New York State Department of Environmental Conservation

New York State Air Guide-1

GUIDELINES For The Control of Toxic Ambient Air Contaminants

Division of Air Resources

1985-86 Edition
Sept 1989 Printing

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AIR GUIDE-1
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FORWARD

Air Guide-1 (AG-1) is the combined effort of the DEC Bureau of Air Toxics (BAT) and the DEC Bureau of Impact Assessment and Meteorology (BIAM) with NYS DOH Bureau of Toxic Substance Assessment concurrence for the Appendix B methods.

Appendix A: Screening Analysis for Ambient Air Quality Impact

The derivation of the method is contained in the paper "Screening Procedures for Determining Ambient Impacts of Toxic Contaminants" by Leon Sedefian, DEC BIAM. This work describes the assumptions and qualifications of the procedures. Section II of Appendix A briefly outlines these assumptions and qualifications and should be reviewed prior to using the stepwise procedures.

Appendix B: Toxicity Classification

Dr. Moises Riano, DEC Bureau of Air Toxics Assessment Section, based the Toxicity Classifications on the following compound characteristics: Oral and Inhalation Toxicity, Carcinogenicity, Mutagenicity, Teratogenicity, Reproductive (embryotoxicity) Effects, and the Degree of Irritation. References from IARC, OSHA, NIOSH, NTP, and NCI, as well as other scientific data bases are evaluated in classifying contaminants.

These appendices follow a short text, dedicated to the regulatory implementation of Air Guide-1. Questions regarding this text, and Air Guide-1 implementation in general, should be directed to the staff of the Toxics Management Section in Bureau of Air Toxics at (518)457-7688. Primary contacts in this section are Ed Anna, Stan Byer, and Matt Reis.

GUIDELINES FOR THE CONTROL OF TOXIC AIR CONTAMINANTS

INTRODUCTION

This September 1989 printing of AG-1 supersedes Chapters 3900 and 4100 of the Process Source Handbook and the 7/86 printing of Air Guide-1 and has two significant changes over earlier versions.

First, the numerical toxicity guidance values - formerly called "AALs", now referred to as "AGCs" (see below) - which were based on the 1985-86 ACGIH TWA-TLVs have been updated. The more restrictive of either the

1988-89 TLV or the OSHA "final rule limit TWA-PEL" (29CFR1910.1000) has been used to calculate each updated AGC. The corresponding "Occupational Value", identified as either the TWA-TLV (T) or the OSHA TWA-PEL (P), is listed for use as a short term impact screening guideline.

The other change involves the addition of a new column of "Proposed AGCs" in each of the three toxicity tables. Listed in this column are chemicals with new toxicity classifications (high, moderate, low), those having a new basis for the numerical toxicity guidance value (i.e., new toxicity data, refined data treatment, i.e. quantitative risk assessment vs. TLV/safety factor) and additional chemicals evaluated since the '85-86 edition. The purpose of this column is to make these data available for discussion and review. A public comment process will be announced at a later date in the NYS Environmental Notice Bulletin (ENB) to insure public input on these and future proposed changes to Air Guide-1. An ENB subscription blank is included at the rear of this document for your convenience.

The Regional Air Pollution Control Engineer (RAPCE) should use the AG-1 as a guide when making the permitting decisions. This guide presents a screening mechanism intended to assist the DEC engineer reviewing an application for an emission source in determining whether and under what control conditions a permit should be issued. The Ambient Guideline Concentrations listed, and those to be developed via the procedures described in this document are not standards and are intended only to aide the reviewer in judging what prudent choices should be made in assigning an environmental rating via 6 NYCRR Part 212 and determining what level of control is appropriate. Failure to meet an AGC on a screening basis does not necessarily mean that a permit should be denied.

In addition to reviewing control requirements under 6NYCRR Part 212, the Air Guide-1 screening methods may be used to assess other air contaminant sources which may cause contravention of ambient air quality standards and/or cause air pollution. This is in accordance with the concern for ambient air quality as expressed in 6NYCRR Parts 200 and 257. In such cases where contravention occurs, or may occur, the Commissioner may specify the degree and/or method of emission control required.

Ambient Guideline Concentrations

In previous AG-1 printings the term "AAL" or Acceptable Ambient Level was used to identify the guideline concentration. AGC, the Ambient Guideline Concentration, will be used for this and future editions of this guidance document.

It is DEC's intention to list in AG-1 an AGC value specifically developed for each chemical. Contaminant specific AGCs are determined by DEC and DOH toxicologists after analysis of all available data, using risk assessment technology suitable for the contaminant. These AGC values are identified by a (DEC) or (DOH) in the tables.

Given the vast numbers of chemicals in use in New York State, the

toxicity data available, and the lengthy process involved in developing each contaminant specific AGC, only a portion of the chemicals listed in AG-1 have contaminant specific AGCs. For the remaining chemicals, interim AGC values are derived by applying a conservancy factor to the more restrictive of the two most commonly accepted occupational exposure values. AGCs followed by (P) are based upon the 1989 federal Occupational Health and Safety Administration's Time Weighted Average Permissible Exposure Level standards (final rule limit OSHA TWA-PELs or PELs). Those identified by (T) are derived from the 1988-89 American Conference of Industrial Governmental Industrial Hygienists (ACGIH) Threshold Limit Value - Time Weighted Averages (TWA-TLVs, or TLVs).

This is done even though the ACGIH TLV booklet states:

> "These limits are intended for use in the practice of industrial hygiene as guidelines or recommendations in the control of potential health hazards and for no other use, e.g., in the evaluation of control of community air pollution nuisances, in estimating the toxic potential of continuous, uninterrupted exposures or other extended work periods, as proof or disproof of an existing disease or physical condition, or adoption by countries whose working conditions differ from those in the United States of American and where substances and processes differ. These limits are not fine lines between safe and dangerous concentration nor are they a relative index of toxicity, and should not be used by anyone untrained in the discipline of industrial hygiene.
>
> The Threshold Limit Values, as issued by ACGIH, are recommendations and should be used as guidelines for good practices. In spite of the fact that serious injury is not believed likely as a result of exposure to the threshold limit concentrations, the best practice is to maintain concentrations of all atmospheric contaminants as low as is practical."

Notwithstanding these ACGIH caveats, the TLV values are one of the most complete listings of quantified acceptable exposure levels available, and are thus considered by DEC to be a valuable tool. To address the concern about using TLVs for non-occupational exposures, DEC and DOH scientists have categorized chemicals into HIGH, MODERATE, or LOW toxicity classifications which are defined in Appendix B. These categories are based on the type of chronic and/or acute toxic effect of each chemical of concern. The conservancy factors used with the TLVs to calculate AGCs are a function of the chemical's toxicity classification.

The ACGIH concern that TLVs "not [be used as] fine lines between safe and dangerous concentrations" is addressed by the screening guideline nature of the Air Guide-1 document. The AGCs given are **guideline values** - not standards. Also, the meteorologic impact calculations of Appendix A, while conservative in nature, are mathematical estimates only, a factor contributing to the **guideline** status of the Air Guide-1 methodologies.

I. HIGH TOXICITY Air Contaminants

A. HIGH TOXICITY air contaminants are demonstrated or potential human carcinogens, and other substances posing a significant health risk to humans. When reviewing sources which emit HIGH TOXICITY contaminants, the following guidelines must be considered:

(1) The maximum annual average ambient concentration should not exceed the AGC as defined in paragraph (B) and;

(2) BACT (best available control technology) should be applied to sources emitting HIGH TOXICITY air contaminants as outlined in paragraph (C).

B. For any HIGH TOXICITY air contaminant that has (1) an applicable National or State Ambient Air Quality Standard (Table 1), or (2) specific National Emission Standards for Hazardous Air Pollutants (NESHAPS), (Table 1A), the applicable standard shall be used by the RAPCE. The ambient air quality impact should be verified as acceptable in relation to these standards, or applicable AGC, for any HIGH TOXICITY air contaminant.

An AGC is the contaminant concentration which is considered to be an acceptable average concentration at a receptor on an annual basis. These values are developed as guidelines to safeguard receptors against potential chronic effects resulting from continuing exposures.

Chemicals classified HIGH TOXICITY by DEC and/or DOH toxicologists have AGCs listed in Table II. Chemicals for which complete toxicity analyses have been done have contaminant specific AGCs listed. These are identified by a (DEC) or (DOH) after the value in the Table. For chemicals not yet evaluated, an interim AGC (denoted by either (P) or (T) in Table II) is determined by multiplying either the current Occupational Health and Safety Administration Time Weighted Average Permissible Exposure Level (OSHA TWA-PEL) or American Conference of Governmental Industrial Hygienists (ACGIH) time weighted average threshold level value (TWA-TLV) for the contaminant by the factor (1/300). If there is no current OSHA TWA-PEL or ACGIH TWA-TLV, or if the standard or AGC is not met when BACT is applied, the RAPCE should consult with the Toxics Management Section for further guidance as indicated in Figure 1, Decision Process.

"Proposed AGCs" based upon occupational values [(T) or (P)] have a different conservancy factor. Instead of the 1/300 factor based on extending an 8 hour a day, 5 day a week occupational guideline to a 24 hour a day basis, a 1/420 factor is utilized. This 1/420 factor accommodates the additional exposure associated with breathing ambient air during a full 7 day calendar week.

C. Any chemical designated as a HIGH TOXICITY air contaminant (Table II) by the New York State Department of Environmental Conservation (DEC), and the Department of Health (DOH), and not otherwise regulated for specific processes under 40 CFR 61, the National Emission Standards for Hazardous Air Pollutants (NESHAPS), or 40 CFR 761, the Toxic Substance Control Act (TSCA) must be assigned an "A" environmental rating and BACT shall be required for the source. The RAPCE is advised to consult with the Bureau of Source Control for further guidance in those cases where BACT results in less than 99% control.

D. If the emission rate potential (ERP) for any HIGH TOXICITY air contaminant is less than 1.0 lb/hr (without air cleaning), the RAPCE has an option of waiving BACT and setting other control requirements (including no control) provided the impact calculated from the source's actual emission rate yields a predicted ambient concentration at any off-site receptor which does not exceed the applicable ambient standard or AGC. If the RAPCE determines that the standard or AGC will not be met, the procedure outlined in paragraphs A through C above should be followed.

E. **The following special condition must be included on each Certificate to Operate for sources emitting HIGH TOXICITY contaminants:** "Should significant new scientific evidence from a recognized institution result in a decision by DEC that lower ambient guideline concentrations must be established, it may be necessary to reduce emissions from this source prior to the expiration of this Certificate to Operate".

II. MODERATE and LOW TOXICITY Air Contaminants

A. When a National or State Ambient Air Quality Standard (Table 1), or chemical specific AGC approved by the Division of Air exists for MODERATE or LOW TOXICITY air contaminants, it shall be used by the RAPCE.

B. Whenever an ambient standard or chemical specific AGC does not exist, the RAPCE should establish an appropriate environmental rating, in accordance with Part 212, which would specify a degree of control or emission level sufficient to yield a predicted ambient concentration at any off-site receptor not exceeding the derived AGC. This AGC is calculated according to the following guidelines:

(1) MODERATE TOXICITY air contaminants - These contaminants (Table III) are animal carcinogens, mutagens, teratogens or other substances posing a health risk to humans. (PEL or TLV)/300 is used to determine the interim AGC. "Proposed AGCs" use the 1/420 factor.

(2) LOW TOXICITY air contaminants - These contaminants (Table IV) are of primary concern as irritants and have not been confirmed as carcinogens, mutagens or teratogens in animal tests. (PEL or TLV)/50 is used to determine the interim AGC.

To be consistent with the change from the 1/300 to 1/420 factor used for HIGH and MODERATE TOXICITY occupational value based proposed AGCs, a 1/42 conservancy factor is used for LOW TOXICITY AGC listings in the "proposed" column.

C. Part 212 "D" Ratings should be given only when;

(1) The contaminant requires no control to meet an ambient standard or AGC, and

(2) The contaminant is a "Simple Asphyxiant" as listed in Appendix D of the ACGIH TLV booklet, or a chemical with similar properties. See both page 45 and the discussion on page 8 of the ACGIH TLV booklet for information on "Simple Asphyxiants".

III. Guidance for All Contaminants

The RAPCE should contact the Toxics Management Section, in accordance with the Decision Process in Figure 1, when:

A. There is no TLV, PEL, or AGC for a HIGH TOXICITY Contaminant, or

B. There is no TLV, PEL, or AGC for MODERATE or LOW TOXICITY Contaminants and the calculated ambient contaminant impact is greater than the de minimis guideline AGC of 0.03 ug/m^3*, or

C. The AGC is not met.

When no AGC, TLV, PEL or Toxicity Classification is available, it is the source owner's responsibility to provide enough toxicity data to allow an adequate permit review. At times, the timely receipt of this data and the appropriate DEC Central Office toxics policy guidance may not conform to Uniform Procedures Act (UPA) deadlines. When this situation arises, the permit may be issued for one year, if:

1. The RAPCE is reasonably assured that the toxicity data needed for a complete review will be forthcoming, the de minimis value is not exceeded, and

2. The DEC Toxic Management Section has confirmed through a "quick review," by the DEC toxicologist that the chemical is not likely to be classified a HIGH TOXICITY contaminant.

*This interim de minimis AGC is recommended as a screening criterion for MODERATE and LOW TOXICITY contaminants without other occupational based guidance until a contaminant specific AGC is established for each chemical.

While these conditions should allow RAPCE's to meet UPA deadlines without unnecessarily denying air emission permits, they are not meant to replace the usual review procedure. They are intended to serve as interim actions until a complete review can be accomplished.

IV. Exceptions

A. There may be times when the above methods might result in an ambient concentration which would be greater than the odor threshold for a contaminant. In these instances, the RAPCE should determine if the potential for a significant nuisance exists. If this is the case, the lower odor threshold value should be employed as a screening criterion. Consult the Toxics Management Section, (518)457-7688, for additional guidance, if necessary.

B. When a RAPCE encounters a situation not covered by this guideline or requiring special conditions, the Toxics Management Section should be consulted.

C. Any substance emitted from a source which is subject to 40 CFR 61 (NESHAPS) will be controlled solely under this federal regulation. Table IA lists the contaminants so affected.

V. Basic Considerations and Comments

A. The AGCs listed in this guideline are to be considered incremental concentrations above the non-industrial background levels which currently exist for the respective substances. **The influences of multiple emission points at one facility and the additional contributions from other facilities in the vicinity (approximately three miles) should be included in this evaluation** according to the guidelines of Appendix A. See page 24.

To determine background levels, ambient measurements can be made at reasonable distances from known sources. These background concentrations would include emissions which may occur from homes, other local non-industrial sources, from mobile sources, and from naturally occurring sources.

B. AGCs for toxic air contaminants are continually being developed by the Division of Air Resources, New York State Department of Environmental Conservation (DEC), and the Bureau of Toxic Substances Assessment, New York State Department of Health (DOH), on a case by case basis. It is intended that Tables I, IA, II, III, and IV be updated annually.

C. As a general rule, control requirements for HIGH TOXICITY air contaminants will be more restrictive than those developed for MODERATE and LOW TOXICITY air contaminants.

D. Best Available Control Technology (BACT) may not always be sufficient to meet the AGC. In these cases, the matter should be reviewed in detail with the Toxics Management Section as noted in I, B, page 4.

E. The AGCs referred to in this guideline are annual average ambient concentrations that should not be exceeded for any off-site receptor. CO and PC applications for emission points with any chemicals listed in AG-1, the OSHA PEL or ACGIH TLV booklets should be screened by the RAPCE by using the stepwise evaluation of toxic contaminants procedure found in Appendix A of this Guideline, "Ambient Air Quality Impact Screening Analysis". The RAPCE is advised to consult with the Bureau of Impact Analysis and Meteorology (BIAM) for guidance in applying Appendix A when questions on meteorology arise.

F. For a chemical which has an assigned ACGIH TWA-TLV, or OSHA PEL but is not listed in Air Guide-1, an assumption should be made that the chemical is of MODERATE TOXICITY. The methodology of section II, page 5, should be used to evaluate its impact on receptors.

Exception: Chemicals listed in ACGIH TLV book's Appendix A "Carcinogens" may pose a potential risk to humans and may be classifiable as HIGH TOXICITY contaminants. The Toxic Management Section should be consulted for guidance for these chemicals.

G. When no OSHA PELs or ACGIH TWA-TLVs exist, Chemical Specific AGCs will be developed on a case by case basis for;

(1) Chemicals which meet Appendix B's HIGH TOXICITY criteria, and
(2) MODERATE and LOW TOXICITY contaminants whose impacts exceed the de minimis value of 0.03 ug/m^3.

These chemical specific AGCs will be developed by DOH or DEC toxicologists, with appropriate peer review, under the administrative aegis of the Bureau of Air Toxics.

H. SHORT TERM IMPACT: The fifteen minute ambient average concentration for a contaminant should not exceed the Occupational Value (ACGIH TWA-TLV, or OSHA TWA-PEL) at an off-site receptor. Judgment should be used by the RAPCE in evaluating the degree that the concentration exceeds the occupational value, frequency of occurrence, and receptor location when applying this guidance. Please note footnote in tables for ACGIH "C" (ceiling) listed contaminants.

I. The following sampling procedures are suggested for use by the RAPCE to assure consistency with the intent of this policy. The choice of monitoring methods depend on the magnitude of the source, potential exposure of receptor and frequency of emissions from the source.

(1) Monitoring by the source owner or his authorized agent:
   a. Stack testing and site specific air quality impact analyses (compliance).
   b. Ambient sampling at off-site receptors.
   c. Combination of (a) and (b).

(2) Selected sampling by appropriate DEC staff:
   a. Stack testing (surveillance).
   b. Ambient sampling (short-term).

J. For purposes of 6NYCRR Part 201.6(j)1, carcinogenic contaminants consist of the Table II HIGH TOXICITY Contaminants and chemicals listed in Appendix A of the ACGIH TLV booklet.

If you have any questions, please communicate directly with:

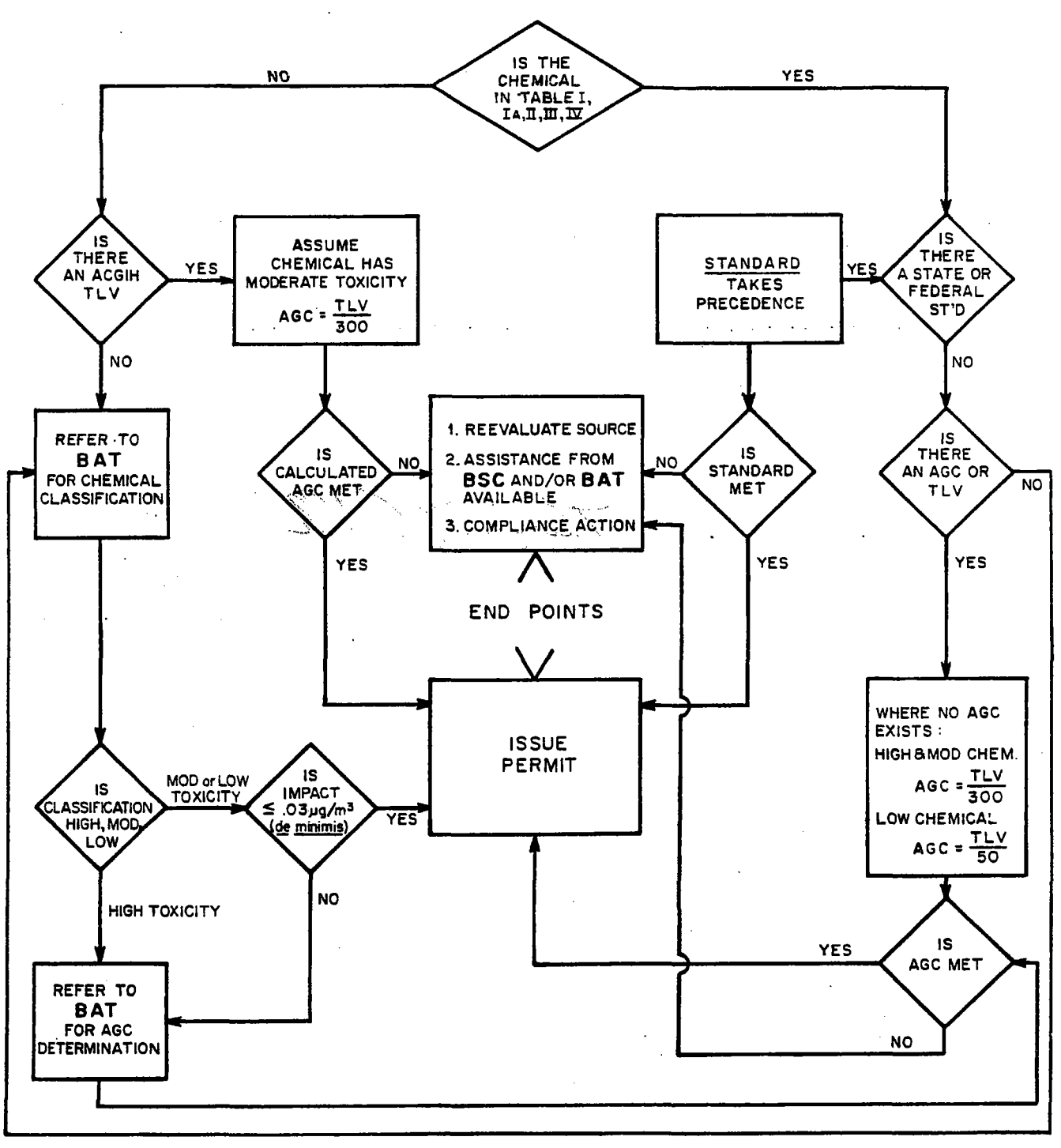
Mr. Edward Anna
Mr. Stanley Byer
Mr. Matthew Reis
Bureau of Air Toxics, Toxics Management Section,
(518) 457-7688

APPROVED,

Thomas M. Allen, P.E.
Director
Division of Air Resources

FIGURE I

Figure I DECISION PROCESS



BAT = BUREAU OF AIR TOXICS
BSC = BUREAU OF SOURCE CONTROL

FIGURE II

CONVERSION FACTORS, et cetera

To Convert From	To	Multiply By
Pounds	Grams	453.6
Pounds	Grains	7000.
lbs/hr	ug/sec	126000.
lbs/ft^3	mg/m^3	1.602×10^7
lb/ft^3	ug/m^3	1.602×10^{10}
Feet	Meters	0.3048
$Feet^3$	$Meters^3$	0.0283

$^{o}C = 5/9\ (^{o}F - 32)$

$K = {}^{o}C + 273.16$

$R = {}^{o}F + 460$

$1\ ppm = \frac{(Molecular\ Weight)}{24.45}\ mg/m^3$

$1\ ppb = \frac{(Molecular\ Weight)}{24.45}\ ug/m^3$

$1\ mg/m^3 = \frac{(24.45)}{(Molecular\ Weight)}\ ppm$

$1\ ug/m^3 = \frac{(24.45)}{(Molecular\ Weight)}\ ppb$

$1\ pg = 10^{-12}$ grams

$1\ ng = 10^{-9}$ grams

$1\ ug = 10^{-6}$ grams

$1\ mg = 10^{-3}$ grams

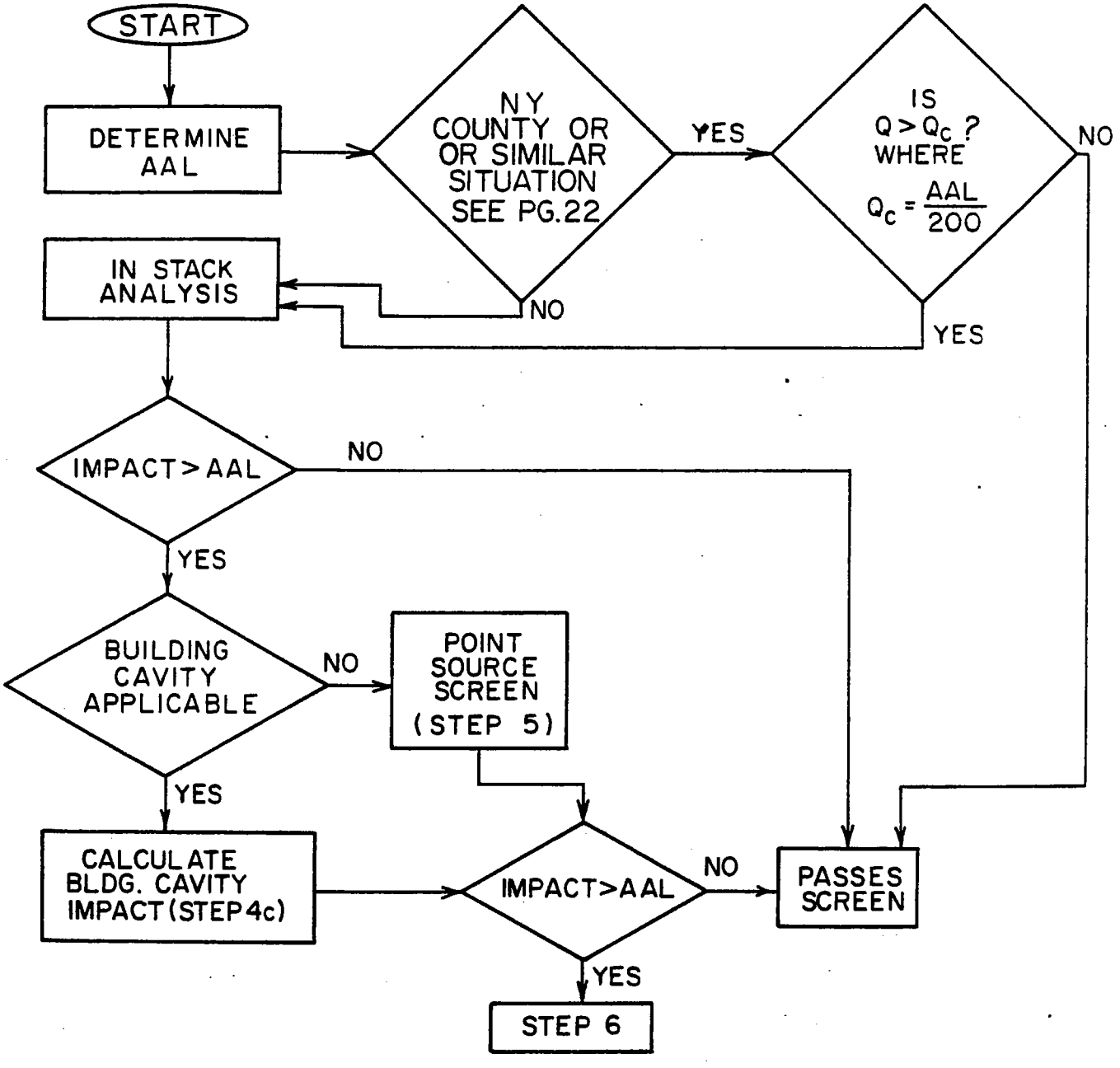
FIGURE III

GLOSSARY

Nonmenclature and Variables in Appendix A: Variable	English Units	Box (English Units) Air 76-19-3	ERIC
h_b = Building Height	feet	-	-
h_c = Cavity Height (of Bldg.)	feet	-	-
h_s = Stack Height	feet	Box 32	Box 42
h_e = Effective Stack Height	feet	-	-
Q = Emission Rate	lbs/hr	Box 59	Box 87
L_{max} = Maximum Horizontal Dimension	feet	-	-
F_m = Momentum Flux	ft^4/sec^2	-	-
T = Exit Temperature	°Rankine	Box 34 +460°	Box 53 +460°
V = Exit Velocity	ft/sec	Box 35	Box 43
R = Stack Outlet Diameter	inches	(Box 33) 24	(Box 52) 24
C_a = Annual Impact Concentration	ug/m^3	-	-
F = Buoyancy Flux Parameter	ft^4/sec^3	-	-
ACFM = Actual Volume Rate of Exhaust Gas	ft^3/min	Box 36	Box 48

FIGURE IV

IMPACT CALCULATION FLOWSHEET



APPENDIX A

SCREENING ANALYSIS OF AMBIENT AIR QUALITY IMPACT

The stepwise procedures which follow provide a simple method of evaluating the impact of toxic contaminants on off-site receptors. The steps have been formulated to minimize the variables involved and require only information on facility emission parameters. Both point and area sources can be evaluated by the procedures.

The derivation of this method is contained in a paper entitled "Screening Procedures for Determining Ambient Impacts of Toxic Contaminants" by Leon Sedefian, Air Pollution Meteorologist IV of the DEC Bureau of Impact Assessment and Meteorology (518) 457-7450. The paper describes the assumptions and qualifications of the procedures. Section II, page 22, of this Appendix also briefly describes the assumptions and qualifications and should be reviewed prior to using the stepwise procedures.

I. STEPWISE EVALUATION OF TOXIC CONTAMINANTS

The procedures for point and area sources are described separately. The distinction of considering facility-wide emissions as point or area sources is source-receptor dependent. See subsection B (page 20), and point 8 of Section II (page 24) for general guidance on the definition of an area source. English engineering units must be consistent with the Glossary, Figure III, page 12.

A. Point Sources

1) Determine the toxicity classification and the corresponding AGC of the contaminant under consideration.

2) Does source and environs meet the "New York County" criteria? That is, are there both elevated receptors and elevated and/or multiple sources. ("Elevated" here means 10 m (33 ft) or greater; "multiple" means four or more)

   If so, do "3) New York County" test on page 22. If not, continue with next step below.

3) Using source parameters (i.e. volumetric flow rate and emission rate) determine the in-stack concentration. Divide the latter by 100 and compare to the AGC. If the AGC is not exceeded then no further analysis is required. If the AGC is exceeded then proceed to Step 4.

4) Cavity Impact Consideration - In some instances pollutants released from stacks and vents can be entrained into the cavity developed downwind of the building. **If the cavity region extends beyond the plant property line, as defined below, the enhanced impact may be significant.** The following procedures should be used to determine if cavity impacts need to be considered. If cavity impact is not

significant, the Standard Point Source Impact is calculated in Step 5.

a) Define the cavity height, h_c, as $h_c = 1.5\ h_b$, where h_b is the building height. If the release height (e.g. the physical stack height h_s) is greater than h_c no cavity impacts need be considered; skip to Step 5. If the release height is below h_c, continue with b).

b) Define the horizontal extent of the cavity as $3h_b$. If the plant property distance exceeds $3h_b$ in all directions from the source, the cavity impacts are confined to on-site receptors. If so, proceed to Step 5. If the cavity extends beyond the plant property line proceed to c) to calculate off-site impacts.

c) Calculate the worst case annual cavity impact, C_a, from the equation:

$$C_a(ug/m^3) = 47420 \quad Q/h_b^2$$

And where Q is the annual emission rate in lb/hr and h_b is in feet.

If C_a is less than the AGC, impact is not significant and no further analysis is required. If C_a exceeds the AGC, proceed to the next step which incorporates a consideration of horizontal building dimensions.

d) Determine the vertical and horizontal dimensions of the building from which emissions are released. If the building height, h_b, is less than <u>either</u> horizontal dimension, skip to Step f. Otherwise define the maximum cavity length as $3L_{max}$ where L_{max} is the maximum horizontal building dimension.

If the plant property encompasses this calculated horizontal cavity dimension ($3L_{max}$) in all directions, there are no significant cavity impacts, go to Step 5. However, if the cavity region extends beyond the plant property line go to the next step.

e) Define the maximum cavity height, h_c, for the case where h_b is greater than <u>both</u> horizontal building dimensions as
$h_c = h_b + 0.5L_{max}$ where L_{max} is defined in d) above.

If the actual release height, h_s, (e.g. physical stack height) is greater than this cavity height, then the cavity impacts are not significant, go to Step 5. If not, continue.

f) Plume Height with Momentum Flux (This method is valid for momentum plume rise from vertically oriented emission points - No capped stacks or "goose necks")

1. Calculate Momentum Flux (F_m) from:

$$F_m = \frac{T_a}{T} \cdot V^2 \cdot R^2$$

Where:	English Units
T = exit temperature	= °R from Box 34+460°R
V = exit velocity	= ft/sec from Box 35
R = stack outlet radius	= ft, (Box 33)/24
T_a = ambient temperature	= 510°R(general assumption)

2. Calculate Effective Stack Height (h_e).

$$h_e = h_s + 0.25\ (F_m \cdot h_b)^{1/3}$$

If h_e is greater than h_c from Step e), the plume is assumed to escape the cavity region, proceed to Step 5. Otherwise, calculate the cavity concentrations in step g) below.

g) Calculate the worst case annual cavity concentration impact from the equation:

$$C_a(ug/m^3) = \frac{47420 \cdot Q}{A}$$

where:

Q = annual emission rate in lb/hr, (Box 65)
A = is the minimum vertical cross-sectional building area (ft^2) for any wind direction. i.e., $A = h_b \times L_{min}$, where L_{min} is the smaller of the horizontal building dimensions. If L_{min} exceeds $5h_b$ then set $A = 5h_b^2$ in the above equation.

h) If the cavity concentration is greater than the AGC, site specific factors such as receptor orientation must next be accounted for to confirm significance of potential impact. Consult the Impact Analysis Section at (518)457-7450 for assistance.

5) Standard Point Source Impact Calculation Methods - Two stepwise procedures are presented below to determine worst case annual concentrations from point sources. The first method uses equations and a figure for engineering parameters in English units. The second, alternate

procedure is a graphical solution of the first, also using parameters in English engineering units. The latter was formulated by DEC Region 9 personnel for use with AIR-76-19-3 forms. Both procedures are simple and are presented for the choice of the user.

a) Computational Procedure - As a conservative and simple initial approximation of impact you may go directly to Step 4 below and assume that the effective stack height (h_e) is equal to the height of release (e.g. the physical stack height). If the estimated concentration exceeds the AGC then return to step 1 to account for effects of possible plume rise.

1. Determine if plume rise should be considered for a source by taking the ratio of stack height, h_s, to building height, h_b. If h_s/h_b is less than 2 set the effective stack height (h_e) equal to h_s. Also, if the emissions are from vents or from sides of buildings, set h_e equal to the physical height of emissions. In all cases where h_e is limited to the physical height of emissions skip to Step 4, using $h_e = h_s$. Otherwise proceed to the next step.

2. Determine the buoyancy flux parameter (F) from:

$$F = 0.276 \quad \frac{VR^2 \ (T-510)}{T}$$

where V, R and T are in English units as defined in Step 4f, page 16.

3. Calculate the effective stack height in feet from:

$$h_e = h_s + 7.0(F)^{3/4} \quad \text{for } F < 55$$

or

$$h_e = h_s + 12.7(F)^{3/5} \quad \text{for } F \geq 55$$

where h_s is in feet

4. Determine the annual source emission rate (Q) in lb/hr from available permit forms or stack monitored data.

5. Using the h_e value from Step 3 determine the corresponding annual concentration (C_{a1}) from Figure V, page 26. As this value is on a 1 lb/hr emission basis, multiply by Q to arrive at the annual impact for the source.

$$C_a = C_{a1} \cdot Q$$

6. If C_a exceeds the AGC for the contaminant then more refined modeling should be performed as noted in Step 6 below.

b) Alternate Graphical Procedure Using Air-76-19-3 Form Data

As an alternate to method a) above, the Region 9 DEC staff has developed a graphical solution to determine standard point source impacts using data from the Process Exhaust or Ventilation System PC/CO application form (AIR 76-19-3), and two nomographs.

Nomenclature:

ACFM - (ft^3/minute) from Air 76-19-3, Box 36.

EXIT TEMP - (°F) from Air 76-19-3, Box 34

C_T - Correction for temperature from Table on Figure VI, page 27.

Q - Actual Emissions Rate (lb/hr) after air cleaning - from Air 76-19-3, Box 65.

F-line - buoyancy line on Figure VI for plume rise (P_R) determination.

P_R - plume rise in feet. Right ordinate value on Figure VI. P_R is determined by using ACFM, C_T, and F-line on Figure VI.

h_s - physical stack height above ground, in feet, from Air 76-19-3, Box 32.

H_b - height of building, in feet, from Air 76-19-3, Box 32 minus (-) Box 31.

h_e - effective stack height, in feet, where:

$h_e = h_s + P_r$; if $h_s/h_b \leq 2.0$ let $P_R = 0$

C_a - worst case annual impact at ground level in ug/m^3 for comparison to AGC.

i) Estimate the annual impact, C_a, assuming no plume rise, i.e., set $h_e = h_s$. Use Figure VII, page 28.

(a) Read h_s from box 32 of Air 76-19-3 and set h_e equal to this value.

(b) Locate this value on the left ordinate of Figure VII.

(c) Read Q (lbs/hr) from box 65 of Air 76-19-3 and locate Q on abcissa.

(d) The intersection of h_e and Q on Figure VII (interpolate) gives C_a in ug/m^3 for direct comparison to AGC. If AGC is exceeded and Step (ii) does not apply, skip to Step 5 below, if not, continue.

(ii) Estimate C_a with plume rise. Use Figures VI and VII. Use only for cases where:

$$\frac{h_s}{h_b} \geq 2.0, \text{ if not, go to Step 6}$$

(a) Read EXIT TEMP (°F) from box 34 of Air 76-19-3 and locate in Table on Figure VI.

(b) Read C_T value corresponding to EXIT TEMP from this table and locate C_T on Figure 2 along <u>top</u> abcissa.

(c) Read ACFM from box 36 of Air 76-19-3 and locate ACFM value on Figure VI <u>left</u> ordinate.

(d) Locate on Figure VI the intersection of ACFM and C_T lines and go <u>Vertically Down</u> to <u>F-line</u> on graph.

(e) From F-line go <u>horizontally</u> to <u>Right</u> and read P_R in feet on the right ordinate scale.

(f) Add $P_R + h_s$ (from box 32 of Air 76-19-3) to get h_e.

(g) Locate h_e value on Figure VII ordinate.

(h) Read Q (lbs/hr) from box 65 of Air 76-19-3 and locate Q value on Figure VII abcissa.

(i) Intersection of h_e and Q above yields C_a in ug/m^3 for direct comparison with AGC.

(j) If C_a exceeds the AGC then go to Step 6.

6) Using Refined Models: Site specific modeling involves the use of an EPA recommended model such as the Climatological Dispersion Model (CDM) or the Industrial Source Complex (ISC) model (long term version). This modeling is normally requested from the source owner with the Impact Analysis Section or the Region confirming the estimates. If the results of this modeling are still unacceptable a more refined modeling should be considered which uses hourly meteorological data. The recommended model for general use is the ISC short term model unless terrain considerations are critical. The Impact Analysis Section (518)457-7450 should be consulted as to the procedures to be used in complex terrain.

7) In some instances an estimate of 15 minute (or other short term) impact may be required. To estimate short term impacts the DEC DM03 or DM04 (for building downwash effects) models should be used with the maximum expected emission rates.

B) Area Sources

The following procedures to estimate annual impacts from area sources will perform better the closer the source characteristics and assumptions approximate the conditions described below. The procedures are applicable to such sources as waste disposal sites, fugitive and primary pollutant facility-wide emissions and urban area sources. The contribution from nearby area sources can be calculated by method. Only sources located within a distance of 3S (S is the length of a side of the area source) from the source being analyzed need be considered as described in step 4 below. The method can calculate impacts at receptor distances from the source boundary to a distance of 2.5S from the area source. This range encompasses practically all cases of interest.

The procedures will perform best under the following conditions:

a) When the emissions in the area source are relatively uniformly distributed with variations not exceeding 25%.

b) When the area source is square with the emissions effectively at ground level (i.e. less than 10 feet in height).

c) When the length of a side (S) of the area source is typically 3300 feet or greater. Smaller areas can be modeled but the minimum side length should be approximately 350 feet.

d) When the emissions are continuous and not a function of meteorological conditions. (See point 9 of Section II, page 24)

The stepwise procedure is as follows:

1) Determine the area source emission rate (Q_A) in units of lb/(hr-ft^2) by dividing the total area-wide emissions rate (lb/hr) by the area (ft^2) of the source. Multiply this by 1.355×10^6, i.e.

$$Q_A \quad \frac{\text{lb}}{\text{hr-ft}^2} = \frac{\text{(emission rate)}}{\text{(area)}}$$

2) The annual concentration <u>within</u> the area source is defined as:

$$C_a(\text{ug/m}^3) = K \cdot Q_A \cdot C_m$$

where: $K = 15$ for $330 \text{ ft} \leq S < 3300 \text{ ft}$
$K = 30$ for $S \geq 3300 \text{ ft}$
$C_m = 1.355 \times 10^6$, a conversion factor from lb/(hr-ft^2) to ug/m^2-sec).

If C_a is less than the AGC, then stop, source impact is not significant. If not, and the receptors are not within the area source, go to step 3.

3) If the receptors are located from one to 2.5 times away, divide the concentration calculated in step 2 by the following factors:

Receptor Downwind Distance	S	1.5S	2S	2.5S
Concentration Reduction Factor	7	20	25	35

4) If there are other area sources within 3S distance from the source being considered, (ideally contiguous to the source being analyzed) then the contribution of these sources can be determined by redefining Q_A in step 1 (lb/(hr-ft^2) as:

$$Q_A = (Q_{A0} + .32Q_{A1} + .18Q_{A2} + .13Q_{A3})$$

where Q_{A0} represents the emissions from the source under consideration and Q_{A1} to Q_{A3} represent emissions from sources (if they exist) which are at upwind distances of 1S, 2S, and 3S, respectively, from the Q_{A0} source. It must be noted that the nearby sources are assumed to have about the same size as the source under consideration.

5) If the concentration is above the AGC, a site specific analysis should be performed. Consult Impact Analysis Section personnel (518/457-7450).

II. ASSUMPTIONS, QUALIFICATIONS AND FURTHER CONSIDERATIONS CONCERNING APPENDIX A

The derivation of the screening method is presented in Section III of the Sedefian paper. It should be reviewed to understand the assumptions and qualifications associated with the stepwise procedures. Some of the more commonly noted considerations are briefly discussed below:

1) Building Downwash - No Plume Rise

The assumption of $h_e = h_s$ for vents or short stack sources (Section I.A.5.a.1 page 17) is a rough approximation for simulating building wake effects. For the most part, it results in conservative impacts. A refined and more complex analysis would involve the use of the Industrial Source Complex model which accounts for specific source-receptor wake effects. The application of the ISC model requires the use of representative meteorological data.

2) Receptor Distance and Location

The concentrations obtained by the standard point source method (Section I.A.5., page 16) are valid for downwind distances greater than about 330 feet (100 meters) from a source and represent the maximum annual impacts at any receptor location.

3) "New York County" Source Impacts: Elevated Receptors AND Elevated and/or Multiple Sources.

For the County of New York - Manhattan and similar urban areas characterized by elevated (>33ft) receptors and elevated and/or multiple sources (4 or more) - the point source procedures on page 16 at step 5 are not appropriate due to the constraints imposed by the possibility of large numbers of sources and receptors being located in a small geographical area. A simple method to determine the acceptability of a source's impact is to compare the emission rate of the source (in lb/hr) to Q_c where Q_c = AGC/200 and the AGC is defined in ug/m^3 for the pollutant. If the emission rate is less than Q_c then the impact of the source is acceptable as long as the size of the source is not considerably larger than the typical sources noted below. If the emission rate exceeds Q_c then continue at step 3 on page 14.

The above method is derived from the analysis performed for the quantification of lead level in waste oil as discussed in the report "Determination of Acceptable Lead and Chlorine Content Limits for Waste Oil Based on Modeled Impact Results," of 12/7/82 by L. Sedefian. This analysis indicates that the NAAQS for lead of 1.5 ug/m^3 will be met by a multitude of typical sources of 1 to 10 MMBtu/hr, with average burning rate of 40 gal/hr, as long as the lead content of the waste fuel is below 25 ppm. The latter corresponds to an uncontrolled emission rate of .008 lb/hr. The above equation then simply results from the ratios of emission rates and AGC's of lead or any other pollutant. It should be used for sources not larger than the typical sources just noted, which correspond to large apartment or commercial building boilers in New York County.

4) Use of Monitored Data

In situations where valid and adequate ambient monitored data are available they should be used in addition to model estimates. In most instances the monitoring information is not of sufficient duration to be representative of long term averages (it usually represents few hourly or daily averages). If this monitored data exceeds the AGC, a worst case annual impact (C_a) can be estimated from $C_a = C_{st}/10$, where C_{st} is the maximum short term concentration observed during worst case conditions of operations and meteorology. If C_a exceeds the AGC then the Impact Analysis personnel should be contacted for possible inclusion of site-specific considerations.

5) Short Term Impacts

As stated in H. on page 8, the fifteen minute ambient average concentration for a contaminant should not exceed the listed "Occupational Value" at an off-site receptor. Consult with BIAM (518-457-7450) for specific short-term modeling guidance.

Due to the nature of the definition of an AGC, the Appendix A screening procedures emphasize the average annual impacts and not short term effects. However, it should be noted that for the most part the procedures indirectly provide for a margin of protection against adverse short term impacts. This is based on the consideration that if annual impacts are less than 1/300 of the occupational exposure value (for high and moderate toxicity contaminants), then the short term impacts will most likely be less than the occupational value. The latter conclusion is supported by comparison of refined model estimates of maximum 1 hour to annual concentrations where the ratio of 1 hour to annual impacts rarely exceeds 300. The "Proposed AGC" values, derived by applying a 1/420 conservancy factor to the occupational values, increase this protective margin somewhat by virtue of the more restrictive safety factor.

For low toxicity contaminants it does not always follow that the short term impact will meet the occupational value if the annual impact is less than 1/50 of that value. Thus, a model estimate is appropriate to define worst case short term

impacts. It should be noted that a review of monitoring data from various sites in the state (including isolated as well as multiple sources), indicate that even the 1/50 factor could be adequate in protecting against adverse short term impacts if the annual estimates meet the AGC. "Proposed AGCs" for low toxicity contaminants employ a 1/42 conservancy factor. Consult with Air Toxics Management 518-457-7688 concerning short-term impacts of these contaminants.

6) Source Heights Below 33 Feet (10m)
The smallest effective stack height (h_e) for which Figure 1 was developed is 33 feet (10 meters). The graph can be extrapolated to h_e values below this, but care must be exercised in interpreting the resultant impacts. At stack heights lower that 33 feet this method will tend to overestimate impacts (dotted line), yielding very conservative results. Also, for these small h_e values the maximum impact will most likely occur within the 330 feet downwind distance noted in point (2) above which may be on plant property. In that situation, it may be prudent to assume h_e = 33, which yields a concentration (dashed line) which is useful in the estimation of off-site impacts.

7) Area Source Versus Multiple Point Sources
The decision between treating multiple emissions as point or area sources is dependent on specific source-receptor considerations. In general, if: (a) the emissions are from elevated sources, i.e. greater than 65 feet and/or (b) emissions are over small areas, i.e. a single building of less than 330 feet horizontal length, and (c) the receptors of interest are at a downwind distance greater than the size of the area of the emissions, then multiple point source representation is more applicable. However, in these instances the simpler area source method can still be used recognizing that the resultant impacts will be overly conservative relative to the refined multiple point source modeling.

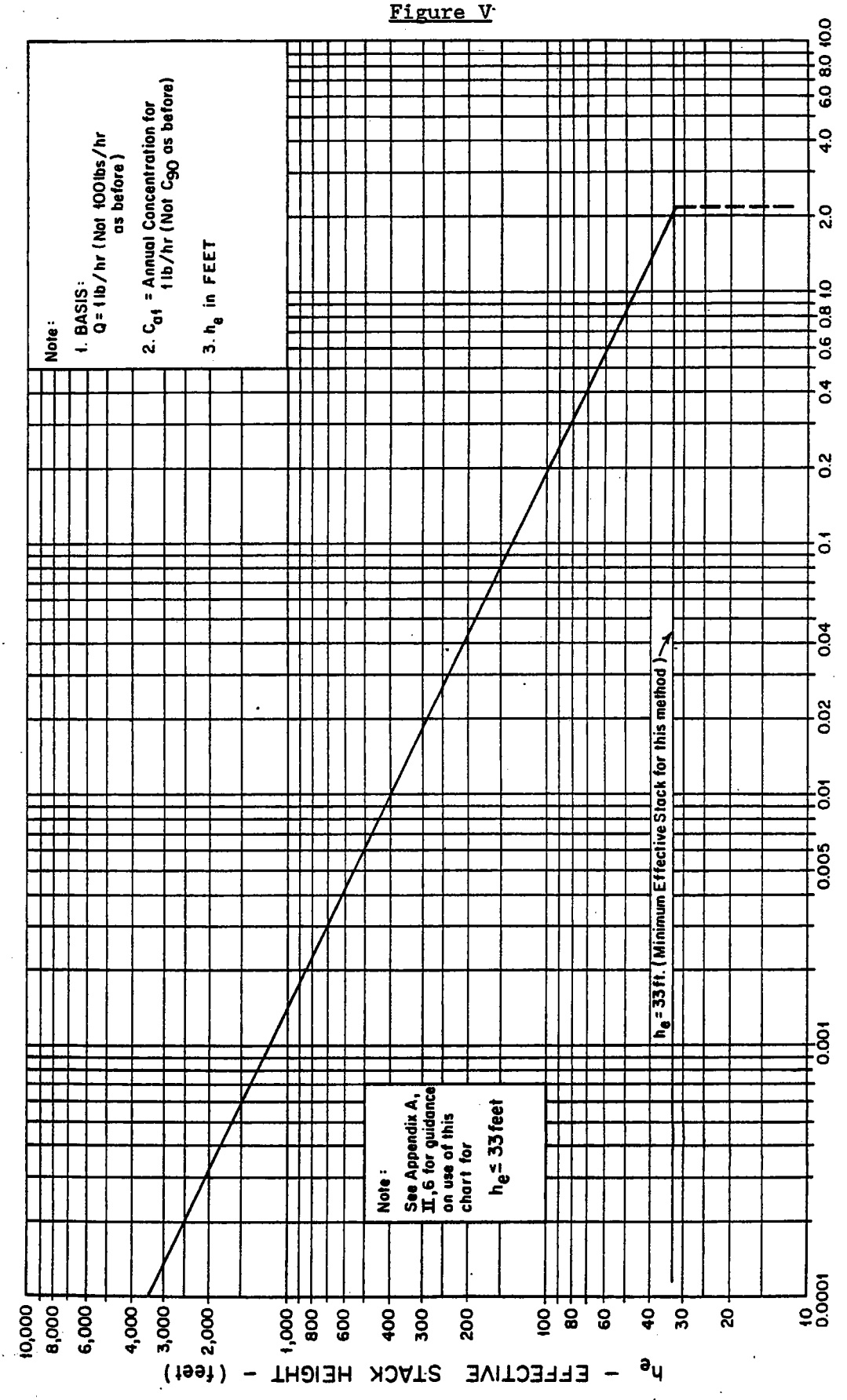
8) Multiple Point Source Impacts
A first step in the determination of multiple point source impacts is the application of the single point source screening steps to each source and the subsequent summation of all maximum impacts. For situations where the multiple sources are within the same facility and there are sources of similar emission parameters, these sources can be represented by a single point source with the combined emission rate representing Q in Section I.5)a.4, page 17. If the multiple sources represent different facilities within the same geographical area, then the maximum combined impacts should be determined for sources only within about 3 miles of the main source being analyzed.

9) Atypical Emissions and Meteorology
The annual average impacts determined by the screening method are most appropriate for continuous emissions which are not solely dependent on specific meteorological parameters, such as

volatile emissions at a waste disposal site which are maximum under high ambient temperatures.

However, the screening method still will give conservative impacts under most non-standard emission conditions. In fact, for the above example the area source method will give conservative impacts since the K factor used in Section I.B.2, Page 21, would be lower for unstable atmospheric conditions which are associated with high ambient temperatures. In addition, near-field ground level source impacts are controlled by mechanical turbulence generated by the earth's surface. The area source method might not be conservative enough if emissions are controlled by stable nighttime (or other stably stratified) atmospheric conditions.

Figure V



C_{a1} - Annual Concentration versus h_e - Effective Stack Height

Figure VI

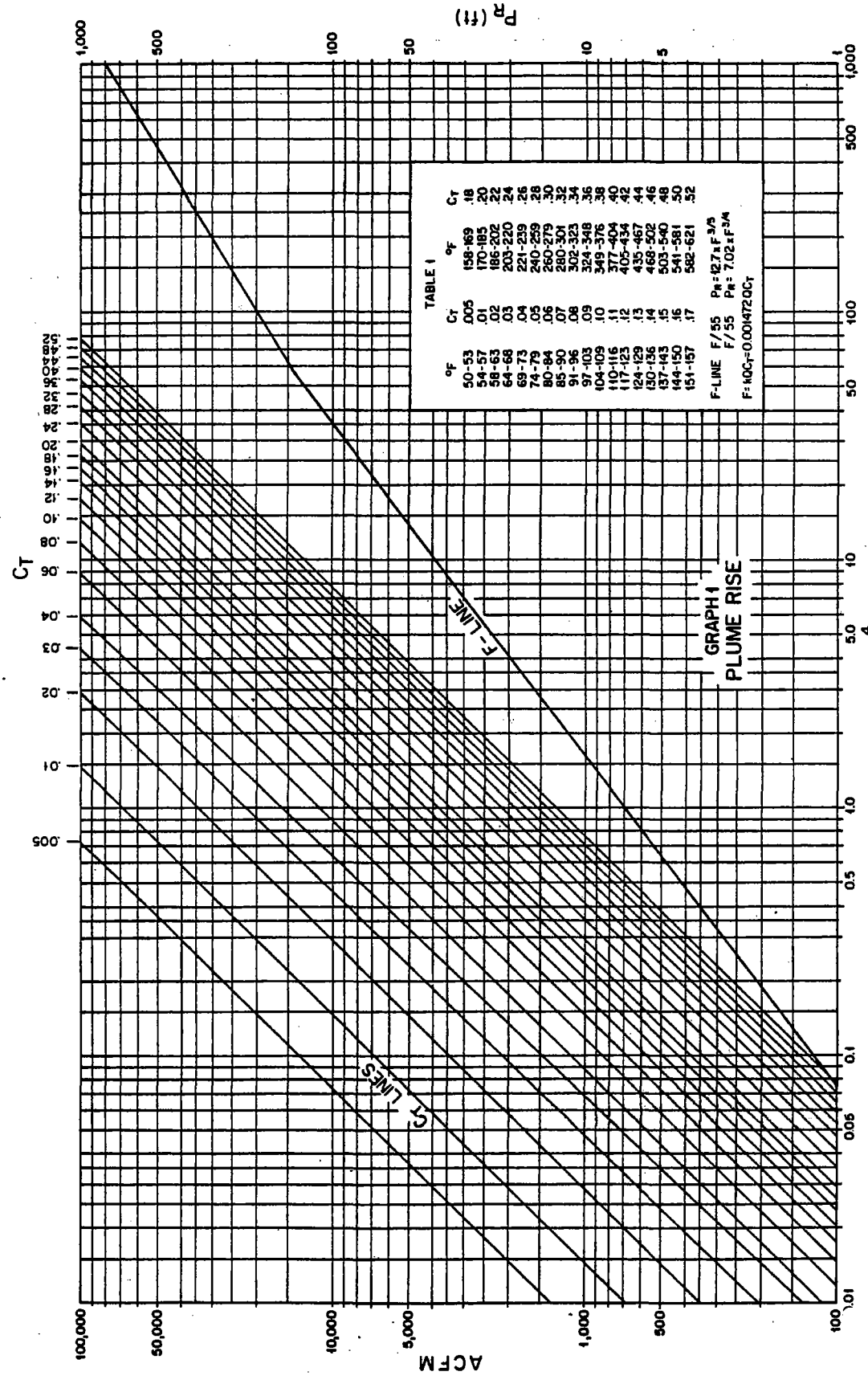
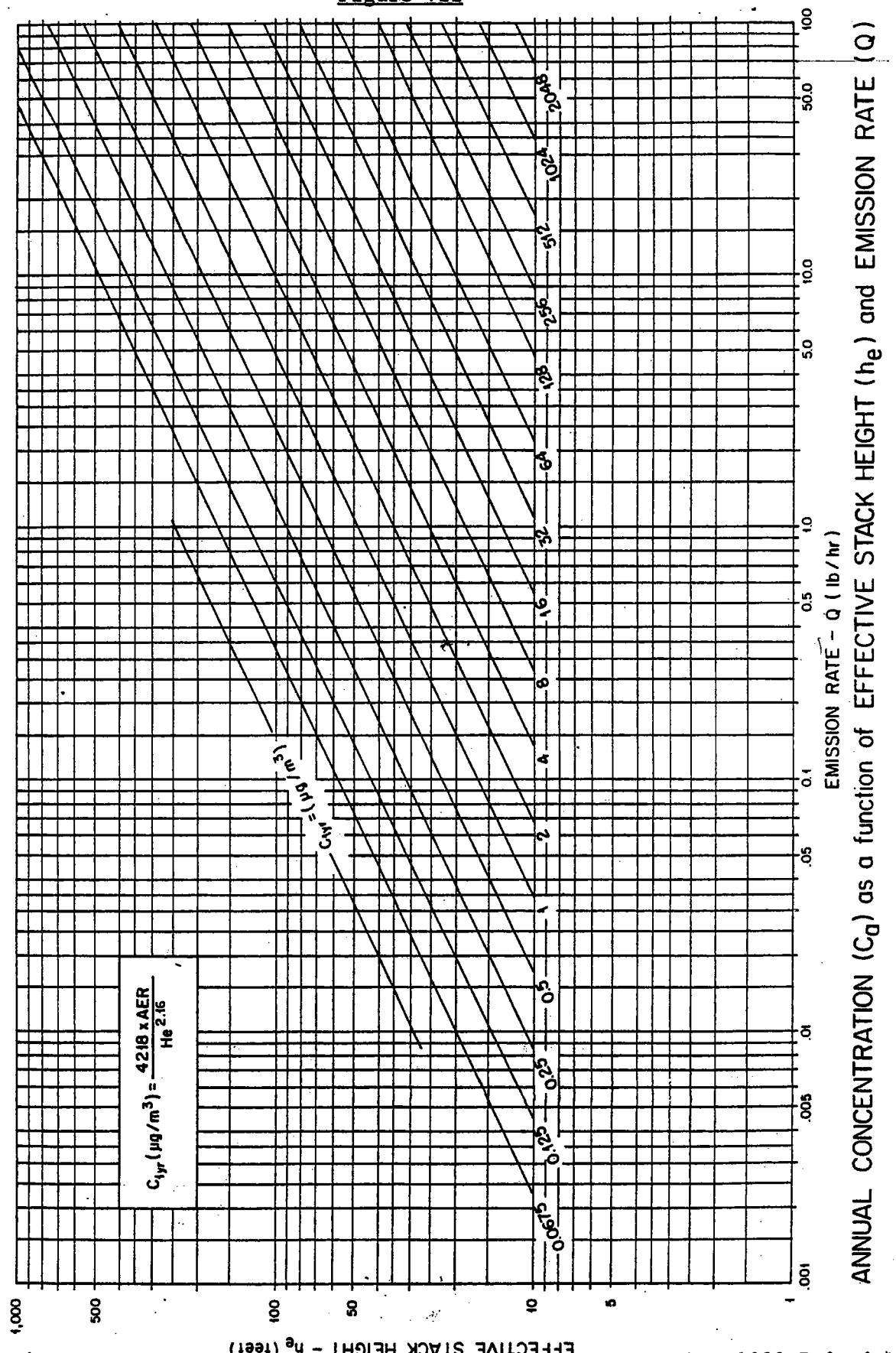


Figure VII



APPENDIX B

TOXICITY CLASSIFICATIONS

HIGH TOXICITY Air Contaminant

Definition: Human carcinogens and other substances posing a significant risk to humans.

Chemicals Assigned to HIGH TOXICITY List

1. Human carcinogens: Those chemicals for which the induction of cancer in humans has been demonstrated.

2. Potential human carcinogens: A chemical whose 1×10^{-6} lifetime risk (as calculated using GLOBAL 82)[1] corresponds to a daily dose of 0.12 ug or less. The required experimental evidence of carcinogenicity would be in: a) Two animal species; or, b) one animal species independently reproduced; or, c) one animal species supported by "short-term tests".

3. Other substances posing a significant risk: a) Those chemicals for which significant adverse effects have been observed in humans, particularly irreversible or progressive effects; or b) Those chemicals having an acute toxicity of:
   (a) LD_{50}(oral) is equal or less than 50 mg/kg.
   (b) LC_{50}(inhalation) is equal or less than 200 ppm.[2]
   (c) LD_{50}(dermal) is equal or less than 200 mg/kg.

MODERATE TOXICITY Air Contaminant

Definition: Animal carcinogens, mutagens, teratogens, and other substances posing a significant risk to humans.

Chemicals Assigned to MODERATE TOXICITY List

1. Animal carcinogens: Those chemicals for which carcinogenicity has been demonstrated in at least one species.

2. Mutagens: Those chemicals that induce mutagenic effects (transmissible changes) in "in-vivo" or "in-vitro" tests.

3. Teratogens: Those chemicals that cause non-transmissible birth defects.

[1]Howe, R. B. and Crump, K. S., 1982 "Global 82: A computer Program to Extrapolate Qualified Animal Toxicity Data to Low Doses", Science Research Systems, Ruston, LA.

[2]When administered by continuous inhalation exposure for ONE hour (or less if death occurs within one hour) Ref: "ANSI," American National Standards Institute, Z129.1 (1982).

4. Other substances posing a health risk to humans: a) Those chemicals that when inhaled have caused significant chronic adverse effects in test animals. In addition, they may be strong irritants to sensitive members of the population at concentrations equal to or below the TLV: or, b) Those chemicals having an acute toxicity of:
   (a) LD_{50}(oral) is greater than 50 mg/kg but less than 500 mg/kg.
   (b) LC_{50}(inhalation) is[2] greater than 200 ppm but less than 2000 ppm.
   (c) LD_{50}(dermal) is greater than 200 mg/kg but less than 1000 mg/kg.

LOW TOXICITY Air Contaminant

Definition: Those substances whose primary concern is as an irritant. No confirmed carcinogenicity in animals.

Chemicals Assigned to Low Toxicity List:

1. No confirmed carcinogenicity: Those chemicals that have not demonstrated carcinogenicity in test animals.

2. Irritants: Those chemicals that might cause mild irritation to sensitive members of the population at concentrations below the TLV, and have no evidence of adverse effects due to chronic exposure.

[2]By continuous inhalation exposure for one hour (or less if death occurs within one hour). Ref: See page 29.

TABLE I

SUMMARY OF FEDERAL AND STATE AMBIENT AIR STANDARDS

CONTAMINANT[1]	NEW YORK STATE STANDARDS					CORRESPONDING FEDERAL STANDARDS					
	Averaging Period	Level	Conc.	Units	Statistics[2]	PRIMARY Conc.	PRIMARY Units[5]	PRIMARY Stat.	SECONDARY Conc.	SECONDARY Units	SECONDARY Stat.
SULFUR DIOXIDE SO_2	12 Consecutive Months	ALL	0.03[3]	PPM	A.M.(Arith. Mean of 24 Hr. Avg. Conc.)	80	ug/m^3	A.M.			
	24-Hr.	ALL	0.14[4]	PPM	MAX.[2]	365	ug/m^3	MAX.[2]			
	3-Hr.	ALL	0.50	PPM	MAX.				1300	$\mu g/m^3$	MAX.
CARBON MONOXIDE (CO)	8-Hr.	ALL	9	PPM	MAX.	10	mg/m^3	MAX.	10	mg/m^3	MAX.
	1-Hr.	ALL	35	PPM	MAX.	40	mg/m^3	MAX.	40	mg/m^3	MAX.
OZONE (PHOTOCHEMICAL OXIDANTS)	1-Hr.	All[6]	0.12	PPM	MAX.	235	ug/m^3	MAX.	235	ug/m^3	MAX.
BERYLLIUM	1-Month	ALL	0.01	ug/m^3	A.M.	0.01	ug/m^3[8]	A.M.			
NITROGEN DIOXIDE	12 Consecutive Months	ALL	0.05	PPM	A.M.	100	ug/m^3	A.M.	100	ug/m^3	A.M.
LEAD	3 Consecutive Mos.	(7)				1.5	ug/m^3	MAX.			
FLUORIDES	24-Hr.	ALL	2.85	ug/m^3	A.M.						
HYDROGEN SULFIDE	1- Hr.	ALL	0.01	PPM	A.M.						

(1) N.Y.S. also has standards for hydrocarbons, suspended and settleable particulates. Do not use Appendix A methods for determining compliance with TSP standards.

(2) All maximum values are not to be exceeded more than once a year (Ozone standard not be exceeded during more than one day per year).

(3) Also during any 12 consecutive months, 99% of the values shall not exceed 0.10 PPM (not necessary to address this standard when predicting future concentrations).

(4) Also during any 12 consecutive months, 99% of the values shall not exceed 0.25 PPM (see above).

(5) Gaseous concentrations are corrected to a reference temperature of 25_C and to a reference pressure of 760 mmHg.

(6) Existing NYS standard for Photochemical Oxidants (Ozone) of 0.08 PPM not yet officially revised via regulatory process to coincide with new Federal standard of 0.12 PPM which is currently being applied to determine compliance status.

(7) New Federal standard for lead not yet officially adopted by N.Y.S., but is currently being applied to determine compliance status.

(8) 30-day average Federal NESHAP (National Emission Standard for Hazardous Air Pollutants) Standard value listed.

TABLE IA

NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS (NESHAPS)

ARSENIC[1]

ASBESTOS[2]

BENZENE[3] (Fugitive Emission Sources)

BERYLLIUM[4]

MERCURY[5]

RADIONUCLIDES

VINYL CHLORIDE[6]

Appropriate standards for each of the above are found in 40 CFR 61.

[1]Also see Arsenic listing in Table II, page 33.
[2]Also see Asbestos listing in Table II, page 33.
[3]Also see Benzene listing in Table II, page 33.
[4]Also see Beryllium oxide and Beryllium sulfate listing in Table II, page 33.
[5]Also see Mercury listings in Table III, page 46.
[6]Also see Vinyl chloride listing in Table II, page 36.

TABLE II
High Toxicity Air Contaminants

Compound Chemical Name	CAS Registry Number	Occupational Value[1] mg/m^3	Proposed AGC[2] ug/m^3	AGC[2] ug/m^3
*Acetyl chloride	00075-36-5	-	0.64(DEC)	-
Acrolein	00107-02-8	0.25(T)	0.60(T)	0.83(T)
Acrylonitrile	00107-13-1	4.5(T)	0.01(U)	15.0(T)
Aldicarb	00116-06-3	-	2.0(DOH/R)	2.0(DOH/R)
para-Aminodiphenyl	00092-67-1	(HAZ1)[3]	See (4)	(HAZ)[3]
Arsenic & soluble compounds as As	07440-38-2	0.2(T)	$2.3x10^{-4}$(U)	0.67(T)
Arsenic pentoxide	01303-28-2	-	$2.3x10^{-4}$(U)	See (4)
Arsenic trioxide	01327-53-3	-	$2.3x10^{-4}$(U)	See (4)
*Arsine	07784-42-1	0.2(T)	0.48(T)	0.67(T) (was moderate)
Asbestos:	01332-21-4	2 fibers/cc(T)	(HAZ1)See (4)	(HAZ)[3]
Amosite	12172-73-5	0.5 fiber/cc(T)	(HAZ1)See (4)	(HAZ)
Chrysotile	12001-29-5	2 fiber/cc(T)	(HAZ1)See (4)	(HAZ)
Crocidolite	12001-28-4	0.2 fiber/cc(T)	(HAZ1)See (4)	(HAZ)
Auramine	02465-27-2	-	See (4)	See (4)
Benzene	00071-43-2	30 (T,HAZ2)	0.12(U)	100(T,HAZ)
Benzidine	00092-87-5	(HAZ1)	$5x10^{-2}$(U)	(HAZ)
Benzo(a)pyrene (BaP)	00050-32-8	(HAZ2)	See (4)	See (4)
Beryllium oxide as Be; (Also see Tables I & IA)	01304-56-9	0.002(T,HAZ2)	0.005(T)	0.007(T)
Beryllium sulfate as Be	13510-49-1	0.002(T,HAZ2)	0.005(T)	0.007(T)
*Bromodichloro-methane	00075-27-4	-	0.03(DEC)	-
*Bromodiolone	28772-56-7	-	See (4)	

TABLE II
High Toxicity Air Contaminants

Compound Chemical Name	CAS Registry Number	Occupational Value[1] mg/m^3	Proposed AGC[2] ug/m^3	AGC[2] ug/m^3
Cadmium (dust and salts, as Cd)	07440-43-9	0.05(T)	$5.6x10^{-4}$ (U,HAZ2)	2.0(DOH/R)
*Cadmium mercury sulfide	01345-09-1	0.05(T)	$5.6x10^{-4}$ (DEC,HAZ2)	-
Cadmium oxide	01306-19-0	0.05(T)	$5.6x10^{-4}$(U,HAZ2)	0.167(T)
Cadmium sulfate	10124-36-4	0.05(T)	$5.6x10^{-4}$(U,HAZ2)	0.167(T)
Carbon tetra-chloride	00056-23-5	30(T,HAZ2)	0.07(U)	100(T)
bis-Chloromethyl-ether	00542-88-1	0.005(T)	0.012(T)	0.017(T)
Chromium VI Compounds (CAS# assigned to chrome metal)	07440-47-3	0.05(T,HAZ1)	$8x10^{-5}$(U)	0.167(T)
Dibromoethane (Ethylene dibromide)	00106-93-4	(HAZ2)	0.002(DOH/R)	See (4)
3,3'-Dichloro-benzidine	00091-94-1	-	0.1(DOH/R)	0.1(DOH/R)
*Diethyl zinc	00557-20-0	-	See (4)	-
Dimethyl sulfate	00077-78-1	0.05(T,HAZ2)	0.12(T)	1.67(T)
Ethyleneimine	00151-56-4	1(T)	2.38(T)	3.3(T)
Ethylene oxide	00075-21-8	2(T,HAZ2)	0.019(DEC)	6.67(T)
Formaldehyde	00050-00-0	1.5(T,HAZ2)	0.08(U)	5(T)
Hydrazine, and its acid salts	00302-01-2	0.1(T,HAZ2)	0.24(T)	0.33(T)
*Isocyanic acid, methylene diphenylene ester	26447-40-5	-	See (4)	-
Lead arsenate as $Pb_3(AsO_4)_2$	07784-40-9	0.15(T)	0.36(T)	0.5(T)

TABLE II
High Toxicity Air Contaminants

Compound Chemical Name	CAS Registry Number	Occupational Value[1] mg/m^3	Proposed AGC[2] ug/m^3	AGC[2] ug/m^3
*Lead chromate as Cr	07758-97-6	0.05(T,HAZ2)	0.01(DEC)	-
*Lead chromate oxide	18454-12-1	0.1(P)	0.24(P)	-
Methylene bisphenylisocyanate, (Diphenylmethane-4,4-diisocyanate), (MDI)	00101-68-8	0.055(T)	0.13(T)	0.67(T)
*2-Methylfuran (TLV assigned to Furfuryl alcohol)	00534-22-5	40(T)	95.2(DEC)	-
Methyl isocyanate (MIC)	00624-83-9	0.05(T)	0.12(T)	0.17(T)
beta-Naphthylamine	00091-59-8	(HAZ1)	See (4)	(HAZ)
Nickel (metal and insoluble compounds, as Ni)	07440-02-0	1.0(T)	$4.2x10^{-3}$(U)	3.3(T)
Nickel carbonyl as Ni	13463-39-3	0.1(T)	$4.2x10^{-3}$(U)	1.17(T)
Nickel monoxide as Ni	01313-99-1	1.0(T)	$4.2x10^{-3}$(U)	3.37(T)
Nickel sulfide as Ni	12035-72-2	1(T,HAZ1)	$4.2x10^{-3}$(U)	0.1(DOH/R)
4-Nitrodiphenyl	00092-93-3	(HAZ1)	See (4)	(HAZ)
Nitrogen Mustard	00051-75-2	-	See (4)	See (4)
*2-Nitropropane	00079-46-9	C35(T,HAZ2)	83.3(T)	-
N-Nitrosodi-methylamine (Dimethylnitrosoamine)	00062-75-9	(HAZ2)	$7x10^{-5}$(U)	See (4)
Parathion(TM)	00056-38-2	0.1(T)	0.24(T)	0.33(T)
*4-Penten-2-ol (TLV assigned to Allyl alcohol)	00625-31-0	5(T)	11.9(DEC)	-

TABLE II
High Toxicity Air Contaminants

Compound Chemical Name	CAS Registry Number	Occupational Value[1] mg/m^3	Proposed AGC[2] ug/m^3	AGC[2] ug/m^3
Polychlorinated biphenyls (PCBs) (TLV assigned to Arochlor 1254)	01336-36-3	0.5(T)	1.19(T)	1.67(T)
Polycyclic Organic Matter[6]		(See Benzo(a)Pyrene, page 33)		
*Polymethylene polyphenylisocyanate	09016-87-9	-	See (4)	-
2,3,7,8-Tetrachlorodibenzofuran	51207-31-9	-	See (4)	
Total Tetrachlorinated dibenzo-p-dioxins (includes 2,3,7,8- TCCD)	01746-01-6	-	See (4)	
Toluene-(2,4)-diisocyanate (TDI)	00584-84-9	0.04(T)	0.062(DEC)	0.13(T)
*Triethylaluminum	00097-93-8	2.0(T)	4.8(DEC)	-
*Triethylgallium	01115-99-7	-	See (4)	-
*Triethylindium as In	00923-34-2	0.1(T)	0.2(DEC)	
*Vanadium (TLV as V_2O_5)	07440-62-2	0.05(T)	0.12(T)	-
Vinyl chloride (chloroethylene)	00075-01-4	10(T,HAZ1)	0.4(DOH/R)	0.4(DOH/R)
Vinylidene chloride (1,1-Dichloroethylene)	00075-35-4	20(T)	0.02(U)	66.7(T)
*Zinc phosphide	01314-84-7	-	See (4)	-

Table II Footnotes:

* New chemical added this printing, or toxicity classification revised for this printing.

1. Occupational Values: (T)-1989 ACGIH TWA-TLV,
(P)-1989 OSHA final rule limit TWA-PEL.
"C" denotes a ceiling limit TLV which should not be exceeded.

2. AGC, "Ambient Guideline Concentration", source:
(T) - AGC derived from ACGIH TWA-TLV
(DOH) - Contaminant specific AGC determined by NYS DOH Bureau of Toxic Substance Assessment;
(DOH/R) - Contaminant specific AGC currently under review by DOH.
(DEC) - Contaminant specific AGC determined by NYS DEC, Division of Air Resources, Bureau of Air Toxics, Toxics Assessment Section.
(P) - AGC based on OSHA final rule limit TWA-PEL.
(U) - Contaminant specific AGC based on $1x10^{-6}$ risk applied to Unit Risk Factor developed by the USEPA Carcinogen Assessment Group (CAG)

3. (HAZ) - Human Carcinogens: HAZ1 - Confirmed Human Carcinogen,
HAZ2 - Suspected Human Carcinogen.
"Exposure to chemicals identified as HAZ1 (confirmed human carcinogens) must be kept to a minimum.. [receptors] exposed to HAZ1 carcinogens without a TLV should be properly equiped to virtually eliminate all exposure to the carcinogen". From "TLVs, Threshold Limit Values... for 1988-1989", Appendix A, pp. 40, 41.

4. No chemical specific occupational value or AGC available at this time, see "High Toxicity Air Contaminants," pages 3 to 5, for guidance.

5. ACGIH 1988-1989 TWA-TLV for Asbestos, a confirmed human carcinogen: "Fibers longer than 5 um and with an aspect ratio equal or greater than 3:1 as determined by the membrane filter method at 400-450X magnification (4mm objective) phase contrast illumination." Not applicable to sources subject to NESHAPS.

6. Containing large amounts of naphthalene, fluorene, anthracene, and acridine.

NOTE: Radioactive materials are not included in this table as they are regulated by Part 380 of DEC's Rules and Regulations.

TABLE III
Moderate Toxicity Air Contaminants

Compound Chemical Name	CAS Registry Number	Occupational Value[1] mg/m^3	Proposed AGC[2] ug/m^3	AGC[2] ug/m^3
Acetaldehyde	00075-07-0	180(T)	429(T)	600(T)
Acetamide	00060-35-5	-	0.03(DM)[4]	(DM)
2-Acetamidofluorene (2-Acetylaminofluorene)	00053-96-3	-	0.03(DM)[4]	(DM)
Acetic anhydride	00108-24-7	C20(T)	47.6(T)	66.7(T)
*5-Acetoacetamido-2-benzimidazolone	26576-46-5	-	0.03(DM)[4]	-
Acrylamide (Ethylene carboxamide)	00079-06-1	0.03(T,HAZ2)[3]	0.07(T)	1.0(T)
Acrylic acid	00079-10-3	6(T)	14.3(T)	100(T)
Allyl chloride (3-Chloro-1-propene)	00107-05-1	3(T)	7.14(T)	10(T)
*Alphamethrin(TM)	52315-07-8	5[8]	11.9(DEC)	-
*2-Amino-2-methyl-1-propanol (Isobutanolamine)	00124-68-5	8[9]	19(DEC)	-
Ammonium bromide	12124-97-9	10[10]	23.8(DEC)	30(DEC)
Aniline	00062-53-3	10(T)	0.14(DOH)	0.4(DOH)
para-Anisidine	00104-94-9	0.5(T)	1.2(T)	1.67(T)
Antimony	07440-36-0	0.5(T)	1.2(T)	1.67(T)
Antimony trioxide	01309-64-4	0.5(T)	1.2(T)	1.67(T)
Barium	07440-39-3	0.5(T)	1.2(T)	1.67(T)
Barium sulfate	07727-43-7	10(T)	23.8(T)	(DM)
*1,3-Benzenediamine	00108-45-2	-	0.03(DM)[4]	-
*1,2,4-Benzenetricarboxylic acid, decyl octyl ester	67989-23-5	-	0.03(DM)[4]	-
Benzyl chloride	00100-44-7	5(T)	11.9(T)	16.7(T)

TABLE III
Moderate Toxicity Air Contaminants

Compound Chemical Name	CAS Registry Number	Occupational Value[1] mg/m^3	Proposed AGC[2] ug/m^3	AGC[2] ug/m^3
*Bifenthin[TM] (Cyclopropane carboxylic acid)	82657-04-3	5[8]	11.9(DEC)	-
Biphenyl	00092-52-4	1(P)	2.4(P)	5(T)
Bromine	07726-95-6	0.7(T)	1.7(T)	2.33(T)
*Bromoform	00075-25-2	5(T)	11.9(T)	-
*Butadiene homo-polymer	69102-90-5	-	0.03(DM)[4]	-
Butanethiol (Butylmercaptan)	00109-79-5	1.5(T)	3.6(T)	5(T)
n-Butylamine	00107-73-9	C15(T)	35.7(T)	50(T)
*Butylcarbitol	00112-34-5	19[11]	45.2(DEC)	-
*Butylphthalate butyl glycolate (Dibutyl-o-carboxybenzoyloxyacetate)	00085-70-1	5[12]	11.9(DEC)	-
*gamma-Butyrolactone	00096-48-0	1.5[13]	3.6(DEC)	-
Cadmium chloride (as Cd)	10108-64-2	0.01(T,HAZ2)[3]	0.02(T)	0.167(T)
*Carbendazim	10605-21-7	0.1[14]	0.24(DEC)	-
*Carbofuran	01563-66-2	0.1(T)	0.24(T)	-
Carbon black	01333-86-4	3.5(T)	8.3(T)	11.7(T)
Carbon disulfide	00075-15-0	12(P)	2.9(DEC)	100(T)
Chlordane	00057-74-9	0.5(T)	1.2(T)	1.7(T)
Chlordecone (Kepone)	00143-50-0	-	0.03(DM)[4]	(DM)
Chlorine	07782-50-5	1.5(T)	3.6(T)	10(T)
Chlorine dioxide	10049-04-4	0.3(T)	0.7(T)	1(T)
alpha-Chloroaceto-phenone (Phenacyl chloride)	00532-27-4	0.3(T)	0.7(T)	1(T)

TABLE III
Moderate Toxicity Air Contaminants

Compound Chemical Name	CAS Registry Number	Occupational Value[1] mg/m^3	Proposed AGC[2] ug/m^3	AGC[2] ug/m^3
para-Chloroaniline	00106-47-8	-	6(DOH)	6(DOH)
Chlorobenzene	00108-90-7	350(T)	833(T)	1167(T)
*Chlorodibromo-methane	00124-48-1	-	0.03(DM)[4]	-
Chloroform	00067-66-3	9.78(P)	23.3(P)	167(T)
*ortho-Chloro-p-nitro-aniline	00121-87-9	3[15]	7.14(DEC)	-
*Chlorotrifluoroethene (1-Chloro-1,2,2-trifluoroethylene)	00079-38-9	-	0.03(DM)[4]	-
*Chromium oxide (chrome III oxide)	01308-38-9	0.5(T)	1.2(T)	-
Cobalt	07440-48-4	0.05(T)	0.12(T)	0.33(T)
Cobalt oxide	01307-96-6	0.05(T)	0.12(T)	(DM)
Cobalt sulfide	01317-42-6	0.05(T)	0.12(T)	(DM)
*Copper (dusts and mists, as Cu)	07440-50-8	1(T)	2.4(T)	20(T) (was Low Tox)
*Copper (fume, as Cu)	07440-50-8	0.1(P)	0.24(P)	4(T) (was Low Tox)
ortho-Cresol	00095-48-7	22(T)	52.4(T)	73(T)
meta-Cresol	00108-39-4	22(T)	52.4(T)	73(T)
para-Cresol	00106-44-5	22(T)	52.4(T)	73(T)
Cyanamide	00420-04-2	2(T)	4.8(T)	6.7(T)
Cyanides (as Cn)	00057-12-5	5(T)	11.9(T)	16.7(T)
Cyanic acid, potassium salt	00590-28-3	20[16]	47.6(DEC)	66.7(T)

TABLE III
Moderate Toxicity Air Contaminants

Compound Chemical Name	CAS Registry Number	Occupational Value[1] mg/m^3	Proposed AGC[2] ug/m^3	AGC[2] ug/m^3
Cyanic acid, sodium salt	00917-61-3	20[16]	47.6(DEC)	66.7(T)
Cyanoacetamide	00107-91-5	5[17]	11.9(DEC)	16.7(T)
Cyanogen (Oxalonitrile)	00460-19-5	20(T)	47.6(T)	66.7(T)
*Cyclohexanone	00108-94-1	100(T)	238(T)	-
*Decane	00124-18-5	-	0.03(DM)[4]	-
*Deuterium sulfate	13813-19-9	1[19]	2.38(DEC)	-
*Diacetone alcohol	00123-42-2	240(T)	571(T)	-
*Dialkylphthalate (C10-)	26761-40-0	5[20]	11.9(DEC)	-
Diallylmaleate	00999-21-3	1[21]	2.4(DEC)	6(DEC)
2,5-Diaminotoluene	00095-70-5	-	0.03(DM)[4]	(DM)
Diazomethane	00334-88-3	0.4(T)	0.95(T)	1.3(T)
*2,5-Dichloroaniline	00095-82-9	10[22]	23.8(DEC)	-
*meta-Dichlorobenzene	00541-73-1	C300[23]	714(DEC)	-
ortho-Dichlorobenzene	00095-50-1	C300(T)	714(T)	1000(T)
1,2-Dichloroethane (Ethylene dichloride)	00107-06-2	40(T)	0.2(DOH)	0.2(DOH)
*1,2-Dichloroethene	00540-59-0	790(T)	1880(T)	-
*cis-1,2-Dichloro-ethene	00156-59-2	790[24]	1880(DEC)	-
*trans-1,2-Dichloro-ethene	00156-60-5	-	360(DEC)	-
Dichloromethane (Methylene chloride)	00075-09-2	175(T,HAZ2)[3]	27(DEC)	1167(T)
*2,3-Dichloro-1,4-naphtha quinone (Dichlone)	00117-80-6	-	0.03(DM)[4]	

TABLE III
Moderate Toxicity Air Contaminants

Compound Chemical Name	CAS Registry Number	Occupational Value[1] mg/m^3	Proposed AGC[2] ug/m^3	AGC[2] ug/m^3
*1,2-Dichloropropane	00078-87-5	350(T)	833(T)	-
*N,N-Diethylaniline	00091-66-7	2[25]	4.8(DEC)	-
*Diethylenedimethyl ether	00111-96-6	19[11]	45.2(DEC)	-
*Diethyleneglycol diethyl ether	00112-36-7	19[11]	45.2(DEC)	-
Diethylphthalate	00084-66-2	5(T)	11.9(T)	16.7(T)
Diisodecylphthalate	26761-40-0	5[20]	11.9(DEC)	16.7(T)
3,3'-Dimethoxy-benzidine (ortho-Dianisidine)	00119-90-4	-	0.2(DOH)	0.2(DOH)
*2,4-Dimethyl-6-acetoxy-1,3-dioxane (Dimethoxane)	00828-00-2	90[26]	214(DEC)	-
4-Dimethylaminoazo-benzene	00060-11-7	-	0.03(DM)[4]	(DM)
*N,N-Dimethylaniline	00121-69-7	2[25]	4.8(DEC)	-
*3,3-Dimethylbutene	00558-37-2	-	0.03(DM)[4]	-
Dimethylcarbamoyl-chloride	00079-44-7	-	0.03(DM)[4]	(DM)
*Dimethyldichloro-silane	00075-78-5	7[27]	16.7(DEC)	-
*Dimethyldisulfide	00624-92-0	14(T)[28]	24(DEC)	-
*Dimethylformamide	00068-12-2	30(T)	7.14(DEC)	-
*2,5-Dimethylfuran	00625-86-5	40[29]	95(DEC)	-
*2,5-Dimethyl-2,4-hexadiene	00764-13-6	1800[30]	4286(DEC)	-
1,1-Dimethyl-hydrazine	00057-14-7	1(T,HAZ2)[3]	2.4(T)	3.3(T)

TABLE III
Moderate Toxicity Air Contaminants

Compound Chemical Name	CAS Registry Number	Occupational Value[1] mg/m^3	Proposed AGC[2] ug/m^3	AGC[2] ug/m^3
*1,1-Dimethyl-2-propyn-1-ol (Dimethylethynylcarbinol)	00115-19-5	-	0.03(DM)[4]	-
*Dimethyl sulfide	00075-18-3	14[30]	33.3(DEC)	-
*Dimethyltetramethoxy-disiloxane	18186-97-5	7[27]	16.7(DEC)	-
*Dimethylvinylchloro-silane	01719-58-0	7[27]	16.7(DEC)	-
meta-Dinitrobenzene	00099-65-0	1(T)	2.4(T)	3.3(T)
*Dioctyladipate	00103-23-1	5[20]	11.9(DEC)	-
Dioctylphthalate(DOP)	00117-81-7	5(T)[20]	11.9(DEC)	16.7(T)
1,4-Dioxane (para-Dioxane)	00123-91-1	90(T)	214(T)	300(T)
*Diphenylcarbonate	00102-09-0	1.5[32]	3.6(DEC)	-
Diphenylhydrazine	00122-66-7	1[33]	4.5×10^{-3}(U)	3.3(T)
*Dodecylglycidyl ether	02461-18-9	-	0.03(DM)[4]	-
Epichlorohydrin (1-Chloro-2,3-epoxy propane)	00106-89-8	8(P)	0.8(U)	33.3(T)
*Epoxide 4221(TM)	02386-87-0	-	214(DEC)	-
Epoxypropane (Propylene oxide)	00075-56-9	50(T)	119(T)	167(T)
Ethanethiol (Ethylmercaptan)	00075-08-1	1(T)	2.4(T)	3.3(T)
Ethanolamine (2-Aminoethanol)	00141-43-5	8(T)	19(T)	26.7(T)
*3-Ethoxyl-1-propanol	00111-35-3	360[35]	857(DEC)	
*N-Ethylaniline	00103-69-5	2[25]	4.8(DEC)	
Ethylbenzene	00100-41-4	435(T)	1036(T)	1450(T)

TABLE III
Moderate Toxicity Air Contaminants

Compound Chemical Name	CAS Registry Number	Occupational Value[1] mg/m^3	Proposed AGC[2] ug/m^3	AGC[2] ug/m^3
*Ethyleneglycol monobutyl ether acetate (EM Acetate)	00112-07-2	120[34]	286(DEC)	-
Ethyleneglycol monopropyl ether	02807-30-9	-	70(DEC)	70(DEC)
*Ethyl-3-ethoxypropionate	00763-69-9	27[36]	64.3(DEC)	-
*2-Ethylhexylmethacrylate	00688-84-6	35[37]	83.3(DEC)	-
*Ethylmethylbenzene (Methylethylbenzene)	25550-14-5	-	0.03(DM)[4]	-
*Fastac(TM)	67375-30-8	5[8]	11.9DEC)	-
Fluorine	07782-41-4	0.2(P)	0.5(P)	6.7(T)
Formamide	00075-12-7	15(T)	35.7(T)	100(T)
Formic acid	00064-18-6	9(T)	21.4(T)	30(T)
Furfural	00098-01-1	8(T)	19(T)	26.7(T)
Furfuryl alcohol	00098-00-0	40(T)	95.2(T)	133(T)
Glycidaldehyde	00765-34-4	-	0.03(DM)[4]	(DM)
*Glycolmonoethyl ether	00110-80-5	19(T)	45.2(T)	380(T) (was low)
*4-Glycydiloxy-N,N'-diglycidylaniline	05026-74-4	6[38]	14.3(DEC)	-
*Heloxy WC-8(TM)	Unknown	-	0.03(DM)[4]	-
Heptachlor	00076-44-8	0.5(T)	$8x10^{-4}$(U)	1.67(T)
*n-Heptane	00142-82-5	1600(T)	3810(T)	-
Hexachlorobenzene	00118-74-1	-	0.03(DM)[4]	(DM)
Hexachlorobutadiene	00087-68-3	0.24(T,HAZ2)[3]	0.05(U)	0.8(T)
Hexachlorocyclohexane (alpha-Lindane)	00319-84-6	0.5(T)[39]	$6x10^{-4}$(U)	1.67(T)

TABLE III
Moderate Toxicity Air Contaminants

Compound Chemical Name	CAS Registry Number	Occupational Value[1] mg/m^3	Proposed AGC[2] ug/m^3	AGC[2] ug/m^3
Hexachlorocyclo-pentadiene	00077-47-4	0.1(T)	0.24(T)	0.33(T)
Hexachloro-naphthalene	01335-87-1	0.2(T)	0.48(T)	0.67(T)
*1-Hexadecene (alpha-Olephin)	00629-73-2	-	217(DEC)	-
*Hexamethyldisiloxane	00107-46-0	7[27]	16.7(DEC)	-
*Hexamethylenediamine	00124-09-4	-	0.03(DM)[4]	-
Hexamethylphospor-amide	00680-31-9	-	0.03(DM)[4]	(DM)
Hydrogen cyanide (Hydrocyanic acid)	00074-90-8	C10(T)	23.8(T)	33(T)
Hydrogen fluoride	07664-39-3	C2.5(T)	6(T)	8.5(T)
Hydroquinone	00123-31-9	2(T)	4.8(T)	6.7(T)
*Hydroxypropyl-methacrylate	27813-02-1	410[40]	976(DEC)	-
*Isobutylene (2-Methylpropene)	00115-11-7	-	0.03(DM)[4]	-
Isophorone[TM] (1,1,3-Trimethyl-3-cyclohexene-5-one)	00078-59-1	23(P)	55(P)	83.3(T)
Isopropyl alcohol[5]	00067-63-0	980(T)	2333(T)	3267(T)
Isopropylamine	00075-31-0	12(T)	29(T)	40(T)
*Kelthane[TM] [1,1-bis(Chlorophenyl)-2,2,2-trichloroethanol]	00115-32-2	-	0.03(DM)[4]	-
Ketene	00463-51-4	0.9(T)	2.14(T)	3.3(T)
Lead acetate	01335-32-6	-	0.03(DM)[4]	(DM)

TABLE III
Moderate Toxicity Air Contaminants

Compound Chemical Name	CAS Registry Number	Occupational Value[1] mg/m^3	Proposed AGC[2] ug/m^3	AGC[2] ug/m^3
alpha-Lindane (Hexachlorocyclohexane)	00319-84-6	0.5(T)[39]	6x10^{-4}(U)	1.67(T)
*beta-Lindane	00319-85-7	0.5(T)[39]	2x10^{-3}(U)	-
gamma-Lindane	00058-89-9	0.5(T)	6x10^{-4}(U)	1.67(T)
Malathion	00121-75-5	5(P)	12(P)	33.3(T)
Maleic anhydride	00108-31-6	1(T)	2.4(T)	3.3(T)
*Manganese	07439-96-5	5(T)	0.3(DOH)	-
*Melamine formaldehyde	68891-01-0	1.5(T,HAZ2)[41]	0.06(DOH)	-
Mercury (inorganic)	07439-97-6	0.1(T)	0.24(T)	0.33(T)
Mercury (organic)	07439-97-6	0.05(T)	0.12(T)	0.167(T)
2-Methoxyethanol (Methyl cellosolve)	00109-86-4	16(T)	38(T)	53.3(T)
Methylamine	00074-89-5	12(T)	28.6(T)	40(T)
*N-Methylaniline	00100-61-8	2(T)	4.8(T)	-
*Methylbutanone	00096-17-3	-	0.03(DM)[4]	-
Methylchloromethyl ether	00107-30-2	-	0.03(DM)[4]	(DM)
*Methylcyclohexadiene	30640-45-1	1800[42]	4286(DEC)	-
*Methyl-1,3-cyclopentadiene	26519-91-5	200[18]	476(DEC)	-
*Methylene cyclobutane	01120-56-5	-	0.03(DM)[4]	-
4,4'-Methylenedianiline	00101-77-9	0.8(T,HAZ2)[3]	1.9(T)	2.67(T)
Methylethylketone (MEK)	00078-93-3	590(T)	1404(T)	1967(T)
*Methyl formate	00107-31-3	250(T)	595(T)	-

TABLE III
Moderate Toxicity Air Contaminants

Compound Chemical Name	CAS Registry Number	Occupational Value[1] mg/m^3	Proposed AGC[2] ug/m^3	AGC[2] ug/m^3
Methylhydrazine	00060-34-4	C0.35(T,HAZ2)[3]	0.83(T)	1.17(T)
Methylisobutylketone (MIBK)	00108-10-1	205(T)	488(T)	683(T)
Methylmercaptan (Methanethiol)	00074-93-1	1(T)	2.4(T)	3.3(T)
Methylmethacrylate	00080-62-6	410(T)	976(T)	1367(T)
*3-Methyl-1-pentanol	00589-35-5	-	0.03(DM)[4]	-
*Methylpyrrole	00096-54-8	-	0.03(DM)[4]	-
*1-Methyl-2-pyrrolidinone	00872-50-4	-	581(DEC)	-
*Methyl-tert-butyl ether	01634-04-4	-	4(DEC)	-
Mirex(TM) (Hexachlorocyclopentadiene dimer)	02385-85-5	-	0.03(DM)[4]	(DM)
*Naphtha heavy	64742-94-5 89-8	-	0.03(DM)[4]	-
*Naphtha light	64742-95-4	-	0.03(DM)[4]	-
Naphthalene	00091-20-3	50(T)	119(T)	166.7(T)
alpha-Naphthylamine	00134-32-7	-	0.03(DM)[4]	(DM)
Nitrilotriacetic acid	00139-13-9	-	0.03(DM)[4]	(DM)
para-Nitroaniline	00100-01-6	3(T)	6(DOH)	6.0(DOH/R)
Nitrobenzene	00098-95-3	5(T)	11.9(T)	16.7(T)
para-Nitrochlorobenzene	00100-00-5	0.6(T)	1.4(T)	3.3(T)
Nitroglycerine	00055-63-0	0.5(T)	1.2(T)	1.7(T)
para-Nitrophenol	00100-02-7	-	0.03(DM)[4]	(DM)
*1-Nitropropane	00108-03-2	90(T)	214(T)	

TABLE III
Moderate Toxicity Air Contaminants

Compound Chemical Name	CAS Registry Number	Occupational Value[1] mg/m^3	Proposed AGC[2] ug/m^3	AGC[2] ug/m^3
Nitroso-N-methyl urea	00684-93-5	-	0.03(DM)[4]	(DM)
para-Nitrosophenol	00104-91-6	-	0.03(DM)[4]	(DM)
para-Nitrotoluene	00099-99-0	11(T)	26.2(T)	36.7(T)
Octachloro-naphthalene	02234-13-1	0.1(T)	0.24(T)	0.33(T)
Oil mist (mineral)[6]	08012-95-1	5(T)	11.9(T)	16.7(T)
Oxalic acid	00144-62-7	1(T)	2.4(T)	3.3(T)
Paraquat[TM] (1,1-dimethyl-4,4'-Bipyridinium dichloride)	01910-42-5	0.1(T)	0.24	0.33(T)
Pentachlorophenol	00087-86-5	0.5(T)	1.19(T)	1.67(T)
*1-Pentene	00109-67-1	-	0.03(DM)[4]	-
Perchloroethylene	00127-18-4	(see Tetrachloroethylene, page 50)		
*Permethrin[TM]	52645-53-1	5[8]	11.9(DEC)	-
Petroleum-distillates	08002-05-9	-	0.03(DM)[4]	(DM)
Phenol	00108-95-2	19(T)	9.6(DOH)	10.0(DOH)
para-Phenylenediamine	00106-50-3	0.1(T)	0.24(T)	0.33(T)
Phenylhydrazine	00100-63-0	20(T,HAZ2)	47.6(T)	66.7(T)
Phosgene	00075-44-5	0.4(T)	0.95(T)	1.33(T)
Phosphine	07803-51-2	0.4(T)	0.95(T)	1.33(T)
Phosphorous (yellow)	07723-14-0	0.1(T)	0.24(T)	0.33(T)
Picric acid	00088-89-1	0.1(T)	0.24(T)	0.33(T)
*Polyacrylic acid	09003-01-4	6[43]	14.3(DEC)	
*Polyethylene glycol	25322-68-3	-	0.03(DM)[4]	

TABLE III
Moderate Toxicity Air Contaminants

Compound Chemical Name	CAS Registry Number	Occupational Value[1] mg/m^3	Proposed AGC[2] ug/m^3	AGC[2] ug/m^3
*Polyethylene glycol dimethylether	24991-55-7	19[11]	45.2(DEC)	-
*Polyethylene terephthate	25038-59-9	-	0.03(DM)[4]	-
*Polyhexamethylene diamine	Unknown	-	0.03(DM)[4]	-
*Polyhexamethylene dodecane diamide	26098-55-5	-	0.03(DM)[4]	-
*Polyoxypropylene	25791-96-2	19[11]	45.2(DEC)	-
*Polyvinylidene fluoride	24937-79-9	3(R)	7.14(R)	-
*Potassium gold cyanide	14263-59-3	.5[17]	11.9(DEC)	-
*Potassium permanganate	07722-64-7	5[44]	34(DEC)	-
*Primidone(TM) (2-Deoxyphenobarbital)	00125-33-7	-	3.6(DEC)	-
*1,3-Propanediamine	00109-76-2	25[45]	29.7(DEC)	-
Propane sultone	01120-71-4	(HAZ2)[3]	0.03(DM)[4]	(DM)
beta-Propiolactone	00057-57-8	1.5(HAZ2)[3]	3.6(T)	5.0(T)
*N-Propylbenzene	00103-65-1	-	0.03(DM)[4]	-
Pyrethrin(TM)	00121-29-9	5[8]	11.9(DEC)	16.7(T)
Pyrethrum(TM)	08003-34-7	5(T)	11.9(T)	16.7(T)
Quinoline	00091-22-5	-	0.03(DM)[4]	(DM)
Quinone	00106-51-4	0.4(T)	0.95(T)	1.33(T)
*Rhoplex TR-407(TM)	09081-82-7	410[40]	9.8(DEC)	-
Rotenone(commercial)	00083-79-4	5(T)	11.9(T)	16.7(T)

TABLE III
Moderate Toxicity Air Contaminants

Compound Chemical Name	CAS Registry Number	Occupational Value[1] mg/m^3	Proposed AGC[2] ug/m^3	AGC[2] ug/m^3
Selenium	07782-49-2	0.2(T)	0.48(T)	0.66(T)
Selenium sulfide	07488-56-4	0.2(T)	0.48(T)	0.66(T)
*Siloxanes and silicones, dimethyl- (polydimethyl silicone oil)	63148-62-9	7[27]	16.7(DEC)	-
*Sodium aluminium silicate	01344-00-9	-	0.03(DM)[4]	-
Styrene, monomer	00100-42-5	215(T)	512(T)	716(T)
*Styrofoam(TM)	09003-53-6	215[46]	512(DEC)	-
*Systhane(TM)	88671-89-0	-	76.3(DEC)	-
1,1,2,2-Tetrachloroethane	00079-34-5	7(T)	0.02(U)	23.3(T)
Tetrachloroethylene (Perchloroethylene)	00127-18-4	170(P)	0.075(DEC)	1116(T)
*Tetradecylglycidyl ether	38954-75-5	-	0.03(DM)[4]	-
Thallium[7]	07440-28-0	0.1(T)	0.24(T)	0.33(T)
Thallium oxide	01314-32-5	0.1(T)	0.24(T)	0.33(T)
Thallium(I)selenite	12039-52-0	0.1(T)	0.24(T)	0.33(T)
Thallium sulfate	07446-18-6	0.1(T)	0.24(T)	0.33(T)
Thiourea	00062-56-6	-	0.03(DM)[4]	(DM)
*Thiram(TM) [bis-(Dimethylthiocarbanoyl)disulfide]	00137-26-8	1(T)	2.4(T)	-
Toluene-(2,4)-diamine	00095-80-7	-	0.03(DM)[4]	(DM)
ortho-Toluidine	00095-53-4	9(T,HAZ2)[3]	21.4(T)	30(T)
Toxaphene (Chlorinated camphene)	08001-35-2	0.5(T)	1.2(T)	1.67(T)

TABLE III
Moderate Toxicity Air Contaminants

Compound Chemical Name	CAS Registry Number	Occupational Value[1] mg/m^3	Proposed AGC[2] ug/m^3	AGC[2] ug/m^3
1,2,4-Trichloro-benzene	00120-82-1	C40(T)	95.2(T)	133(T)
1,1,2-Trichloro-ethane	00079-00-5	45(T)	0.06(U)	150(T)
Trichloroethylene	00079-01-6	270(T)	0.45(DEC)	900(T)
*2,4,6-Tri(dimethyl aminomethyl)phenol	00090-72-2	-	0.03(DM)[4]	-
*Triethylenetetramine	00112-24-3	4[47]	9.5(DEC)	-
*Trifluarin(TM) (2,6-Dinitro-N,N-dipropyl-4-trifluoromethylaniline)	01582-09-8	-	0.03(DM)[4]	-
*Ultem(TM)	61128-46-9	-	0.03(DM)[4]	-
*Urea (Carbamide)	00057-13-6	-	0.03(DM)[4]	-
Urethane (Carbamic acid)	00051-79-6	-	0.03(DM)[4]	(DM)
Vinyl bromide	00593-60-2	20(T,HAZ2)[3]	47.6(T)	66.7(T)
*Vinyl cyclohexene	00100-40-3	-	375(DEC)	-
Vinyl fluoride	00075-02-2	20(T,HAZ2)[48]	47.6(DEC)	66.7(T)
Xylene(mixed isomers)	01330-20-7	435(T)	1036(T)	1450(T)
ortho-Xylene	00095-47-6	435(T)	1036(T)	1450(T)
meta-Xylene	00108-38-3	435(T)	1036(T)	1450(T)
para-Xylene	00106-42-3	435(T)	1036(T)	1450(T)
Xylidine	1300-73-8	2.5(T,HAZ2)	6(T)	33.3(T)
Zinc bromide	07699-45-8	1[49]	2.4(DEC)	3.0(DEC)
Zinc chloride(fume)	07646-85-7	1(T)	2.4(T)	3.3(T)
Zinc oxide(fume)	01314-13-2	5(T)	11.9(T)	16.7(T)

TABLE III
Moderate Toxicity Air Contaminants

TABLE III FOOTNOTES:

* New chemical added this printing, or toxicity classification revised for this printing.

(1) Occupational Values: (T)-1989 ACGIH TWA-TLV,
(P)-1989 OSHA final rule limit TWA-PEL,
(R)-NIOSH REL,
"C"-denotes a ceiling limit TLV which should not be exceeded.

(2) AGC, "Annual Guideline Concentration," source:
(T) - AGC derived from ACGIH TWA-TLV.
(DOH) - Contaminant specific AGC determined by NYS DOH, Bureau of Toxic Substance Assessment.
(DOH/R) - Contaminant specific AGC currently under review by DOH.
(DEC) - Contaminant specific AGC determined by NYS DEC, Division of Air Resources, Bureau of Air Toxics, Toxics Assessment Section.
(P) - AGC derived from OSHA final rule limit TWA-PEL.
(U) - Contaminant specific AGC based on $1x10^{-6}$ risk applied to Unit Risk Factor developed by the USEPA Carcinogen Assessment Group (CAG)
(R) - AGC derived from NIOSH REL.

(3) (HAZ) - Human Carcinogens: HAZ1 - Confirmed Human Carcinogen,
HAZ2 - Suspected Human Carcinogen.
"Exposure to chemicals identified as HAZ1 (confirmed human carcinogens) must be kept to a minimum.. [receptors] exposed to HAZ1 carcinogens without a TLV should be properly equiped to virtually eliminate all exposure to the carcinogen". From "TLVs, Threshold Limit Values... for 1988-1989", Appendix A, pp. 40, 41.

(4) No chemical specific occupational value or AGC is available at this time. (DM) denotes the "de minimis" screening AGC of 0.03 ug/m^3 which is recommended for use with Appendix A methodology. If Appendix A screening calculations predict an impact greater than 0.03ug/m^3, contact Air Toxics Management (518-457-7688) for guidance.

(5) The higher degree of toxicity is due to isopropyl oil, a common manufacturing by-product

(6) As sampled by a method which does not collect vapor.

(7) The TLV of 0.1 mg/m^3 is for soluble thallium compounds, as Tl. Thallium readily oxidizes in air at room temperature.

TABLE III
Moderate Toxicity Air Contaminants

TABLE III FOOTNOTES (continued):

The TLV listed is assigned to the following chemical:

(8) Pyrethrum
(9) Ethanolamine
(10) Ammonium chloride
(11) 2-Ethoxyethanol
(12) Di-sec-octylphthalate
(13) beta-Propiolactone
(14) Carbofuran
(15) para-Nitroaniline
(16) Cyanogen
(17) Cyanides
(18) Cyclopentadiene
(19) Sulfuric acid
(20) Diethylphthalate
(21) Maleic anhydride
(22) Aniline
(23) ortho-Dichlorobenzene
(24) Acetylene chloride
(25) N-Methylaniline
(26) 1,4-Dioxane
(27) Silane
(28) Hydrogen sulfide
(29) Furfuryl alcohol
(30) Methylacetylene - Propadiene mixture (MAPP)
(31) Hydrogen sulfide
(32) Biphenyl
(33) Dimethylhydrazine
(34) 2-Butoxyethanol
(35) Propylene glycol monomethyl ether
(36) 2-Ethoxyethyl acetate
(37) Methylacrylate
(38) Phenylglycidylether
(39) gamma-Lindane
(40) Methylmethacrylate
(41) Formaldehyde
(42) Methylacetylene-Propanediene mixture (MAPP)
(43) Acrylic acid
(44) Manganese
(45) 1,2-Ethenediamine
(46) Styrene
(47) Diethylenetriamine
(48) Vinylbromide
(49) Zinc chloride

TABLE IV
Low Toxicity Air Contaminants

Compound Chemical Name	CAS Registry Number	Occupational Value[1] mg/m^3	Proposed AGC[2] ug/m^3	AGC[2] ug/m^3
*Acetoin (TLV assigned to Methyl ethyl ketone)	00513-86-0	590(T)	14048(DEC)	-
Acetone	00067-64-1	1780(T)	42381(T)	35600(T)
Acetonitrile	00075-05-8	70(T)	1667(T)	1400(T)
*gamma-Aminopropyl-triethoxysilane	00919-30-2	-	238(DEC)	-
Ammonia	07664-41-7	18(T)	429(T)	360(T)
*Ammonium sulfate (TLV assigned to Ammonium sulfamate)	07783-20-2	10(T)	238(DEC)	-
*Aqua ammonia	01336-21-6	18(T)	429(T)	-
*n-Butane	00106-97-8	1900(T)	45230(T)	-
n-Butyl acetate	00123-86-4	710(T)	16905(T)	14200(T)
n-Butyl alcohol	00071-36-3	C150(T)	3571(T)	3000(T)
*Butylated hydroxy-toluene	00128-37-0	10(T)	238(DEC)	-
Butyl benzyl phthalate	00085-68-7	5(T)[3]	119(P)	100(T)
*Carbitol cellosolve (2-(2-ethoxyethoxy)-Ethanol (DGME) TLV assigned to 2-Ethoxyethanol)	00111-90-0	19(T)	452(DEC)	-
Chloromethane (Methyl chloride)	00074-87-3	105(T)	2500(T)	2100(T)
*Chlorotrifluoroethane polymer with ethene	25101-45-5	-	(DM)[5]	-
*Chlorotrifluoro-methane (Freon 13, TLV assigned to trichlorofluoromethane)	00075-72-9	C5600(T)	133333(DEC)	-
Cyclohexane	00110-82-7	1050(T)	25000(T)	21000(T)

TABLE IV
Low Toxicity Air Contaminants

Compound Chemical Name	CAS Registry Number	Occupational Value[1] mg/m^3	Proposed AGC[2] ug/m^3	AGC[2] ug/m^3
*Decamethylcyclo-pentasiloxane	00541-02-6	-	545(DEC)	-
*Dialkylphthalate (C7-9-11)	39393-37-8	5(T)[3]	119(DEC)	-
*Dibutyl sebacate	00109-43-3	-	80(DEC)	-
*1,1-Dichloroethane	00075-34-3	400(P)	9524(P)	-
Diethylether (1,1'-Oxybis-ethane)	00060-29-7	(see Ethyl ether, below)		
*Diisooctylphthalate	27554-26-3	5(T)[3]	119(DEC)	-
*Dimethylether (TLV assigned to Ethyl ether)	00115-10-6	1200(T)	28571(DEC)	-
Dioctyl sebacate	00122-62-3	-	80(DEC)	80(DEC)
*Dipropylene glycol (TLV assigned to propylene glycol monomethyl ether)	25265-71-8	360(T)	8571(DEC)	-
*Dodecylbenzene	00123-01-3	-	17500(DEC)	-
*Ethane	00074-84-0	(6)	"simple asphyxiant"	-
Ethyl acetate	00141-78-6	1400(T)	33333(T)	28000(T)
*Ethyl alcohol	00064-17-5	1900(T)	45238(T)	-
Ethyl chloride	00075-00-3	2600(T)	61905(T)	52000(T)
Ethyl ether (Diethylether, ethers)	00060-29-7	1200(T)	28571(T)	24000(T)
*Fish oil	08016-13-5	-	200(DEC)	-
Glycerin Mist[4]	00056-81-5	10(T)	238(T)	200(T)
*Heptyl acetate (TLV assigned to sec-hexyl acetate)	00112-06-1	300(T)	7143(DEC)	-

TABLE IV
Low Toxicity Air Contaminants

Compound Chemical Name	CAS Registry Number	Occupational Value[1] mg/m^3	Proposed AGC[2] ug/m^3	AGC[2] ug/m^3
Hydrogen bromide	10035-10-6	C10(T)	238(T)	200(T)
Hydrogen chloride	07647-01-0	0.15(EPA)	7(EPA)	140(T)
Iodine	07553-56-2	C1(T)	24(T)	20(T)
Isoamyl acetate	00123-92-2	525(T)	12500(T)	10500(T)
Isoamyl alcohol	00123-51-3	360(T)	8571(T)	7200(T)
*Isobutane (TLV assigned to n-Butane)	00075-28-5	1900(T)	28238(DEC)	-
Isobutyl acetate	00110-19-0	700(T)	16667(T)	14000(T)
*Isobutyl isobutyrate	00097-85-8	-	44800(DEC)	-
*Isopentane	00078-78-4	350(R)	8333(R)	-
*Kerosene (Aliphatic Naphtha, TLV assigned to VM&P Naphtha)	08008-20-6	1350(T)	32143(DEC)	-
*Ligroine (VM&P Naphtha)	08032-32-4	1350(T)	32143(T)	-
*Methoxypropylacetate (TLV assigned to propylene glycol monomethyl ether)	00108-65-6	360(T)	8571(DEC)	-
*Methyl carbitol (TLV assigned to 2-ethoxyethanol)	00111-77-3	19(T)	452(DEC)	-
*Methylcyclopentane (REL assigned to cyclopentane)	00096-37-7	350(R)	8333(R)	-
*2-Methylpropanal (Isobutyric aldehyde)	00078-84-2	-	11.9(DEC)	-
*Methylsalicylate (Wintergreen oil)	00119-36-8	-	52169(DEC)	-

TABLE IV
Low Toxicity Air Contaminants

Compound Chemical Name	CAS Registry Number	Occupational Value[1] mg/m^3	Proposed AGC[2] ug/m^3	AGC[2] ug/m^3
*Methyltrimethoxy-silane	01185-55-3	7(T)[7]	167(DEC)	-
*Methylvinyltetramer	02554-06-8	7(T)[7]	167(DEC)	-
*Nadic Methyl Anhydride (TM)	25134-21-8	-	750(DEC)	-
Nitric acid	00797-37-2	5(T)	199(T)	100(T)
*Octamethylcyclo-tetrasiloxane	00556-67-2	-	545(DEC)	-
*n-Pentyl alcohol	00071-41-0	-	0.03(DM)[5]	-
*Phenylxylylethane	06196-95-8	-	100(DEC)	-
*Polyethylene stearate	09004-99-3	-	3100(DEC)	-
*Polymeric Ester-S-412(TM)[8]	68238-77-7	-	80(DEC)	-
*Propane	00074-98-6	(6)	"simple asphyxiant"	-
*Propylene carbonate (TLV assigned to n-propylacetate)	00108-32-7	840(T)	20000(DEC)	-
Pyridine	00110-86-1	15(T)	2.0(DOH/R)	2.0(DOH/R)
Resorcinol	00108-46-3	45(T)	1071(T)	900(T)
*Sodium persulfate (TLV assigned to Persulfates)	07775-27-1	5(T)	148(DEC)	-
*Sodium xylene sulfonate (TLV assigned to xylene)	01300-72-7	435(T)	10357(DEC)	-
*1-Tetradecene (TLV assigned to nonane)	01120-36-1	1050(T)	17905(DEC)	-
Tetrahydrofuran	00109-99-9	590(T)	14048(T)	11800(T)

TABLE IV
Low Toxicity Air Contaminants

Compound Chemical Name	CAS Registry Number	Occupational Value[1] mg/m^3	Proposed AGC[2] ug/m^3	AGC[2] ug/m^3
*2,4,7,9-tetramethyl-5-decyne-4,7-diol (surfynol 104E) (TLV assigned to Hexylene glycol)	00126-86-3	C125(T)	2976(DEC)	-
Toluene (Toluol)	00108-88-3	375(T)	8929(T)	7500(T)
*Tricalcium phosphate (Posture™)	07758-87-4	-	(DM)[5]	-
1,1,1-Trichloroethane (Methyl chloroform)	00071-55-6	1900(T)	45238(T)	38000(T)
*1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	00076-13-1	7600(T)	90476(DEC)	-
*Tridecane (TLV assigned to Nonane)	00629-50-5	1050(T)	17905(DEC)	-
Turpentine	08006-64-2	560(T)	13333(T)	11200(T)
*Vinyl pyrrolidinone	00088-12-0	-	70(DEC)	-
Zinc (TLV assigned to Zinc oxide fume)	07440-66-6	150ug/m^3(DOH)	50(DOH)	(DM)[5]

TABLE IV
Low Toxicity Air Contaminants

TABLE IV FOOTNOTES:

* New chemical added this printing, or toxicity classification revised for this printing.

(1) Occupational Values: (T)-1989 ACGIH TWA-TLV,
(P)-1989 OSHA final rule limit TWA-PEL,
(R)-NIOSH REL, and
"C" denotes a ceiling limit TLV which should not be exceeded.

(2) AGC, "Annual Guideline Concentration," source:
(T) - AGC derived from ACGIH TWA-TLV.
(DOH) - Contaminant specific AGC determined by NYS DOH, Bureau of Toxic Substance Assessment.
(DOH/R) - Contaminant specific AGC currently under review by DOH.
(DEC) - Contaminant specific AGC determined by NYS DEC, Division of Air Resources, Bureau of Air Toxics, Toxics Assessment Section.
(P) - AGC derived from OSHA final rule limit TWA-PEL.
(EPA) - USEPA Reference Air Concentrations (RAC)

(3) TLV assigned to Diethyl phthalate, CAS 00084-66-2.

(4) "This value is for total dust containing no asbestos and <1% free silica". 1988-89 ACGIH TLV booklet p. 22.

(5) No chemical specific occupational value or AGC is available at this time. (DM) denotes the "de minimis" interim AGC of 0.03 ug/m^3 which is recommended for use with Appendix A screening methodology. If Appendix A screening calculations predict an impact greater than 0.03ug/m^3, contact Air Toxics Management (518-457-7688) for guidance.

(6) Simple asphyxiant per ACGIH definition. See Appendix D, page 45 and page 8 of 1988-89 ACGIH TLV booklet.

(7) TLV assigned to Silicon tetrahydride (silane), CAS 07803-62-5.

(8) CAS Index Name: Hexanedioic acid, polymer with 1,2-propanediol, 2-ethylhexylester.

CHEMICAL NAME	CAS REGISTRY NUMBER	TABLE	PAGE
Acetaldehyde	00075-07-0	III	38
Acetamide	00060-35-5	III	38
*2-Acetamidofluorene (2-Acetylamino-fluorene)	00053-96-3	III	38
Acetic anhydride	00108-24-7	III	38
*5-Acetoacetamido-2-benzimidazolone	26576-46-5	III	38
*Acetoin	00513-86-0	IV	54
Acetone	00067-64-1	IV	54
Acetonitrile	00075-05-8	IV	54
*2-Acetylaminofluorene (See 2-Acetamidofluorene)	00053-96-3	III	38
*Acetyl chloride	00075-36-5	II	33
Acrolein	00107-02-8	II	33
Acrylamide (Ethylene carboxamide)	00079-06-1	III	38
Acrylic acid	00079-10-3	III	38
Acrylonitrile	00107-13-1	II	33
Aldicarb	00116-06-3	II	33
*Aliphatic naphtha (See Kerosene)	08008-20-6	IV	56
Allyl chloride	00107-05-1	III	38
*Alphamethrin(TM)	52315-07-8	III	38
para-Aminodiphenyl	00092-67-1	II	33
2-Aminoethanol (See Ethanolamine)	00141-43-5	III	43
*2-Amino-2-methyl-1-propanol (Isobutanolamine)	00124-68-5	III	38
*gamma-Aminopropyltriethoxysilane	00919-30-2	IV	54
Ammonia	07664-41-7	IV	54
Ammonium bromide	12124-97-9	III	38

NOTE: *-denotes new guidance this printing.

CHEMICAL NAME	CAS REGISTRY NUMBER	TABLE	PAGE
*Ammonium sulfate	07783-20-2	IV	54
Amosite (See Asbestos)	12172-73-5	II	33
Aniline	00062-53-3	III	38
para-Anisidine	00104-94-9	III	38
Antimony	07440-36-0	III	38
Antimony trioxide	01309-64-4	III	38
*Aqua ammonia	01336-21-6	IV	54
Arsenic (NESHAPS)	07440-38-2	IA	32
Arsenic and soluble compounds	07440-38-2	II	33
Arsenic pentoxide	01303-28-2	II	33
Arsenic trioxide	01327-53-3	II	33
*Arsine	07784-42-1	II	33
Asbestos (NESHAPS)	01332-21-4	IA	32
Asbestos	01332-21-4	II	33
Auramine	02465-27-2	II	33
BaP (See Benzo(a)pyrene)	00050-32-8	II	33
Barium	07440-39-3	III	38
Barium sulfate	07727-43-7	III	38
Benzene (NESHAPS - fugitive)	00071-43-2	IA	32
Benzene	00071-43-2	II	33
*1,3-Benzenediamine	00108-45-2	III	38
*1,2,4-Benzenetricarboxylic acid, decyl ocyl ester	67989-23-5	III	38
Benzidine	00092-87-5	II	33
Benzo(a)pyrene	00050-32-8	II	33
Benzyl chloride	00100-44-7	III	38

NOTE: *-denotes new guidance this printing.

CHEMICAL NAME	CAS REGISTRY NUMBER	TABLE	PAGE
Beryllium	07440-41-7	I	31
Beryllium (NESHAPS)	01304-56-9	IA	32
Beryllium oxide	01304-56-9	II	33
Beryllium sulfate	13510-49-1	II	33
*Bifenthin	82657-04-3	III	39
Biphenyl	00092-52-4	III	39
Bromine	07726-95-6	III	39
*Bromodichloromethane	00075-27-4	II	33
*Bromodiolone	28772-56-7	II	33
*Bromoform	00075-25-2	III	39
*Butadiene homopolymer	69102-90-5	III	39
*n-Butane	00106-97-8	IV	54
Butanethiol	00109-79-5	III	39
n-Butyl acetate	00123-86-4	IV	54
n-Butyl alcohol	00071-36-3	IV	54
n-Butylamine	00107-73-9	III	39
*Butylated hydroxytoluene	00128-37-0	IV	54
Butyl benzyl phthalate	00085-68-7	IV	54
*Butylcarbitol	00112-34-5	III	39
Butyl mercaptan	00109-79-5	III	39
*Butylphthalate butyl glycolate	00085-70-1	III	39
*gamma-Butyrolactone	00096-48-0	III	39
Cadmium	07440-43-9	II	34
Cadmium chloride	10108-64-2	III	39
*Cadmium mercury sulfide	01345-09-1	II	34
Cadmium oxide	01306-19-0	II	34

NOTE: *-denotes new guidance this printing.

CHEMICAL NAME	CAS REGISTRY NUMBER	TABLE	PAGE
Cadmium sulfate	10124-36-4	II	34
Carbamic acid (See Urethane)	00051-79-6	III	51
*Carbamide (See Urea)	00057-13-6	III	51
*Carbendazim	10605-21-7	III	39
*Carbitol cellosolve (DGME)	00111-90-0	IV	54
*Carbofuran	01563-66-2	III	39
Carbon black	01333-86-4	III	39
Carbon dioxide	00124-38-9	I	31
Carbon disulfide	00075-15-0	III	39
Carbon monoxide	00630-08-0	IA	31
Carbon tetrachloride	00056-23-5	II	34
Chlordane	00057-74-9	III	39
Chlordecone	00143-50-0	III	39
Chlorinated Camphene (See Toxaphene)	08001-35-2	III	50
Chlorine	07782-50-5	III	39
Chlorine dioxide	10049-04-4	III	39
alpha-Chloroacetophenone	00532-27-4	III	40
para-Chloroaniline	00106-47-8	III	40
Chlorobenzene	00108-90-7	III	40
*Chlorodibromomethane	00124-48-1	III	40
1-Chloro-2,3-epoxy propane	00106-89-8	III	43
Chloroethylene (See Vinyl chloride)	00075-01-4	II	36
Chloroform	00067-66-3	III	40
Chloromethane (Methyl Chloride)	00074-87-3	IV	54
bis-Chloromethyl ether	00542-88-1	II	34

NOTE: *-denotes new guidance this printing.

CHEMICAL NAME	CAS REGISTRY NUMBER	TABLE	PAGE
*ortho-Chloro-para-nitroaniline	00121-87-9	III	40
*1,1-bis(Chlorophenyl)-2,2,2-trichloroethanol	00115-32-2	III	45
3-Chloro-1-propene	00107-05-1	III	38
*Chlorotrifluoroethane polymer with ethene	25101-45-5	IV	54
*Chlorotrifluoroethene (1-Chloro-1,2,2-trifluoroethylene	00079-38-9	III	40
*Chlorotrifluoromethane (Freon 13)	00075-72-9	IV	54
Chromium VI compounds	07440-47-3	II	34
*Chrome III oxide (See Chromium oxide)	01308-38-9	III	40
*Chromium oxide (Chrome III oxide)	01308-38-9	III	40
Chrysotile (See Asbestos)	12001-29-5	II	33
Cobalt	07440-48-4	III	40
Cobalt oxide	01307-96-6	III	40
Cobalt sulfide	01317-42-6	III	40
*Copper (dusts and mists)	07440-50-8	III	40
*Copper (fumes)	07440-50-8	III	40
ortho-Cresol	00095-48-7	III	40
meta-Cresol	00108-39-4	III	40
para-Cresol	00106-44-5	III	40
Crocidolite (See Asbestos)	12001-28-4	II	33
Cyanamide	00420-04-2	III	40
Cyanic acid, potassium salt	00590-28-3	III	40
Cyanic acid, sodium salt	00917-61-3	III	41
Cyanides	00057-12-5	III	40
Cyanoacetamide	00107-91-5	III	41

NOTE: *-denotes new guidance this printing.

CHEMICAL NAME	CAS REGISTRY NUMBER	TABLE	PAGE
Cyanogen (Oxalonitrile)	00460-19-5	III	41
Cyclohexane	00110-82-7	IV	54
*Cyclohexanone	00108-94-1	III	41
*Cyclopropane carboxylic acid	82657-04-3	III	39
*Decamethylcyclopentasiloxane	00541-02-6	IV	55
*Decane	00124-18-5	III	41
*2-Deoxyphenobarbital (See Primidone(TM))	00125-33-7	III	49
*Deuterium sulfate	13813-19-9	III	41
*DGME (See Carbitol cellosolve)	00111-90-0	IV	54
*Diacetone alcohol	00123-42-2	III	41
*Dialkylphthalate (C7-9-11)	39393-37-8	IV	55
*Dialkylphthalate (C10-)	26761-40-0	III	41
Diallylmaleate	00999-21-3	III	41
2,5-Diaminotoluene	00095-70-5	III	41
ortho-Dianisidine	00119-90-4	III	42
Diazomethane	00334-88-3	III	41
Dibromoethane	00106-93-4	II	34
*Dibutyl-o-carboxybenzoyloxyacetate	00085-70-1	III	39
*Dibutyl sebacate	00109-43-3	IV	55
*Dichlone (See 2,3-Dichloro-1,4-naphtha quinone)	00117-80-6	III	41
2,5-Dichloroaniline	00095-82-9	III	41
ortho-Dichlorobenzene	00095-50-1	III	41
*meta-Dichlorobenzene	00541-73-1	III	41
3,3'-Dichlorobenzidine	00091-94-1	II	34
*1,1-Dichloroethane	00075-34-3	IV	55

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CHEMICAL NAME	CAS REGISTRY NUMBER	TABLE	PAGE
1,2-Dichloroethane	00107-06-2	III	41
*1,2-Dichloroethene	00540-59-0	III	41
*cis-1,2-Dichloroethene	00156-59-2	III	41
*trans-1,2-Dichloroethene	00156-60-5	III	41
1,1-Dichloroethylene (See Vinylidene chloride)	00075-35-4	II	36
Dichloromethane	00075-09-2	III	41
*2,3-Dichloro-1,4-naphtha quinone (Dichlone)	00117-80-6	III	41
*1,2-Dichloropropane	00078-87-5	III	42
*N,N-Diethylaniline	00091-66-7	III	42
*Diethylenedimethyl ether	00111-96-6	III	42
*Diethyleneglycol diethyl ether	00112-36-7	III	42
Diethylether (1,1'Oxybis-ethane)	00060-29-7	IV	55
Diethylphthalate	00084-66-2	III	42
*Diethyl zinc	00557-20-0	II	34
Diisodecylphthalate	26761-40-0	III	42
*Diisooctylphthalate	27554-26-3	IV	55
*Dimethoxane (See 2,4-Dimethyl-6-acetoxy-1,3-dioxane)	00828-00-2	III	42
3,3'-Dimethoxybenzidine	00119-90-4	III	42
*2,4-Dimethyl-6-acetoxy-1,3-dioxane	00828-00-2	III	42
4-Dimethylaminoazobenzene	00060-11-7	III	42
*N,N-Dimethylaniline	00121-69-7	III	42
1,1-Dimethyl-4,4'-bipyridinium dichloride (See Paraquat(TM))	01910-42-5	III	48
*3,3-Dimethylbutene	00558-37-2	III	42
Dimethylcarbamoylchloride	00079-44-7	III	42

NOTE: *-denotes new guidance this printing.

CHEMICAL NAME	CAS REGISTRY NUMBER	TABLE	PAGE
*Dimethyldichlorosilane	00075-78-5	III	42
*Dimethyldisulfide	00624-92-0	III	42
*Dimethylethynylcarbinol	00115-19-5	III	43
*Dimethylether	00115-10-6	IV	55
*Dimethylformamide	00068-12-2	III	42
*2,5-Dimethylfuran	00625-86-5	III	42
*2,5-Dimethyl-2,4-hexadiene	00764-13-6	III	42
1,1-Dimethylhydrazine	00057-14-7	III	42
Dimethylnitrosomine (See N-Nitrosodimethylamine)	00062-75-9	II	35
*1,1-Dimethyl-2-propyn-1-ol	00115-19-5	III	43
Dimethyl sulfate	00077-78-1	II	34
*Dimethyl sulfide	00075-18-3	III	43
*Dimethyltetramethoxydisiloxane	18186-97-5	III	43
*bis-(Dimethylthiocarbinoyl) disulfide (See Thiram(TM))	00137-26-8	III	50
*Dimethylvinylchlorosilane	01719-58-0	III	43
meta-Dinitrobenzene	00099-65-0	III	43
*2,6-Dinitro-N,N-dipropyl-4-trifluoromethylaniline (See Trifluarin(TM))	01582-09-8	III	51
*Dioctyladipate	00103-23-1	III	43
Dioctylphthalate (DOP)	00117-81-7	III	43
Dioctyl sebacate	00122-62-3	IV	55
1,4-Dioxane	00123-91-1	III	43
*Diphenylcarbonate	00102-09-0	III	43
Diphenylhydrazine	00122-66-7	III	43

NOTE: *-denotes new guidance this printing.

CHEMICAL NAME	CAS REGISTRY NUMBER	TABLE	PAGE
Diphenylmethane-4,4-diisocyanate (See Methylene bisphenylisocyanate)	00101-68-8	II	35
*Dipropylene glycol	25265-71-8	IV	55
*Dodecylbenzene	00123-01-3	IV	55
Dodecylglycidyl ether	02461-18-9	III	43
DOP (See Diotylphthalate)	00117-81-7	III	43
*EM Acetate (See Ethyleneglycol monobutyl ether acetate)	00112-07-2	III	44
Epichlorohydrin	00106-89-8	III	43
*Epoxide 4221	02386-87-0	III	43
Epoxypropane	00075-56-9	III	43
*Ethane	00074-84-0	IV	55
Ethanethiol (Ethylmercaptan)	00075-08-1	III	43
Ethanolamine (2-Aminoethanol)	00141-43-5	III	43
*2-(2-Ethoxyethoxy)-Ethanol	00111-90-0	IV	54
*3-Ethoxyl-1-propanol	00111-35-3	III	43
Ethyl acetate	00141-78-6	IV	55
*Ethyl alcohol	00064-17-5	IV	55
*N-Ethylaniline	00103-69-5	III	43
Ethylbenzene	00100-41-4	III	43
Ethylene carboxamide (See Acrylamide)	00079-06-1	III	38
Ethyl chloride	00075-00-3	IV	55
Ethylene dibromide	00106-93-4	II	34
Ethylene dichloride	00107-06-2	III	41
*Ethyleneglycol monobutyl ether acetate (EM Actetate)	00112-07-2	III	44
Ethyleneglycol monopropyl ether	02807-30-9	III	44

NOTE: *-denotes new guidance this printing.

CHEMICAL NAME	CAS REGISTRY NUMBER	TABLE	PAGE
Ethyleneimine	00151-56-4	II	34
Ethylene oxide	00075-21-8	II	34
Ethyl ether (Diethylether, ethers)	00060-29-7	IV	55
*Ethyl-3-ethoxypropionate	00763-69-9	III	44
*2-Ethylhexylmethacrylate	00688-84-6	III	44
Ethylmercaptan (See Ethanethiol)	00075-08-1	III	43
*Ethylmethylbenzene	25550-14-5	III	44
*Fastac(TM)	67375-30-8	III	44
*Fish oil	08016-13-5	IV	55
Fluorides (CAS # of Fluorine)	07782-41-4	I	31
Fluorine	07782-41-4	III	44
Formaldehyde	00050-00-0	II	34
Formamide	00075-12-7	III	44
Formic acid	00064-18-6	III	44
*Freon 13 (See Chlorotrifluoromethane)	00075-72-9	IV	54
*Freon 113 (See 1,1,2-trichloro-1,2,2-trifluoroethane)	00076-13-1	IV	58
Furfural	00098-01-1	III	44
Furfuryl alcohol	00098-00-0	III	44
Glycerin mist	00056-81-5	IV	55
Glycidaldehyde	00765-34-4	III	44
*Glycolmonoethyl ether	00110-80-5	III	44
*4-Glycydiloxy-N,N'-diglycidylaniline	05026-74-4	III	44
*Heloxy WC-8	Unknown	III	44
Heptachlor	00076-44-8	III	44

NOTE: *-denotes new guidance this printing.

CHEMICAL NAME	CAS REGISTRY NUMBER	TABLE	PAGE
*n-Heptane	00142-82-5	III	44
*Heptyl acetate	00112-06-1	IV	55
Hexachlorobenzene	00118-74-1	III	44
Hexachlorobutadiene	00087-68-3	III	44
Hexachlorocyclohexane	00319-84-6	III	44
Hexachlorocyclopentadiene	00077-47-4	III	45
Hexachlorocyclopentadiene dimer (See Mirex(TM))	02385-85-5	III	47
Hexachloronaphthalene	01335-87-1	III	45
*1-Hexadecene	00629-73-2	III	45
*Hexamethyldisiloxane	00107-46-0	III	45
*Hexamethylenediamine	00124-09-4	III	45
Hexamethylphosporamide	00680-31-9	III	45
Hydrazine and its acid salts	00302-01-2	II	34
Hydrocyanic acid	00074-90-8	III	45
Hydrogen bromide	10035-10-6	IV	56
Hydrogen chloride	07647-01-0	IV	56
Hydrogen cyanide	00074-90-8	III	45
Hydrogen fluoride	07664-39-3	III	45
Hydrogen sulfide	07783-06-4	I	31
Hydroquinone	00123-31-9	III	45
*Hydroxypropylmethacrylate	27813-02-1	III	45
Iodine	07553-56-2	IV	56
Isoamyl acetate	00123-92-2	IV	56
Isoamyl alcohol	00123-51-3	IV	56
*Isobutane	00075-28-5	IV	56

NOTE: *-denotes new guidance this printing.

CHEMICAL NAME	CAS REGISTRY NUMBER	TABLE	PAGE
*Isobutanolamine (See 2-Amino-2-methyl-1-propanol)	000124-68-5	III	38
Isobutyl acetate	00110-19-0	IV	56
*Isobutylene	00115-11-7	III	45
*Isobutyl isobutyrate	00097-85-8	IV	56
*Isobutyric aldehyde (See 2-Methylpropanal)	00078-84-2	IV	56
*Isocyanic acid, methylene diphenylene ester	26447-40-5	II	34
*Isopentane	00078-78-4	IV	56
Isophorone	00078-59-1	III	45
Isopropyl alcohol	00067-63-0	III	45
Isopropylamine	00075-31-0	III	45
*Kelthane	00115-32-2	III	45
Kepone	00143-50-0	III	39
*Kerosene (Aliphatic naphtha)	08008-20-6	IV	56
Ketene	00463-51-4	III	45
Lead	07439-92-1	I	31
Lead acetate	01335-32-6	III	45
Lead arsenate	07784-40-9	II	34
*Lead chromate	07758-97-6	II	35
*Lead chromate oxide	18454-12-1	II	35
*Ligroine (VM&P Naphtha)	08032-32-4	IV	56
alpha-Lindane	00319-84-6	III	46
*beta-Lindane	00319-85-7	III	46
gamma-Lindane	00058-89-9	III	46
Malathion	00121-75-5	III	46

NOTE: *-denotes new guidance this printing.

CHEMICAL NAME	CAS REGISTRY NUMBER	TABLE	PAGE
Maleic anhydride	00108-31-6	III	46
*Manganese	07439-96-5	III	46
MDI (See Methylene bisphenyl-isocyanate)	00101-68-8	II	35
MEK (See Methylethylketone)	00078-93-3	III	46
*Melamine formaldehyde	68891-01-0	III	46
Mercury (NESHAPS)	07439-97-6	IA	32
Mercury (inorganic)	07439-97-6	III	46
Mercury (organic)	07439-97-6	III	46
Methanethiol (See Methylmercaptan)	00074-93-1	III	47
2-Methoxyethanol	00109-86-4	III	46
*Methoxypropylacetate	00108-65-6	IV	56
Methylamine	00074-89-5	III	46
*N-Methylaniline	00100-61-8	III	46
*Methylbutanone	00096-17-3	III	46
*Methyl carbitol	00111-77-3	IV	56
Methyl cellosolve(2-Methoxyethanol)	00109-86-4	III	46
Methyl chloride (See Chloromethane)	00074-87-3	IV	54
Methyl chloroform (See 1,1,1-Trichloroethane)	00071-55-6	IV	58
Methylchloromethyl ether	00107-30-2	III	46
*Methylcyclohexadiene	30640-45-1	III	46
Methyl-1,3-cyclopentadiene	26519-91-5	III	46
*Methylcyclopentane	00096-37-7	IV	56
Methylenebisphenylisocyanate (Diphenylmethane-4,4-diisocyanate, (MDI))	00101-68-8	II	35
Methylene chloride (See Dichloromethane)	00075-09-2	III	41

NOTE: *-denotes new guidance this printing.

CHEMICAL NAME	CAS REGISTRY NUMBER	TABLE	PAGE
*Methylene cyclobutane	01120-56-5	III	46
4,4'-Methylenedianiline	00101-77-9	III	46
*Methylethylbenzene (See Ethyl-methylbenzene)	25550-14-5	III	44
Methylethylketone (MEK)	00078-93-3	III	46
*Methyl formate	00107-31-3	III	46
*2-Methylfuran	00534-22-5	II	35
Methylhydrazine	00060-34-4	III	47
Methylisobutylketone (MIBK)	00108-10-1	III	47
Methylisocyanate	00624-83-9	II	35
Methylmercaptan (Methanethiol)	00074-93-1	III	47
Methylmethacrylate	00080-62-6	III	47
*3-Methyl-1-pentanol	00589-35-5	III	47
*2-Methylpropanal (Isobutyric aldehyde)	00078-84-2	IV	56
*2-Methylpropene	00115-11-7	III	45
*Methylpyrrole	00096-54-8	III	47
*1-Methyl-2-pyrrolidinone	00872-50-4	III	47
*Methylsalicylate (Wintergreen Oil)	00119-36-8	IV	56
*Methyl-tert-butyl ether	01634-04-4	III	47
*Methyltrimethoxysilane	01185-55-3	IV	57
*Methylvinyltetramer	02554-06-8	IV	57
MIBK (See Methylisobutylketone)	00108-10-1	III	47
MIC	00624-83-9	II	35
Mirex(TM) (Hexachlorocyclopentadiene dimer)	02385-85-5	III	47
*Nadic Methyl Anhydride(TM)	25134-21-8	IV	57

NOTE: *-denotes new guidance this printing.

CHEMICAL NAME	CAS REGISTRY NUMBER	TABLE	PAGE
*Naphtha heavy	64742-94-5	III	47
*Naphtha light	64742-95-4	III	47
Naphthalene	00091-20-3	III	47
alpha-Naphthylamine	00134-32-7	III	47
beta-Naphthylamine	00091-59-8	II	35
Nickel (metal and insoluble compounds)	07440-02-0	II	35
Nickel carbonyl	13463-39-3	II	35
Nickel monoxide	01313-99-1	II	35
Nickel sulfide	12035-72-2	II	35
Nitric acid	00797-37-2	IV	57
Nitrilotriacetic acid	00139-13-9	III	47
para-Nitroaniline	00100-01-6	III	47
Nitrobenzene	00098-95-3	III	47
para-Nitrochlorobenzene	00100-00-5	III	47
4-Nitrodiphenyl	00092-93-3	II	35
Nitrogen dioxide	10102-44-0	I	31
Nitrogen Mustard	00051-75-2	II	35
Nitroglycerine	00055-63-0	III	47
para-Nitrophenol	00100-02-7	III	47
*1-Nitropropane	00108-03-2	III	47
*2-Nitropropane	00079-46-9	II	35
N-Nitrosodimethylamine (Dimethylnitrosomine)	00062-75-9	II	35
Nitroso-N-methyl urea	00684-93-5	III	48
para-Nitrosophenol	00104-91-6	III	48
para-Nitrotoluene	00099-99-0	III	48

NOTE: *-denotes new guidance this printing.

CHEMICAL NAME	CAS REGISTRY NUMBER	TABLE	PAGE
Octachloronaphthalene	02234-13-1	III	48
*Octamethylcyclotetrasiloxane	00556-67-2	IV	57
Oil mist (mineral)	08012-95-1	III	48
*alpha-Olephin	00629-73-2	III	45
Oxalonitrile (See Cyanogen)	00460-19-5	III	41
Oxalic acid	00144-62-7	III	48
1,1'-Oxybis-ethane (See Diethylether)	00060-29-7	IV	55
Ozone	10028-15-6	I	31
Paraquat(TM) 1,1-Dimethyl-4,4'-bipyridinium dichloride)	01910-42-5	III	48
Parathion(TM)	00056-38-2	II	35
PCBs(See Polychlorinated biphenyls)	01336-36-3	II	36
Pentachlorophenol	00087-86-5	III	48
*1-Pentene	00109-67-1	III	48
*4-Penten-2-ol	00625-31-0	II	35
*n-Pentyl alcohol	00071-41-0	IV	57
Perchloroethylene (See Tetrachloroethylene)	00127-18-4	III	50
*Permethrin	52645-53-1	III	48
Petroleum distillates	08002-05-9	III	48
Phenacyl chloride (See alpha-Chloracetophenone)	00532-27-4	III	39
Phenol	00108-95-2	III	48
para-Phenylenediamine	00106-50-3	III	48
Phenylhydrazine	00100-63-0	III	48
*Phenylxylylethane	06196-95-8	IV	57
Phosgene	00075-44-5	III	48

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CHEMICAL NAME	CAS REGISTRY NUMBER	TABLE	PAGE
Phosphine	07803-51-2	III	48
Phosphorous (yellow)	07723-14-0	III	48
Picric acid	00088-89-1	III	48
*Polyacrylic acid	09003-01-4	III	48
Polychlorinated biphenyls (PCBs)	01336-36-3	II	36
Polycyclic organic matter (See BaP)	00050-32-8	II	33
*Polyethylene glycol	25322-68-3	III	48
*Polyethylene glycol dimethylether	24991-55-7	III	49
*Polyethylene stearate	09004-99-3	IV	57
*Polyethylene terephthalate	25038-59-9	III	49
*Polyhexamethylene diamine	Unknown	III	49
*Polyhexamethylene dodecane diamide	26098-55-5	III	49
*Polymeric Ester-S-412	68238-77-7	IV	57
*Polymethylene polyphenylisocyanate	09016-87-9	II	36
*Polyoxypropylene	25791-96-2	III	49
*Polyvinylidene fluoride	24937-79-9	III	49
*Posture(TM) (See Tricalcium phosphate)	07758-87-4	IV	58
*Potassium gold cyanide	14263-59-3	III	49
*Potassium permanganate	07722-64-7	III	49
*Primidone(TM) (2-Deoxyphenobarbital)	00125-33-7	III	49
*Propane	00074-98-6	IV	57
*1,3-Propanediamine	00109-76-2	III	49
Propane sultone	01120-71-4	III	49
beta-Propiolactone	00057-57-8	III	49
*N-Propylbenzene	00103-65-1	III	49

NOTE: *-denotes new guidance this printing.

CHEMICAL NAME	CAS REGISTRY NUMBER	TABLE	PAGE
*Propylene carbonate	00108-32-7	IV	57
Propylene oxide	00075-56-9	III	43
Pyrethrin(TM)	00121-29-9	III	49
Pyrethrum(TM)	08003-34-7	III	49
Pyridine	00110-86-1	IV	57
Quinoline	00091-22-5	III	49
Quinone	00106-51-4	III	49
Radionuclides (NESHAPS)	Various	IA	32
Resorcinol	00108-46-3	IV	57
*Rhoplex TR-407	09081-82-7	III	49
Rotenone (commercial)	00083-79-4	III	49
Selenium	07782-49-2	III	50
Selenium sulfide	07488-56-4	III	50
*Siloxanes and silicones, dimethyl- (Dimethyl siloxanes and silicones)	63148-62-9	III	50
*Sodium aluminium silicate	01344-00-9	III	50
*Sodium persulfate	07775-27-1	IV	57
*Sodium xylene sulfonate	01300-72-7	IV	57
Styrene, monomer	00100-42-5	III	50
*Styrofoam(TM)	09003-53-6	III	50
Sulfur dioxide	07449-09-5	I	31
*Systhane(TM)	88671-89-0	III	50
TDI(See Toluene-(2,4)-diisocyanate)	00584-84-9	II	36
2,3,7,8-Tetrachlorodibenzofuran	51207-31-9	II	36
Tetrachlorinated dibenzo-p-dioxins	01746-01-6	II	36
1,1,2,2-Tetrachloroethane	00079-34-5	III	50

NOTE: *-denotes new guidance this printing.

CHEMICAL NAME	CAS REGISTRY NUMBER	TABLE	PAGE
Tetrachloroethylene (Perchloroethylene)	00127-18-4	III	50
*1-Tetradecene	01120-36-1	IV	57
*Tetradecylglycidyl ether	38954-75-5	III	50
Tetrahydrofuran	00109-99-9	IV	57
*2,4,7,9-Tetramethyl-5-decyne-4,7-diol	00126-86-3	IV	58
Thallium	07440-28-0	III	50
Thallium oxide	01314-32-5	III	50
Thallium(I)selenite	12039-52-0	III	50
Thallium sulfate	07446-18-6	III	50
Thiourea	00062-56-6	III	50
*Thiram(TM) (bis-(Dimethylthiocarbinoyl)disulfide)	00137-26-8	III	50
Toluene (Toluol)	00108-88-3	IV	58
Toluene-(2,4)-diamine	00095-80-7	III	50
Toluene-(2,4)-diisocyanate (TDI)	00584-84-9	II	36
ortho-Toluidine	00095-53-4	III	50
Toxaphene (Chlorinated Camphene)	08001-35-2	III	50
*Tricalcium phosphate (Posture(TM))	07758-87-4	IV	58
1,2,4-Trichlorobenzene	00120-82-1	III	51
1,1,1-Trichloroethane (Methyl Chloroform)	00071-55-6	IV	58
1,1,2-Trichloroethane	00079-00-5	III	51
Trichloroethylene	00079-01-6	III	51
*1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	00076-13-1	IV	58
*Tridecane	00629-50-5	IV	58

NOTE: *-denotes new guidance this printing.

CHEMICAL NAME	CAS REGISTRY NUMBER	TABLE	PAGE
*2,4,6-Tri(dimethylamino-methyl) phenol	00090-72-2	III	51
*Triethylaluminum	00097-93-8	II	36
*Triethylenetetramine	00112-24-3	III	51
*Triethylgallium	01115-99-7	II	36
*Triethylindium	00923-34-2	II	36
*Trifluarin(TM) (2,6-Dinitro-N,N-dipropyl-4-trifluoromethylaniline)	01582-09-8	III	51
1,1,3-Trimethyl-3-cyclohexene-5-one	00078-59-1	III	45
Turpentine	08006-64-2	IV	58
*Ultem(TM)	61128-46-9	III	51
*Urea (Carbamide)	00057-13-6	III	51
Urethane (Carbamic acid)	00051-79-6	III	51
*Vanadium	07440-62-2	II	36
Vinyl bromide	00593-60-2	III	51
Vinyl chloride (NESHAPS)	00075-01-4	IA	32
Vinyl chloride	00075-01-4	II	36
*Vinyl cyclohexene	00100-40-3	III	51
Vinyl fluoride	00075-02-2	III	51
Vinylidene chloride (1,1-Dichloro-ethylene)	00075-35-4	II	36
*Vinyl pyrrolidinone	00088-12-0	IV	58
Wintergreen Oil (See Methylsalicylate)	00119-36-8	IV	56
VM&P Naphtha (See Ligroine)	08032-32-4	IV	56
Xylene (mixed isomers)	01330-20-7	III	51
ortho-Xylene	00095-47-6	III	51
meta-Xylene	00108-38-3	III	51

NOTE: *-denotes new guidance this printing.

CHEMICAL NAME	CAS REGISTRY NUMBER	TABLE	PAGE
para-Xylene	00106-42-3	III	51
Xylidine	01300-73-8	III	51
Zinc	07440-66-6	IV	58
Zinc bromide	07699-45-8	III	51
Zinc chloride(fume)	07646-85-7	III	51
Zinc oxide(fume)	01314-13-2	III	51
*Zinc phosphide	01314-84-7	II	36

NOTE: *-denotes new guidance this printing.

CAS REGISTRY NUMBER	CHEMICAL NAME	TABLE	PAGE
*Unknown	Heloxy WC-8	III	44
*Unknown	Polyhexamethylene diamine	III	49
Various	Radionuclides (NESHAPS)	IA	32
00050-00-0	Formaldehyde	II	34
00050-32-8	Benzo(a)pyrene	II	33
00051-75-2	Nitrogen Mustard	II	35
00051-79-6	Urethane	III	51
*00053-96-3	2-Acetamidofluorene	III	38
00055-63-0	Nitroglycerine	III	47
00056-23-5	Carbon tetrachloride	II	34
00056-38-2	Parathion(TM)	II	35
00056-81-5	Glycerin Mist	IV	55
00057-12-5	Cyanides	III	40
*00057-13-6	Urea	III	51
00057-14-7	1,1-Dimethylhydrazine	III	42
00057-57-8	beta-Propiolactone	III	49
00057-74-9	Chlordane	III	39
00058-89-9	gamma-Lindane	III	46
00060-11-7	4-Dimethylaminoazobenzene	III	42
00060-29-7	Diethyl ether	IV	55
00060-29-7	Ethyl ether	IV	55
00060-34-4	Methylhydrazine	III	47
00060-35-5	Acetamide	III	38
00062-53-3	Aniline	III	38
00062-56-6	Thiourea	III	50

NOTE: *-denotes new guidance this printing.

CAS REGISTRY NUMBER	CHEMICAL NAME	TABLE	PAGE
00062-75-9	N-Nitrosodimethylamine	II	35
*00064-17-5	Ethyl alcohol	IV	55
00064-18-6	Formic acid	III	44
00067-63-0	Isopropyl alcohol	III	45
00067-64-1	Acetone	IV	54
00067-66-3	Chloroform	III	40
*00068-12-2	Dimethylformamide	III	42
00071-36-3	n-Butyl alcohol	IV	54
*00071-41-0	n-Pentyl alcohol	IV	57
00071-43-2	Benzene (NESHAPS)	IA	32
00071-43-2	Benzene	II	33
00071-55-6	1,1,1-Trichloroethane	IV	58
*00074-84-0	Ethane	IV	55
00074-87-3	Chloromethane	IV	54
00074-89-5	Methylamine	III	46
00074-90-8	Hydrogen cyanide	III	45
00074-93-1	Methylmercaptan	III	47
*00074-98-6	Propane	IV	57
00075-00-3	Ethyl chloride	IV	55
00075-01-4	Vinyl chloride (NESHAPS)	IA	32
00075-01-4	Vinyl chloride	II	36
00075-02-2	Vinyl fluoride	III	51
00075-05-8	Acetonitrile	IV	54
00075-07-0	Acetaldehyde	III	38
00075-08-1	Ethanethiol	III	43

NOTE: *-denotes new guidance this printing.

CAS REGISTRY NUMBER	CHEMICAL NAME	TABLE	PAGE
00075-09-2	Dichloromethane	III	41
00075-12-7	Formamide	III	44
00075-15-0	Carbon disulfide	III	39
*00075-18-3	Dimethyl sulfide	III	43
00075-21-8	Ethylene oxide	II	34
*00075-25-2	Bromoform	III	39
*00075-27-4	Bromodichloromethane	II	33
*00075-28-5	Isobutane	IV	56
00075-31-0	Isopropylamine	III	45
*00075-34-3	1,1-Dichloroethane	IV	55
00075-35-4	Vinylidene chloride	II	36
*00075-36-5	Acetyl chloride	II	33
00075-44-5	Phosgene	III	48
00075-56-9	Epoxypropane	III	43
*00075-72-9	Chlorotrifluoromethane	IV	54
*00075-78-5	Dimethyldichlorosilane	III	42
*00076-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	IV	58
00076-44-8	Heptachlor	III	44
00077-47-4	Hexachlorocyclopentadiene	III	45
00077-78-1	Dimethyl sulfate	II	34
00078-59-1	Isophorone(TM)	III	45
*00078-78-4	Isopentane	IV	56
*00078-84-2	2-Methylpropanal	IV	56
*00078-87-5	1,2-Dichloropropane	III	42
00078-93-3	Methylethylketone	III	46

NOTE: *-denotes new guidance this printing.

CAS REGISTRY NUMBER	CHEMICAL NAME	TABLE	PAGE
00079-00-5	1,1,2-Trichloroethane	III	51
00079-01-6	Trichloroethylene	III	51
00079-06-1	Acrylamide	III	38
00079-10-3	Acrylic acid	III	38
00079-34-5	1,1,2,2-Tetrachloroethane	III	50
*00079-38-9	Chlorotrifluoroethene	III	40
00079-44-7	Dimethylcarbamoylchloride	III	42
*00079-46-9	2-Nitropropane	II	35
00080-62-6	Methylmethacrylate	III	47
00083-79-4	Rotenone	III	49
00084-66-2	Diethylphthalate	III	42
00085-68-7	Butyl benzyl phthalate	IV	54
*00085-70-1	Butylphthalate butyl glycolate	III	39
00087-68-3	Hexachlorobutadiene	III	44
00087-86-5	Pentachlorophenol	III	48
*00088-12-0	Vinyl pyrrolidinone	IV	58
00088-89-1	Picric acid	III	48
*00090-72-2	2,4,6-Tri(dimethylaminomethyl) phenol	III	51
00091-20-3	Naphthalene	III	47
00091-22-5	Quinoline	III	49
00091-59-8	beta-Naphthylamine	II	35
*00091-66-7	N,N-Diethylaniline	III	42
00091-94-1	3,3'-Dichlorobenzidine	II	34
00092-52-4	Biphenyl	III	39
00092-67-1	para-Aminodiphenyl	II	33

NOTE: *-denotes new guidance this printing.

CAS REGISTRY NUMBER	CHEMICAL NAME	TABLE	PAGE
00092-87-5	Benzidine	II	33
00092-93-3	4-Nitrodiphenyl	II	35
00095-47-6	ortho-Xylene	III	50
00095-48-7	ortho-Cresol	III	40
00095-50-1	ortho-Dichlorobenzene	III	41
00095-53-4	ortho-Toluidine	III	50
00095-70-5	2,5-Diaminotoluene	III	41
00095-80-7	Toluene-(2,4)-diamine	III	50
*00095-82-9	2,5-Dichloroaniline	III	41
*00096-17-3	Methylbutanone	III	46
*00096-37-7	Methylcyclopentane	IV	56
*00096-48-0	gamma-Butyrolactone	III	39
*00096-54-8	Methylpyrrole	III	47
*00097-85-8	Isobutyl isobutyrate	IV	56
*00097-93-8	Triethylaluminum	II	36
00098-00-0	Furfuryl alcohol	III	44
00098-01-1	Furfural	III	44
00098-95-3	Nitrobenzene	III	47
00099-65-0	meta-Dinitrobenzene	III	43
00099-99-0	para-Nitrotoluene	III	48
00100-00-5	para-Nitrochlorobenzene	III	47
00100-01-6	para-Nitroaniline	III	47
00100-02-7	para-Nitrophenol	III	47
*00100-40-3	Vinyl cyclohexene	III	50
00100-41-4	Ethylbenzene	III	43

NOTE: *-denotes new guidance this printing.

CAS REGISTRY NUMBER	CHEMICAL NAME	TABLE	PAGE
00100-42-5	Styrene, monomer	III	50
00100-44-7	Benzyl chloride	III	38
*00100-61-8	N-Methylaniline	III	47
00100-63-0	Phenylhydrazine	III	48
00101-68-8	Methylene bisphenylisocyanate	II	35
00101-77-9	4,4'-Methylenedianiline	III	46
*00102-09-0	Diphenylcarbonate	III	43
*00103-23-1	Dioctyladipate	III	43
*00103-65-1	N-Propylbenzene	III	49
*00103-69-5	N-Ethylaniline	III	43
00104-91-6	para-Nitrosophenol	III	48
00104-94-9	para-Anisidine	III	38
00106-42-3	para-Xylene	III	51
00106-44-5	para-Cresol	III	40
00106-47-8	para-Chloroaniline	III	40
00106-50-3	para-Phenylenediamine	III	48
00106-51-4	Quinone	III	49
00106-89-8	Epichlorohydrin	III	43
00106-93-4	Dibromoethane	II	34
*00106-97-8	n-Butane	IV	54
00107-02-8	Acrolein	II	33
00107-05-1	Allyl chloride	III	38
00107-06-2	1,2-Dichloroethane	III	41
00107-13-1	Acrylonitrile	II	33
00107-30-2	Methylchloromethyl ether	III	46

NOTE: *-denotes new guidance this printing.

CAS REGISTRY NUMBER	CHEMICAL NAME	TABLE	PAGE
*00107-31-3	Methyl formate	III	46
*00107-46-0	Hexamethyldisiloxane	III	45
00107-73-9	n-Butylamine	III	39
00107-91-5	Cyanoacetamide	III	41
*00108-03-2	1-Nitropropane	III	47
00108-10-1	Methylisobutylketone	III	47
00108-24-7	Acetic anhydride	III	38
00108-31-6	Maleic anhydride	III	46
*00108-32-7	Propylene carbonate	IV	57
00108-38-3	meta-Xylene	III	51
00108-39-4	meta-Cresol	III	40
*00108-45-2	1,3-Benzenediamine	III	38
00108-46-3	Resorcinol	IV	57
*00108-65-6	Methoxypropylacetate	IV	56
00108-88-3	Toluene (Toluol)	IV	58
00108-90-7	Chlorobenzene	III	40
*00108-94-1	Cyclohexanone	III	41
00108-95-2	Phenol	III	48
*00109-43-3	Dibutyl sebacate	IV	55
*00109-67-1	1-Pentene	III	48
*00109-76-2	1,3-Propanediamine	III	49
00109-79-5	Butanethiol	III	39
00109-86-4	2-Methoxyethanol	III	46
00109-99-9	Tetrahydrofuran	IV	57
00110-19-0	Isobutyl acetate	IV	56

NOTE: *-denotes new guidance this printing.

CAS REGISTRY NUMBER	CHEMICAL NAME	TABLE	PAGE
*00110-80-5	Glycolmonoethyl ether	III	44
00110-82-7	Cyclohexane	IV	54
00110-86-1	Pyridine	IV	57
*00111-35-3	3-Ethoxyl-1-propanol	III	43
*00111-77-3	Methyl carbitol	IV	56
*00111-90-0	Carbitol cellosolve	IV	54
*00111-96-6	Diethylenedimethyl ether	III	42
*00112-06-1	Heptyl acetate	IV	55
*00112-07-2	Ethyleneglycol monobutyl ether acetate	III	44
*00112-24-3	Triethylenetetramine	III	51
*00112-34-5	Butylcarbitol	III	39
*00112-36-7	Diethyleneglycoldiethyl ether	III	42
*00115-10-6	Dimethylether	IV	55
*00115-11-7	Isobutylene	III	45
*00115-19-5	1,1-Dimethyl-2-propyn-1-ol	III	43
*00115-32-2	Kelthane(TM)	III	45
00116-06-3	Aldicarb	II	33
*00117-80-6	2,3-Dichloro-1,4-naphtha quinone	III	41
00117-81-7	Dioctylphthalate	III	43
00118-74-1	Hexachlorbenzene	III	44
*00119-36-8	Methylsalicylate	IV	56
00119-90-4	3,3'-Dimethoxybenzidine	III	42
00120-82-1	1,2,4-Trichlorobenzene	III	51
00121-29-9	Pyrethrin(TM)	III	49
*00121-69-7	N,N-Dimethylaniline	III	42

NOTE: *-denotes new guidance this printing.

CAS REGISTRY NUMBER	CHEMICAL NAME	TABLE	PAGE
00121-75-5	Malathion	III	46
*00121-87-9	ortho-Chloro-para-nitroaniline	III	40
00122-62-3	Dioctyl sebacate	IV	55
00122-66-7	Diphenylhydrazine	III	43
*00123-01-3	Dodecylbenzene	IV	55
00123-31-9	Hydroquinone	III	45
*00123-42-2	Diacetone alcohol	III	41
00123-51-3	Isoamyl alcohol	IV	56
00123-86-4	n-Butyl acetate	IV	54
00123-91-1	1,4-Dioxane	III	43
00123-92-2	Isoamyl acetate	IV	56
*00124-09-4	Hexamethylenediamine	III	45
*00124-18-5	Decane	III	41
*00124-48-1	Chlorodibromomethane	III	40
*00125-33-7	Primidone(TM)	III	49
*00124-68-5	2-Amino-2-methyl-1-propanol	III	38
*00126-86-3	2,4,7,9-tetramethyl-5-decyne-4,7-diol	IV	58
00127-18-4	Tetrachloroethylene	III	50
*00128-37-0	Butylated hydroxytoluene	IV	54
00134-32-7	alpha-Naphthylamine	III	47
*00137-26-8	Thiram	III	50
00139-13-9	Nitrilotriacetic acid	III	47
00141-43-5	Ethanolamine	III	43
00141-78-6	Ethyl acetate	IV	55
*00142-82-5	n-Heptane	III	44

NOTE: *-denotes new guidance this printing.

CAS REGISTRY NUMBER	CHEMICAL NAME	TABLE	PAGE
00143-50-0	Chlordecone	III	39
00144-62-7	Oxalic acid	III	48
00151-56-4	Ethyleneimine	II	34
*00156-59-2	cis-1,2-Dichloroethene	III	41
*00156-60-5	trans-1,2-Dichloroethene	III	41
00302-01-2	Hydrazine	II	34
00319-84-6	alpha-Lindane	III	46
00319-84-6	Hexachlorocyclohexane	III	44
*00319-85-7	beta-Lindane	III	46
00334-88-3	Diazomethane	III	41
00420-04-2	Cyanamide	III	40
00460-19-5	Cyanogen	III	41
00463-51-4	Ketene	III	45
*00513-86-0	Acetoin	IV	54
00532-27-4	alpha-Chloroacetophenone	III	39
*00534-22-5	2-Methylfuran	II	35
*00540-59-0	1,2-Dichloroethene	III	41
*00541-02-6	Decamethylcyclopentasiloxane	IV	55
*00541-73-1	meta-Dichlorobenzene	III	41
00542-88-1	bis-Chloromethyl ether	II	34
*00556-67-2	Octamethylcyclotetrasiloxane	IV	57
*00557-20-0	Diethyl zinc	II	34
*00558-37-2	3,3-Dimethylbutene	III	42
00584-84-9	Toluene-(2,4)-diisocyanate	II	36
*00589-35-5	3-Methyl-1-pentanol	III	47

NOTE: *-denotes new guidance this printing.

CAS REGISTRY NUMBER	CHEMICAL NAME	TABLE	PAGE
00590-28-3	Cyanic acid, potassium salt	III	40
00593-60-2	Vinyl bromide	III	51
00624-83-9	Methyl isocyanate	II	35
*00624-92-0	Dimethyldisulfide	III	42
*00625-31-0	4-Penten-2-ol	II	35
*00625-86-5	2,5-Dimethylfuran	III	42
*00629-50-5	Tridecane	IV	58
*00629-73-2	1-Hexadecene	III	45
00630-08-0	Carbon monoxide	IA	32
00680-31-9	Hexamethylphosporamide	III	45
00684-93-5	Nitroso-N-methyl urea	III	48
*00688-84-6	2-Ethylhexylmethacrylate	III	43
*00763-69-9	Ethyl-3-ethoxypropionate	III	44
*00764-13-6	2,5-Dimethyl-2,4-hexadiene	III	42
00765-34-4	Glycidaldehyde	III	44
00797-37-2	Nitric acid	IV	57
*00828-00-2	2,4-Dimethyl-6-acetoxy-1,3-dioxane	III	42
*00872-50-4	1-Methyl-2-pyrrolidinone	III	47
00917-61-3	Cyanic acid, sodium salt	III	41
*00919-30-2	gamma-Aminopropyltriethoxysilane	IV	54
*00923-34-2	Triethylindium	II	36
00999-21-3	Diallylmaleate	III	41
*01115-99-7	Triethylgallium	II	36
*01120-36-1	1-Tetradecene	IV	57
*01120-56-5	Methylene cyclobutane	III	46

NOTE: *-denotes new guidance this printing.

CAS REGISTRY NUMBER	CHEMICAL NAME	TABLE	PAGE
01120-71-4	Propane sultone	III	49
*01185-55-3	Methyltrimethoxysilane	IV	57
*01300-72-7	Sodium xylene sulfonate	IV	57
01300-73-8	Xylidine	III	51
01303-28-2	Arsenic pentoxide	II	33
01304-56-9	Beryllium oxide	II	33
01306-19-0	Cadmium oxide	II	34
01307-96-6	Cobalt oxide	III	40
*01308-38-9	Chromium oxide (Chrome III oxide)	III	40
01309-64-4	Antimony trioxide	III	38
01313-99-1	Nickel monoxide	II	35
01314-13-2	Zinc oxide	III	51
01314-32-5	Thallium oxide	III	50
*01314-84-7	Zinc phosphide	II	36
01317-42-6	Cobalt sulfide	III	40
01327-53-3	Arsenic trioxide	II	33
01330-20-7	Xylene (mixed isomers)	III	51
01332-21-4	Asbestos (NESHAPS)	IA	32
01332-21-4	Asbestos	II	33
01333-86-4	Carbon black	III	39
01335-32-6	Lead acetate	III	45
01335-87-1	Hexachloronaphthalene	III	45
*01336-21-6	Aqua ammonia	IV	54
01336-36-3	Polychlorinated biphenyls (PCBs)	II	36
*01344-00-9	Sodium aluminium silicate	III	50

NOTE: *-denotes new guidance this printing.

CAS REGISTRY NUMBER	CHEMICAL NAME	TABLE	PAGE
*01345-09-1	Cadmium mercury sulfide	II	34
*01563-66-2	Carbofuran	III	39
*01582-09-8	Trifluarin(TM)	III	51
*01634-04-4	Methyl-tert-butyl ether	III	47
*01719-58-0	Dimethylvinylchlorosilane	III	43
01746-01-6	Total tetrachlorinated dibenzo-p-dioxins	II	36
01910-42-5	Paraquat(TM)	III	48
02234-13-1	Octachloronaphthalene	III	48
02385-85-5	Mirex(TM)	III	47
*02386-87-0	Epoxide 4221(TM)	III	43
*02461-18-9	Dodecylglycidyl ether	III	43
02465-27-2	Auramine	II	33
*02554-06-8	Methylvinyltetramer	IV	57
02807-30-9	Ethyleneglycol monopropyl ether	III	44
*05026-74-4	4-Glycydiloxy-N,N'-diglycidylaniline	III	44
*06196-95-8	Phenylxylylethane	IV	57
07439-92-1	Lead	I	31
*07439-96-5	Manganese	III	46
07439-97-6	Mercury (NESHAPS)	IA	32
07439-97-6	Mercury (inorganic)	III	46
07439-97-6	Mercury (organic)	III	46
07440-02-0	Nickel	II	35
07440-28-0	Thallium	III	50
07440-36-0	Antimony	III	38

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CAS REGISTRY NUMBER	CHEMICAL NAME	TABLE	PAGE
07440-38-2	Arsenic (NESHAPS)	IA	32
07440-38-2	Arsenic	II	33
07440-39-3	Barium	III	38
07440-41-7	Beryllium	I	31
07440-41-7	Beryllium (NESHAPS)	IA	32
07440-43-9	Cadmium	II	34
07440-47-3	Chromium VI compounds	II	34
07440-48-4	Cobalt	III	40
*07440-50-8	Copper (dusts and mists)	III	40
*07440-50-8	Copper (fumes)	III	40
*07440-62-2	Vanadium	II	36
07440-66-6	Zinc	IV	58
07446-18-6	Thallium sulfate	III	50
07449-09-5	Sulfur dioxide	I	31
07488-56-4	Selenium sulfide	III	50
07553-56-2	Iodine	IV	56
07646-85-7	Zinc chloride	III	51
07647-01-0	Hydrogen chloride	IV	56
07664-39-3	Hydrogen fluoride	III	45
07664-41-7	Ammonia	IV	54
07699-45-8	Zinc bromide	III	51
*07722-64-7	Potassium permanganate	III	49
07723-14-0	Phosphorous (yellow)	III	48
07726-95-6	Bromine	III	39
07727-43-7	Barium sulfate	III	38

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CAS REGISTRY NUMBER	CHEMICAL NAME	TABLE	PAGE
*07758-87-4	Tricalcium phosphate	IV	58
*07758-97-6	Lead chromate	II	35
*07775-27-1	Sodium persulfate	IV	57
07782-41-4	Fluorides (CAS # of Fluorine)	I	31
07782-41-4	Fluorine	III	44
07782-49-2	Selenium	III	50
07782-50-5	Chlorine	III	39
07783-06-4	Hydrogen sulfide	I	31
*07783-20-2	Ammonium sulfate	IV	54
07784-40-9	Lead arsenate	II	34
*07784-42-1	Arsine	II	33
07803-51-2	Phosphine	III	48
08001-35-2	Toxaphene	III	50
08002-05-9	Petroleum distillates	III	48
08003-34-7	Pyrethrum(TM)	III	49
08006-64-2	Turpentine	IV	58
*08008-20-6	Kerosene	IV	56
08012-95-1	Oil mist (mineral)	III	48
*08016-13-5	Fish oil	IV	55
*08032-32-4	Ligroine	IV	56
*09003-01-4	Polyacrylic acid	III	48
*09003-53-6	Styrofoam(TM)	III	50
*09004-99-3	Polyethylene stearate	IV	57
*09016-87-9	Polymethylene polyphenylisocyanate	II	36
09081-82-7	Rhoplex TR-407(TM)	III	49

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CAS REGISTRY NUMBER	CHEMICAL NAME	TABLE	PAGE
10028-15-6	Ozone	I	31
10035-10-6	Hydrogen bromide	IV	56
10049-04-4	Chlorine dioxide	III	39
10102-44-0	Nitrogen dioxide	I	31
10108-64-2	Cadmium chloride	III	39
10124-36-4	Cadmium sulfate	II	34
*10605-21-7	Carbendazim	III	39
12001-28-4	Crocidolite	II	33
12001-29-5	Chrysotile	II	33
12035-72-2	Nickel sulfide	II	35
12039-52-0	Thallium(I)selenite	III	50
12124-97-9	Ammonium bromide	III	38
12172-73-5	Amosite	II	33
13463-39-3	Nickel carbonyl	II	35
13510-49-1	Beryllium sulfate	II	33
*13813-19-9	Deuterium sulfate	III	41
*14263-59-3	Potassium gold cyanide	III	49
*18186-97-5	Dimethyltetramethoxydisiloxane	III	43
*18454-12-1	Lead chromate oxide	II	35
*24937-79-9	Polyvinylidene fluoride	III	49
*24991-55-7	Polyethylene glycol dimethylether	III	49
*25038-59-9	Polyethylene terephthalate	III	49
*25101-45-5	Chlorotrifluoroethylene	IV	54
*25134-21-8	Nadic Methyl Anhydride(TM)	IV	57
*25265-71-8	Dipropylene glycol	IV	55

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CAS REGISTRY NUMBER	CHEMICAL NAME	TABLE	PAGE
*25322-68-3	Polyethylene glycol	III	48
*25550-14-5	Ethylmethylbenzene	III	44
*25791-96-2	Polyoxypropylene	III	49
*26098-55-5	Polyhexamethylene dodecane diamide	III	49
*26447-40-5	Isocyanic acid, methylene diphenylene ester	II	34
*26519-91-5	Methyl-1,3-cyclopentadiene	III	46
*26576-46-5	5-Acetoacetamido-2-benzimidazolone	III	38
*26761-40-0	Dialkylphthalate (C10-)	III	41
26761-40-0	Diisodecylphthalate	III	42
*27554-26-3	Diisooctylphthalate	IV	55
*27813-02-1	Hydroxypropylmethacrylate	III	45
*28772-56-7	Bromodiolone	II	33
*30640-45-1	Methylcyclohexadiene	III	46
*38954-75-5	Tetradecylglycidyl ether	III	50
*39393-37-8	Dialkylphthalate (C7-9-11)	IV	55
51207-31-9	2,3,7,8-Tetrachlorodibenzofuran	II	36
*52315-07-8	Alphamethrin(TM)	III	38
*52645-53-1	Permethrin(TM)	III	48
*61128-46-9	Ultem(TM)	III	51
*63148-62-9	Siloxanes and silicones, dimethyl-	III	50
*64742-94-5	Naphtha heavy	III	47
*64742-95-4	Naphtha light	III	47
*67375-30-8	Fastac(TM)	III	44
*67989-23-5	1,2,4-Benzenetricarboxylic acid, decyl ocyl ester	III	38

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CAS REGISTRY NUMBER	CHEMICAL NAME	TABLE	PAGE
*68238-77-7	Polymeric Ester-S-412(TM)	IV	57
*68891-01-0	Melamine formaldehyde	III	46
*69102-90-5	Butadiene homopolymer	III	39
*82657-04-3	Bifenthin(TM)	III	39
*88671-89-0	Systhane(TM)	III	50

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