzene ring and a boiling point equal to or greater than 100 degrees Celsius (212 degrees Fahrenheit).	
Radionuclides (including radon)*	--
A type of atom which spontaneously undergoes radioactive decay.	
Selenium Compounds*	--
Includes any unique chemical substance that contains selenium as part of that chemical's infrastructure.	

* Indicates presence on HAP List.

** Indicates presence on Great Waters or Great Lakes List.

†† Indicates presence on HAP and Great Waters or Great Lakes Lists.

(Source: Added at 21 Ill. Reg. 6237, effective May 12, 1997.)

Section 232. Appendix A List of Toxic Air Contaminants

Chemical Name	Chemical Abstract Service Number
Acetaldehyde	75-07-0
Acetamide	60-35-5
Acetonitrile	75-05-8
Acetophenone	98-86-2
Acrolein	107-02-8
Acrylamide	79-06-1
Acrylic acid	79-10-7
Acrylonitrile	107-13-1
Aldrin	309-00-2
Allyl chloride	107-05-1
2-Aminoanthraquinone	117-79-3
4-Aminoazobenzene	60-09-3
o-Aminoazotoluene	93-56-3
4-Aminobiphenyl	92-67-1
1-Amino-2-methylantraquinone	82-28-0
Amitrole	61-82-5
Aniline	62-53-3
o-Anisidine	90-04-0
o-Anisidine hydrochloride	134-29-2
Antimony	7440-36-0
Arsenic	7440-38-2
Asbestos (friable)	1332-21-4
Azobenzene	103-33-3
Benz(a)anthracene	56-55-3
Benzene	71-43-2
Benzidine	92-87-5
Benzo(a)pyrene	50-32-8
Benzo(b)fluoranthene	205-99-2
Benzo(j)fluoranthene	205-82-3
Benzo(k)fluoranthene	207-08-9
Benzotrichloride	98-07-7
Benzyl chloride	100-44-7
Benzyl violet	1694-09-3
Beryllium	7440-41-7
Beryllium oxide	1304-56-9

Biphenyl	92-52-4
Boron trifluoride	7637-07-2
Bromoform	75-25-2
1,3-Butadiene	106-99-0
Butyl benzyl phthalate	85-68-7
beta-Butyrolactone	3068-88-0
C.I. Basic Red 9 monohydrochloride	569-61-9
Cadmium	7440-43-9
Cadmium oxide	1306-19-0
Caprolactam	105-60-2
Carbaryl	63-25-2
Carbofuran	1563-66-2
Carbon black	1333-86-4
Carbon disulfide	75-15-0
Carbon tetrachloride	56-23-5
Carbosulfan	55285-14-8
Chloramben	133-90-4
Chlordane	57-74-9
Chlorinated dibenzodioxins	--
Chlorinated dibenzofurans	--
Chlorendic acid	115-28-6
Alpha-Chlorinated toluenes	--
Chlorinated paraffins (C12, 60% chlorine)	108171-26-2
Chlorine	7782-50-5
Chloroacetic acid	79-11-8
Chlorobenzene	108-90-7
Chloroform	67-66-3
Chloromethyl methyl ether	107-30-2
4-Chloro-2-methylpropene	563-47-3
4-Chloro-o-phenylenediamine	95-83-0
p-Chloro-o-toluidine	95-69-2
Chloroprene	126-99-8
Chromium	7440-47-3
Chromium VI	18540-29-9
Chrysene	218-01-9
Coal tar (pitch) volatiles	65996-93-2
Cobalt	7440-48-4
Coke Oven Emissions	--
Copper	7440-50-8
p-Cresidine	120-71-8
Creosote (Coal)	8001-58-9
Cresol (mixed isomers)	1319-77-3
Cyanazine	21725-46-2
Cyclohexanone	108-94-1

DDD	72-54-8
DDE	72-55-9
DDT	50-29-3
2,4-Diaminoanisole	615-05-4
2,4-Diaminoanisole sulfate	39156-41-7
4,4'-Diaminodiphenyl ether	101-80-4
2,4-Diaminotoluene	95-80-7
Dibenzo(a,h)acridine	226-36-8
Dibenzo(a,j)acridine	224-42-0
Dibenzo(a,h)anthracene	53-70-3
Dibenzo(a,e)pyrene	192-65-4
Dibenzo(a,h)pyrene	189-64-0
Dibenzo(a,i)pyrene	189-55-9
Dibenzo(a,l)pyrene	191-30-0
Dibutyl phthalate	84-74-2
1,2-Dibromo-3-chloropropane	96-12-8
1,2-Dibromoethane [Ethylene dibromide]	106-93-4
3,3'-Dichlorobenzidine	91-94-1
3,3'-Dichlorobenzidine dihydrochloride	612-83-9
Dichloroethyl ether	111-44-4
2,4-Dichlorophenoxyacetic acid [2,4-D]	94-75-7
1,2-Dichloropropane	78-87-5
1,3-Dichloropropylene	542-75-6
Dichlorvos	62-73-7
Dieldrin	60-57-1
Diepoxybutane	1464-53-5
1,2-Diethylhydrazine	1615-80-1
Di(2-ethylhexyl) phthalate	117-81-7
Diethyl sulfate	64-67-5
Diglycidyl resorcinol ether	101-90-6
3,3'-Dimethoxybenzidine	119-90-4
Dimethyl acetamide	127-19-5
4-Dimethylaminoazobenzene	60-11-7
3,3'-Dimethylbenzidine [o-Tolidine]	119-93-7
Dimethylcarbamoyl chloride	79-44-7
Dimethyl formamide	68-12-2
1,1-Dimethylhydrazine	57-14-7
1,2-Dimethylhydrazine	540-73-8
Dimethyl sulfate	77-78-1
Dinitroresol	534-52-1
2,4-Dinitrophenol	51-28-5
2,4-Dinitrotoluene	121-14-2
1,4-Dioxane	123-91-1
1,2-Diphenylhydrazine	122-66-7

Disulfoton	298-04-4
Endothall	145-73-3
Epichlorohydrin	106-89-8
2-Ethoxyethanol	110-80-5
Ethyl acrylate	140-88-5
Ethylene dichloride	107-06-2
Ethylene oxide	75-21-8
Ethylene thiourea	96-45-7
Etridiazole	2593-15-9
FMC-67825	95465-99-9
Fluorine	7782-41-4
Folpet	133-07-3
Formaldehyde	50-00-0
Furmecyclox	60568-05-0
Heptachlor	76-44-8
Heptachlor epoxide	1024-57-3
Hexachlorobenzene	118-74-1
Hexachloro-1,3-butadiene	87-68-3
Hexachlorocyclopentadiene	77-47-4
Hexachlorodibenzo-p-dioxin	19408-74-3
Hexachloroethane	67-72-1
Hexamethylphosphoramide	680-31-9
Hydrazine	302-01-2
Hydrazine sulfate	10034-93-2
Hydrogen cyanide	74-90-8
Indeno(1,2,3-cd) pyrene	193-39-5
Isophorone diisocyanate	4098-71-9
Lead	7439-92-1
Lindane (alpha)	319-84-6
Lindane (beta)	319-85-7
Lindane (gamma)	58-89-9
Lindane (mixed isomers)	608-73-1
Linuron	330-55-2
Malathion	121-75-5
Manganese	7439-96-5
Mercury	7439-97-6
2-Methoxyethanol	109-86-4
2-Methoxyethanol acetate	110-49-6
5-Methylchrysene	3697-24-3
4,4'-Methylenebis(2-chloroaniline)	101-14-4
Methylenebis(phenylisocyanate)	101-68-8
4,4'-Methylenebis(N,N'-dimethyl)benzenamine	101-61-1
Methylene chloride	75-09-2

4,4'-Methylenedianiline	101-77-9
4,4'-Methylenedianiline dihydrochloride	13552-44-8
Methyl hydrazine	60-34-4
Methyl iodide	74-88-4
Methyl mercaptan	74-93-1
N-Methyl-N'-nitro-N-nitrosoguanidine	70-25-7
Metolachlor	51218-45-2
Michler's Ketone	90-94-8
Mirex	2385-85-5
Monoethanolamine	141-43-5
beta-Naphthylamide	91-59-8
Nickel	7440-02-0
Nitric acid	7697-37-2
Nitrilotriacetic acid	139-13-9
Nitrobenzene	98-95-3
5-Nitro-o-anisidine	99-59-2
2-Nitropropane	79-46-9
N-Nitroso-n-butyl-N-(3-carboxypropyl) amine	38252-74-3
N-Nitroso-n-butyl-N-(4-hydroxybutyl) amine	3817-11-6
N-Nitrosodi-n-butylamine	924-16-3
N-Nitrosodiethanolamine	1116-54-7
N-Nitrosodiethylamine	55-18-5
N-Nitrosodimethylamine	62-75-9
N-Nitrosodiphenylamine	86-30-6
N-Nitrosodi-n-propylamine	621-64-7
N-Nitroso-N-ethylurea	759-73-9
3-(N-Nitrosomethylamino) propionitrile	60153-49-3
N-Nitrosomethylethylamine	10595-95-6
N-Nitroso-N-methylurea	684-93-5
N-Nitrosomethylvinylamine	4549-40-0
N-Nitrosomorpholine	59-89-2
N-Nitrosornicotine	16543-55-8
N-Nitrosopiperidine	100-75-4
N-Nitrosopyrrolidine	930-55-2
N-Nitrososarcosine	13256-22-9
Nitrofen	1836-75-5
Pentachloronitrobenzene	82-68-8
Pentachlorophenol	87-86-5
Peracetic acid	79-21-0
Phenol	108-95-2
Phenylhydrazine	100-63-0
Phorate	298-02-2

Phosphorus	7723-14-0
Phosphorus oxychloride	10025-87-3
Phosphorus pentachloride	10026-13-8
Polybrominated biphenyls	--
Polychlorinated biphenyls	1336-36-3
Potassium bromate	7758-01-2
Propane sultone	1120-71-4
beta-Propiolactone	57-57-8
Propyleneimine	75-55-8
Propylene oxide	75-56-9
Pyrene	129-00-0
Quinoline	92-22-5
Selenium	7782-49-2
Sodium borate	1303-96-4
Styrene oxide	96-09-3
Sulfallate	95-06-7
Sulfuric acid	7664-93-9
Terbufos	13071-79-9
1,1,2,2-Tetrachloroethane	79-34-3
Tetrachloroethylene	127-18-4
2,3,7,8-Tetrachlorodibenzo-p-dioxin	1746-01-6
4,4'-Thiodianiline	139-65-1
Thiophenol	108-98-5
Thiourea	62-56-6
Thorium dioxide	1314-20-1
Toluene	108-88-3
Toluene-2,4-diisocyanate	584-84-9
Toluene-2,6-diisocyanate	91-08-7
o-Toluidine	95-53-4
o-Toluidine hydrochloride	636-21-5
p-Toluidine	106-49-0
Toxaphene	8001-35-2
1,2,4-Trichlorobenzene	120-82-1
Trichloroethylene	79-01-6
2,4,6-Trichlorophenol	88-06-2
Trimethyl benzene	25551-13-7
1,2,4-Trimethyl benzene	95-63-6
2,4,6-Trinitrotoluene	118-96-7
Tris(2,3-dibromopropyl) phosphate	126-72-7
Trypan blue	72-57-1
Urethane [Ethyl carbamate]	51-79-6
Vinyl bromide	593-60-2
Vinyl chloride	75-01-4
Vinylidene chloride	75-35-4

Antimony compounds-Includes any unique chemical substance that contains antimony as part of that chemical's infrastructure --

Arsenic compounds-Includes any unique chemical substance that contains arsenic as part of that chemical's infrastructure --

Beryllium compounds-Includes any unique chemical substance that contains beryllium as part of that chemicals infrastructure --

Cadmium compounds-Includes any unique chemical substance that contains cadmium as part of that chemical's infrastructure --

Chromium compounds-Includes any unique chemical substance that contains chromium as part of that chemical's infrastructure --

Cobalt compounds-Includes any unique chemical substance that contains cobalt as part of that chemical's infrastructure --

Cyanide compounds-x(pos) CN(neg) where X = H(pos) or any other group where a formal dissociation can be made.For example, KCN or Ca(CN)[2] --

Lead compounds-Includes any unique chemical substance that contains lead as part of that chemical's infrastructure --

Manganese compounds-Includes any unique chemical substance that contains manganese as part of that chemical's infrastructure --

Mercury compounds-Includes any unique chemical substance that contains mercury --

as part of that chemical's infrastructure

Nickel compounds-Includes any unique
chemical substance that contains nickel as
part of that chemical's infrastructure

(Source: Added at 21 Ill. Reg. 6237, effective May 12, 1997)

Section 232. Appendix B Additional Procedures for Calculating the Chronic Toxicity Score

- a) **Procedures to be used in selecting chronic toxicity studies.**
 - 1) **Chronic toxicity studies in which all of the items in subsection (a)(1)(A) of this appendix are identified or measured with adequate specificity to use the equations in subsection (b) of this appendix are to be given first preference.**
 - A) **Study items to be identified or measured:**
 - i) **Test species;**
 - ii) **Contaminant dose;**
 - iii) **Duration of exposure must be at least 21 days, except for developmental studies in animals, in which case the duration of exposure must be during critical gestation days;**
 - iv) **Route of exposure; and**
 - v) **Effect of exposure.**
 - B) **In the event that two or more studies are available in which the items in subsection (a)(1)(A) are deemed to have been identified or measured, but which give inconsistent results, the study must be selected by the following procedures:**
 - i) **In the event that two or more studies are laboratory animal toxicity studies, the study that is conducted in accordance with or consistent with Good Laboratory Practice Standards must be used. Good Laboratory Practice Standards are incorporated by reference in Section 232.110.**
 - ii) **In the event that the application of the procedure in subsection (i) fails to result in the selection of one study, then the study that results in the highest Chronic Toxicity Score must be used.**
 - 2) **Studies that identify or measure all of the items in subsection (a)(1)(A) of this appendix, except for the contaminant dose, must be given second preference.**

- A) For a second preference study, the Lowest Toxic Dose Score for a given species and a given route of exposure must be determined according to the following table:

Species	Route of Lowest Toxic Exposure	Dose Score
Human	Inhalation	1
Human	Non-inhalation	2/3
Non-human	Inhalation	2/3
Non-human	Non-inhalation	1/3
 - B) In the event that two or more second preference studies are available, the study that results in the highest Chronic Toxicity Score must be used.
 - 3) A contaminant for which there is insufficient data in the study to identify the elements of either a first or second preference study must be determined to have no data and be assigned a Chronic Toxicity Score of 0.
- b) The following general equation must be used to obtain the dose in units of milligram per kilogram per day for the oral, gavage and inhalation routes of exposure: $\text{Dose} = (I)(C)(TCF)/UF$
 - 1) For the routes of exposure listed below, use the following:
TCF= Time Correction Factor of 1, unless the exposure was intermittent, in which case the fraction of time during which exposure occurred is used (e.g., 5 days/week = $5/7 = 0.71$).
UF= Uncertainty Factor of 10, used only when data are for exposure periods less than 90 days. In the case of fetotoxicity and teratogenicity studies, an Uncertainty Factor of 1 must be used;
 - 2) Where the exposure is oral use the following:
 - A) Oral Exposure via Food: I= Food Intake in kilogram of food ingested per kilogram of body weight per day (kg/kg-d) (refer to Chart 1 for standard values); C= Contaminant Concentration in food in units of milligram per kilogram (mg/kg); or
 - B) Oral Exposure via Water: I= Water Intake in liter of water ingested per kilogram of body weight per day (L/kg-d) (refer to Chart 1 for standard values); C= Contaminant Concentration in water in units of milligram per liter (mg/L);
 - 3) Where the exposure is via gavage use the following: The product (I X C) in the above equation must be replaced by Gavage Dose (GD) in units of milligram of contaminant ingested per kilogram of body weight per day (mg/kg-d); or
 - 4) Where the exposure is via inhalation use the following:

I= Air intake in cubic meter of air inhaled per kilogram of body weight per day (cu.m³/kg-d) measured as the product of Ventilation Rate (VR) (refer to Chart 1 for

standard values) and Inhalation retention factor (RF) (assumed to be 0.5 for this procedure);

C= Contaminant Concentration in air in units of milligram per cubic meter (mg/cu.m).

Chart 1
Summary of Physiological Parameters

Species	Water Intake L/kg/day	Food Intake kg/kg/day	Ventilation cu.m/kg/day
Cat	0.100	0.050	0.46
Dog	0.025	0.025	0.31
Guinea Pig	0.075	0.040	0.58
Human	0.029	0.025	0.26
Monkey	0.14	0.07	0.32
Mouse	0.25	0.15	1.44
Rabbit	0.065	0.030	0.46
Rat	0.10	0.050	0.66

(Source: Added at 21 Ill. Reg. 6237, effective May 12, 1997)

Section 232. Appendix C Carcinogens (Categories A, B1 and B2) listed on the Integrated Risk Information System (IRIS) as of December 31, 1989 (United States Environmental Protection Agency, Office of Health and Environmental Assessment)

Chemical Name	CAS Number	Category
Acetaldehyde	000075-07-0	B2
Acrylamide	000079-06-1	B2
Acrylonitrile	000107-13-1	B1
Aldrin	000309-00-2	B2
Aniline	000062-53-3	B2
Arsenic	007440-38-2	A
Azobenzene	000103-33-3	B2
Benzene	000071-43-2	A
Benzidine	000092-87-5	A
Benzo(a)pyrene	000050-32-8	B2
Benzyl chloride	000100-44-7	B2
Beryllium	007440-41-7	B2
Bis(2-ethylhexyl) phthalate	000117-81-7	B2
Bis(chloroethyl) ether	000111-44-4	B2
Bis(chloromethyl) ether	000542-88-1	A

1,3-Butadiene	000106-99-0	B2
Cadmium	007440-43-9	B1
Carbon Tetrachloride	000056-23-5	B2
Chlordane	000057-74-9	B2
Chloroform	000067-66-3	B2
Chloromethyl Methyl Ether	000107-30-2	A
Chromium(VI)	18540-29-9	A
Coke Oven Emissions	008007-45-2	A
Creosote	008001-58-9	B1
DDD	000072-54-8	B2
DDE	000072-55-9	B2
DDT	000050-29-3	B2
1,2-Dichloroethane	000107-06-2	B2
1,3-Dichloropropene	000542-75-6	B2
Dichlorovos	000062-73-7	B2
Dieldrin	000060-57-1	B2
Dimethyl Sulfate	000077-78-1	B2
1,4-Dioxane	000123-91-1	B2
1,2-Diphenylhydrazine	000122-66-7	B2
Epichlorohydrin	000106-89-8	B2
Ethylene Dibromide	000106-93-4	B2
Folpet	000133-07-3	B2
Formaldehyde	000050-00-0	B1
Furmecyclo	060568-05-0	B2
Heptachlor	000076-44-8	B2
Heptachlor Epoxide	001024-57-3	B2
Hexachlorocyclohexane, technical	000608-73-1	B2
alpha-Hexachlorocyclohexane	000319-84-6	B2
Hexachlorodibenzo-p-dioxin	019408-74-3	B2
Hydrazine, Hydrazine Sulfate (MIXTURE)		B2
Lead and Compounds (Inorganic)		B2
4,4'-Methylenebis(N,N'- dimethyl) benzenamine	000101-61-1	B2
N-Nitroso-N-methylethylamine	010595-95-6	B2
N-Nitroso-di-n-butylamine	000924-16-3	B2
N-Nitrosodi-N-propylamine	000621-64-7	B2
N-Nitrosodiethanolamine	001116-54-7	B2
N-Nitrosodiethylamine	000055-18-5	B2
N-Nitrosodimethylamine	000062-75-9	B2
N-Nitrosodiphenylamine	000086-30-6	B2
N-Nitrosopyrrolidine	000930-55-2	B2
Nickel Carbonyl	013463-39-3	B2
Nickel Refinery Dust	007440-02-0	A
Nickel Subsulfide	012035-72-2	A
Polychlorinated Biphenyls	001336-36-3	B2

Toxaphene

008001-35-2

B2

(Source: Added at 21 Ill. Reg. 6237, effective May 12, 1997)