

**RULES AND REGULATIONS
COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF HEALTH**

CHAPTER 4

Article 432

Regulations Establishing Threshold

Limits in Places of Employment

(Adopted October 27, 1961)

(Revised Aug. 17, 1965)



PENNSYLVANIA DEPARTMENT OF HEALTH
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Regulations Establishing Threshold Limits in Places of Employment *

Section 1. Purpose

The purpose of these regulations and standards is to prescribe minimum requirements and standards for the maintenance of occupational health in places of employment in Pennsylvania.

Section 2. Application

These regulations and standards shall apply to every place of employment.

Section 3. Definitions

- A. "Atmospheric contaminant" shall mean a harmful substance or material in air usually occurring in the form of a dust, fume, gas, vapor, or mist.
- B. "Department" shall mean the Department of Health, Commonwealth of Pennsylvania.
- C. "Dust" shall mean finely divided solid particles dispersed in air and having been formed by mechanical means such as grinding, crushing, blasting, and drilling.
- D. "Fume" shall mean solid particles dispersed in air resulting from some chemical or physical process that involved a change of state, such as combustion, sublimation, or evaporation and condensation.
- E. "Gas" shall mean a formless fluid occupying the space of enclosure.
- F. "General or dilution ventilation" shall mean ventilation provided to dilute the concentration of dusts, fumes, gases, vapors, or mists in the atmosphere of all or part of the place of employment.
- G. "Local exhaust ventilation" shall mean that type of ventilation in which suction is applied at the point of generation of dusts, fumes, gases, vapors, and mists.
- H. "Mist" shall mean liquid droplets suspended in air.
- I. "Place of employment" shall mean a location or site where an individual possesses employment in a trade, occupation, or profession for the sake of monetary gain.

* Adopted pursuant to the provisions of the Administrative Code of 1929: Act of April 9, 1929, P.L. 177, as amended.

- J. (amended August 18, 1964) "Threshold Limit Value" shall mean the maximum average atmospheric concentration of contaminant to which workers may be exposed for an eight hour working day. (These values are set forth in Table 1 hereof, which table is a part of these regulations.)
- K. "Vapor" shall mean any liquid, except water, which when held in suspension in air will revert to its original liquid state after release from heat chemical action, or pressure conditions.
- L. (added August 18, 1964) "Short-Term Limit" shall mean the maximum atmospheric concentration of a contaminant to which a workman may be exposed for a specified short-time period. The concentration represents an upper limit of exposure for the specified time and assumes that there are sufficient recovery periods between episodes for recuperation. The daily average exposure to the contaminant, including these episodes, shall be such that the threshold limit value set forth in Table 1 shall not be exceeded. (These values are set forth in Table 2 hereof, which table is a part of these regulations.)

Section 4. Employer's Duties

- A. Every employer shall install and provide such control measures and protective equipment as is required for the protection of health.
- B. Every employer shall inform and periodically instruct his employees regarding known hazards and proper methods for utilizing industrial hygiene control measures which are provided.
- C. When it is necessary for an employer to provide protective equipment, such employer shall provide an approved means for cleaning and sterilizing such protective equipment, and the employer shall cause such equipment to be maintained in a clean and sanitary condition. Respiratory equipment shall not be passed from one man to another until such equipment is clean and sterilized. When filter or cartridge type respirators are used, such employee shall have such respirator for his own exclusive use. Respiratory equipment and replacement units shall be stored, when not in use, in approved containers.
- D. (amended August 20, 1963) When employees are exposed to compounds capable of causing occupational disease by inhalation and/or skin or mucous membrane absorption, the department may require their employer to provide physical examinations and other tests for them at periodic intervals.

Section 5. Threshold Limit Values and Short-Term Limits

- A. (amended August 18, 1964) No employee shall be exposed to atmospheric concentrations of contaminants which concentrations may give rise to occupational disease. Tables 1 and 2 shall be used for the determination of permissible levels.
- B. Exposures to atmospheric contaminants or adverse environmental conditions not referred to in Section 5A shall be controlled when necessary to protect health.

Section 6. Air Recirculation and Discharge

- A. No air from any local exhaust ventilation system may be recirculated without express approval by the Department.
- B. The discharge of air from any exhaust system shall be such that no air contamination will enter any window, door, or other opening of any work area in quantities sufficient to create a health hazard to or in such area.

Section 7. Tanks and Vessels

- A. No individual shall be permitted to enter a tank or closed vessel until it has been ascertained that the atmosphere in the tank or vessel contains an adequate quantity of oxygen and that atmospheric contaminants have been diluted to safe concentrations.
- B. If the oxygen content of the air and the quantity of atmospheric contamination are not determined, entry to the tank or vessel shall be prohibited unless the workman is equipped with an air line respirator, a safety harness and safety line, and that another employee be stationed outside the tank or vessel to remove the workman in the tank or vessel should he experience difficulty.

Section 8. Housekeeping

- A. The interiors, exteriors, and environs of buildings where hazardous materials are used, stored, or handled, shall be cleaned and maintained in such a manner as to prevent harmful exposure to hazardous materials.
- B. Employees engaged in such cleaning operations and all others who may be exposed shall wear protective equipment as is required. The cleaning operations should be done by suction apparatus.
- C. Where wet processes are used, reasonable drainage should be maintained. False floors, plat-

forms, mats, or other means of safe footing should be provided.

Section 9. Labeling

Adequate identification, warning, and caution labels shall be applied to all containers of hazardous chemicals.

Table 1. Threshold Limit Values
(amended August 17, 1965)

Substance	P.P.M. ^a	8-hour maximum average exposure
		Mg. per ^b Cu. M.
Acetaldehyde	200	—
Acetic acid	10	—
Acetic anhydride	5	—
Acetone	1,000	—
Acetonitrile	40	—
Acetylene tetrabromide	1	—
Acrolein	0.1	—
Acrylonitrile—Skin	20	—
Aldrin (1, 2, 3, 4, 10, 10-hexa- chloro-1, 4, 4a, 5, 8, 8a-hexa- hydro-1, 4, 5, 8-dimethano- naphthalene)—Skin	—	0.25
Allyl alcohol—Skin	2	—
Allyl chloride	1	—
Allyl glycidyl ether (AGE)	10	—
Allyl propyl disulfide	2	—
Ammonia	50	—
Ammonium sulfamate (Ammate)	—	15
Amyl acetate	100	—
Amyl alcohol (isoamyl alcohol)	100	—
Aniline—Skin	5	—
Antimony	—	0.5
ANTU (alpha naphthyl thiourea)	—	0.3
Arsenic	—	0.5
Arsine	0.05	—
Barium (soluble compounds)	—	0.5
Benzene (benzol)—Skin	25	—
Benzyl chloride	1	—
Beryllium	—	0.002
Boron oxide	—	15
Boron trifluoride	1	—
Bromine	0.1	—
Butadiene (1,3-butadiene)	1,000	—
2-Butanone (methyl ethyl ketone)	200	—
2-Butoxy ethanol (Butyl Cellosolve)	50	—
Butyl acetate (n-butyl acetate)	200	—
Butyl alcohol	100	—
tert. Butyl alcohol	100	—
Butylamine—Skin	5	—
tert. Butyl chromate (as CrO ₃)—Skin	—	0.1
n-Butyl glycidyl ether (BGE)	50	—
Butyl mercaptan	10	—
p-tert. Butyltoluene	10	—
Cadmium oxide fume	—	0.1
Calcium arsenate	—	1

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Table 1. (Continued)

Substance	8-hour maximum average exposure	
	P.P.M. ^a	Mg. per ^b Cu. M.
Calcium oxide	—	5
Camphor	—	2
Carbon dioxide	5,000	—
Carbon disulfide—Skin	20	—
Carbon monoxide	100	—
Carbon tetrachloride—Skin	10	—
Chlordane (1,2,4,5,6,7,8,8-octachloro-3a,4,7,7a-tetrahydro-4,7-methanoindene)—Skin	—	0.5
Chlorinated camphene, 60%	—	0.5
Chlorinated diphenyl oxide	—	0.5
Chlorine	1	—
Chlorine dioxide	0.1	—
Chlorine trifluoride	0.1	—
Chloroacetaldehyde	1	—
Chlorobenzene (monochlorobenzene)	75	—
Chlorobromomethane	200	—
Chlorodiphenyl (42% Chlorine)—Skin	—	1
Chlorodiphenyl (54% Chlorine)—Skin	—	0.5
Chloroform (trichloromethane)	50	—
1-Chloro-1-nitropropane	20	—
Chloropicrin	0.1	—
Chloroprene (2-chloro-1,3-butadiene)—Skin	25	—
Chromic acid and chromates (as CrO ₃)	—	0.1
Cobalt	—	0.5
Copper fume	—	0.1
Copper dusts and mists	—	1
Crag (R) herbicide (sodium 2-[2,4-dichlorophenoxy] ethanol hydrogen sulfate)	—	15
Cresol (all isomers)—Skin	5	—
Cyanide (as CN)—Skin	—	5
Cyclohexane	400	—
Cyclohexanol	50	—
Cyclohexanone	50	—
Cyclohexene	400	—
2,4-D (2,4-dichlorophenoxyacetic acid)	—	10
DDT (2,2-bis (p-chlorophenyl)-1,1,1-trichloroethane)—Skin	—	1
Decaborane—Skin	0.05	—
Demeton (systox)—Skin	—	0.1

Table 1. (Continued)

Substance	8-hour maximum average exposure	
	P.P.M. ^a	Mg. per ^b Cu. M.
Diacetone alcohol (4-hydroxy-4-methyl-2-pentanone)	50	—
Diborane	0.1	—
1,2-Dibromoethane (Ethylene dibromide)—Skin	25	—
o-Dichlorobenzene	50	—
p-Dichlorobenzene	75	—
Dichlorodifluoromethane	1,000	—
1,1-Dichloroethane	100	—
1,2-Dichloroethane (ethylene dichloride)	50	—
1,2-Dichloroethylene	200	—
Dichloroethyl ether —Skin	15	—
Dichloromonofluoromethane	1,000	—
1,1-Dichloro-1-nitroethane	10	—
Dichlorotetrafluoroethane	1,000	—
DDVP (o,o-Dimethyl-2,2-dichlorovinyl phosphate)—Skin	—	1
Dieldrin (1,2,3,4,10,10-hexachloro-6,7-epoxy-1,4,4a,5,6,7,8,8a-octahydro-1,4,5,8-dimethanonaphthalene)—Skin	—	0.25
Diethylamine	25	—
Difluorodibromomethane	100	—
Diglycidyl ether (DGE)	0.5	—
Diisobutyl ketone	50	—
Dimethyl acetamide—Skin	10	—
Dimethylaniline (n-dimethylaniline)—Skin	5	—
Dimethylformamide —Skin	20	—
1,1-Dimethylhydrazine—Skin	0.5	—
Dimethylsulfate—Skin	1	—
Dinitrobenzene (all isomers)—Skin	—	1
Dinitro-o-cresol—Skin	—	0.2
Dinitrotoluene—Skin	—	1.5
Dioxane (diethylene dioxide)—Skin	100	—
Dipropylene glycol methyl ether	100	—
Endrin (1,2,3,4,10,10-hexachloro-6,7-epoxy-1,4,4a,5,6,7,8,8a-octa. hydro-1,4,5,8-dimethanonaphthalene)—Skin	—	0.1
Epichlorhydrin	5	—
EPN (o-ethyl o-p-nitrophenyl thionobenzenephosphonate)—Skin	—	0.5

Table 1. (Continued)

Substance	8-hour maximum average exposure	
	P.P.M. ^a	Mg. per ^b Cu. M.
Ethanolamine	3	—
2-Ethoxyethanol (cellosolve)—Skin	200	—
2-Ethoxyethylacetate (cellosolve acetate)—Skin	100	—
Ethyl acetate	400	—
Ethyl acrylate—Skin	25	—
Ethyl alcohol (ethanol)	1,000	—
Ethylamine	25	—
Ethylbenzene	200	—
Ethyl bromide	200	—
Ethyl chloride	1,000	—
Ethyl ether	400	—
Ethyl formate	100	—
Ethyl mercaptan	20	—
Ethyl silicate	100	—
Ethylene chlorohydrin—Skin	5	—
Ethylenediamine	10	—
Ethylene glycol dinitrate (Combined EGDN + NG) —Skin	0.2	—
Ethylene glycol monomethyl ether acetate (methyl cellosolve acetate)	25	—
Ethylene imine—Skin	5	—
Ethylene oxide	50	—
Ferbam (ferric dimethyl dithiocarbamate)	—	15
Ferrovandium dust	—	1
Fluoride	—	2.5
Fluorine	0.1	—
Fluorotrichloromethane	1,000	—
Formaldehyde	5	—
Furfural —Skin	5	—
Furfuryl alcohol	50	—
Gasoline	500	—
Glycidol (2,3-Epoxy-1-propanol)	50	—
Hafnium	—	0.5
Heptachlor (1,4,5,6,7,8,8a-hepta- chloro-3a,4,7,7a-tetrahydro- 4,7-methanoindane) —Skin	—	0.5
Heptane (n-heptane)	500	—
Hexane (n-hexane)	500	—
Hexanone (methyl butyl ketone)	100	—
sec-Hexyl acetate	50	—
Hexone (methyl isobutyl ketone)	100	—
Hydrazine—Skin	1	—
Hydrogen bromide	3	—

Table 1. (Continued)

Substance	8-hour maximum average exposure	
	P.P.M. ^a	Mg. per ^b Cu. M.
Hydrogen chloride	5	—
Hydrogen cyanide—Skin	10	—
Hydrogen fluoride	3	—
Hydrogen peroxide, 90%	1	—
Hydrogen selenide	0.05	—
Hydrogen sulfide	10	—
Hydroquinone	—	2
Inert or nuisance particulates	—	15
Iodine	0.1	—
Iron oxide fume	—	15
Isophorone	25	—
Isopropylamine	5	—
Isopropyl glycidyl ether (IGE)	50	—
Ketene	0.5	—
Lead	—	0.2
Lead arsenate	—	0.15
Lindane (hexachlorocyclohexane, gamma isomer)	—	0.5
Lithium hydride	—	0.025
Magnesium oxide fume	—	15
Malathion (o,o-dimethyl dithiophosphate of diethyl mercaptosuccinate)—Skin	—	15
Manganese	—	5
Mercury—Skin	—	0.1
Mercury (organic compounds)— Skin	—	0.01
Mesityl oxide	25	—
Methoxychlor (2,2-di-p-methoxy- phenyl-1,1,1-trichloroethane)	—	15
2-Methoxy-ethanol (methyl cellosolve)	25	—
Methyl acetate	200	—
Methyl acetylene (propyne)	1,000	—
Methyl acrylate—Skin	10	—
Methylal (dimethoxymethane)	1,000	—
Methyl alcohol	200	—
Methyl bromide—Skin	20	—
Methyl chloride	100	—
Methyl chloroform (1,1,1- trichloroethane)	350	—
Methylcyclohexane	500	—
Methylcyclohexanol	100	—
Methylcyclohexanone	100	—
Methylene bis phenyl isocyanate (MDI)	—	0.2
Methylene chloride (dichloromethane)	500	—

Table 1. (Continued)

Substance	8-hour maximum average exposure	
	P.P.M. ^a	Mg. per ^b Cu. M.
Methyl formate	100	—
Methyl isobutyl carbinol (methyl amyl alcohol)	25	—
Methyl mercaptan	10	—
Methyl methacrylate	100	—
αMethyl styrene	100	—
Methylene chloride (dichloro- methane)	500	—
Monomethyl aniline—Skin	2	—
Molybdenum (soluble com- pounds)	—	5
(insoluble compounds)	—	15
Naphtha (coal tar)	200	—
Naphtha (petroleum)	500	—
Naphthalene	10	—
Nickel carbonyl	0.001	—
Nicotine—Skin	—	0.5
Nitric acid	2	—
p-Nitroaniline—Skin	1	—
Nitrobenzene—Skin	1	—
Nitroethane	100	—
Nitrogen dioxide	5	—
Nitroglycerin (combined EGDN + NG)—Skin	0.2	—
Nitromethane	100	—
1-Nitropropane	25	—
2-Nitropropane	25	—
Nitrotoluene—Skin	5	—
Octane	500	—
Oil mist (mineral)	—	5
Osmium tetroxide	—	0.002
Ozone	0.1	—
Parathion (o,o, diethyl-o-p- nitrophenyl thiophosphate)— Skin	—	0.1
Pentaborane	0.005	—
Pentachloronaphthalene—Skin	—	0.5
Pentachlorophenol—Skin	—	0.5
Pentanone (methyl propyl ketone)	200	—
Pentane	1,000	—
Perchloroethylene (tetrachloro- ethylene)	100	—
Perchloromethyl mercaptan	0.1	—
Perchloryl fluoride	3	—
Phenol—Skin	5	—

Table 1. (Continued)

Substance	8-hour maximum average exposure	
	P.P.M. ^a	Mg. per ^b Cu. M.
Phenyl glycidyl ether (PGE)	50	—
Phenylhydrazine—Skin	5	—
Phosdrin (2-carbomethoxy-1-methyl vinyl dimethyl phosphate)	—	0.1
Phosgene	0.1	—
Phosphine	0.3	—
Phosphoric acid	—	1
Phosphorus (yellow)	—	0.1
Phosphorus pentachloride	—	1
Phosphorus pentasulfide	—	1
Phosphorus trichloride	0.5	—
Picric acid—Skin	—	0.1
Platinum (soluble salts)	—	0.002
Propyl acetate	200	—
Propyl alcohol (isopropyl alcohol)	400	—
Propyl ether (isopropyl ether)	500	—
n-Propyl nitrate	25	—
Propylene dichloride (1, 2-dichloropropane)	75	—
Propylene imine—Skin	25	—
Propylene oxide	100	—
Pyrethrum	—	5
Pyridine	5	—
Quinone	0.1	—
Rotenone (commercial)	—	5
Selenium compounds (as Se)	—	0.2
Sodium fluoroacetate (1080)—Skin	—	0.05
Sodium hydroxide	—	2
Stibine	0.1	—
Stoddard solvent	500	—
Strychnine	—	0.15
Styrene monomer (phenylethylene)	100	—
Sulfur dioxide	5	—
Sulfur hexafluoride	1,000	—
Sulfuric acid	—	1
Sulfur monochloride	1	—
Sulfur pentafluoride	0.025	—
Sulfuryl fluoride	5	—
2, 4, 5T (2, 4, 5-Trichlorophenoxy-acetic acid)	—	10
Tantalum	—	5
TEDP (tetraethyl dithionopyrophosphate)—Skin	—	0.2
TEPP (tetraethyl pyrophosphate)—Skin	—	0.05

Table 1. (Continued)

Substance	8-hour maximum average exposure	
	P.P.M. ^a	Mg. per ^b Cu. M.
Tellurium	—	0.1
1, 1, 2, 2-Tetrachloroethane— Skin	5	—
1, 1, 2, 2-Tetrachloro- 1, 2-difluoroethane	500	—
Tetraethyl lead (as Pb) —Skin	—	0.075
Tetrahydrofuran	200	—
Tetranitromethane	1	—
Tetryl (2, 4, 6-trinitrophenyl— methylnitramine)—Skin	—	1.5
Thallium (soluble compounds) —Skin	—	0.1
Thiram (tetramethyl thiuram disulfide)	—	5
Tin (inorganic compounds)	—	2
(organic compounds)	—	0.1
Titanium dioxide	—	15
Toluene (toluol)	200	—
Toluene-2, 4-diisocyanate	0.02	—
o-Toluidine—Skin	5	—
Trichloroethylene	100	—
Trichloronaphthalene—Skin	—	5
1, 2, 3-Trichloropropane	50	—
1, 1, 2-Trichloro 1, 2, 2-trifluoroethane	1,000	—
Triethylamine	25	—
Trifluoromonobromomethane	1,000	—
Trinitrotoluene—Skin	—	1.5
Triorthocresyl phosphate	—	0.1
Triphenyl phosphate	—	3
Turpentine	100	—
Uranium		
(soluble compounds)	—	0.05
(insoluble compounds)	—	0.25
Vanadium		
(V ₂ O ₅ dust)	—	0.5
(V ₂ O ₅ fume)	—	0.1
Vinyl chloride (chloroethylene)	500	—
Vinyl toluene	100	—
Warfarin (3-[α acetylbenzyl]-4- hydroxycoumarin)	—	0.1
Xylene (xylol)	200	—
Xylidine—Skin	5	—
Yttrium	—	1
Zinc oxide fume	—	5
Zirconium compounds (as Zr)	—	5

Table 1. (Continued)

NOTE: The word "Skin" following a substance's name indicates that the substance can penetrate the skin to cause systemic effects.

*Parts of vapor or gas per million parts of air by volume at 25° C and 760 mm Hg pressure.

^bMilligrams of particulate per cubic meter of air.

Mineral Dusts	
Substance	M.P.P.C.F. ^c
Silica	
Crystalline	
Quartz (threshold limit calculated from the formula)	$\frac{250}{\%SiO_2 + 5}$
Cristobalite (same)	
Amorphous, including natural diatomaceous earth	20
Graphite	15
Silicates (less than 1% crystalline silica)	
Asbestos	5
Mica	20
Soapstone	20
Talc	20
Portland cement	50
Miscellaneous (less than 1% crystalline silica)	50

^cMillions of particles per cubic foot of air based on impinger samples counted by light-field techniques.

Table 2. Short-Term Limits

Substance	Maximum average exposure for the time period specified		
	P.P.M. ^a	Mg. per ^b Cu. M.	Time in minutes
Acetic acid	40	—	5
Acetone	1,000	—	30
Acrolein	0.5	—	5
Acrylonitrile	40	—	30
Allyl alcohol	5	—	30
Allyl glycidyl ether (AGE)	10	—	5
Ammonia	100	—	30
Amyl acetate	200	—	30
Amyl alcohol	150	—	30
Aniline	50	—	30
Benzene	75	—	30
Beryllium	—	0.025	5
Boron trifluoride	1	—	5
Bromine	0.4	—	30
2-Butanone (MEK)	300	—	5
Butyl acetate	300	—	30
Butyl alcohol	150	—	30
tert. Butyl alcohol	150	—	30
Butylamine	5	—	5
tert. Butyl chromate	—	0.1	30
Cadmium oxide fume	—	0.3	30
Calcium oxide	—	10	30
Carbon disulfide	100	—	30
Carbon monoxide	400	—	15
Carbon tetrachloride	25	—	30
Chlorine	3	—	5
Chlorine trifluoride	0.1	—	5
Chloroacetaldehyde	1	—	5
Chloroform	400	—	30
Cobalt	—	0.5	30
Copper fume	—	0.1	30
Cyanide (as CN)	—	5	30
o-Dichlorobenzene	50	—	15
1,1-Dichloroethane	200	—	30
1,2-Dichloroethane (Ethylene dichloride)	200	—	30
Dichloroethyl ether	35	—	30
1,1-Dichloro-1- nitroethane	10	—	30
Diethyl amine	100	—	30
Diglycidyl ether	0.5	—	5
Diisobutyl ketone	50	—	30
Ethyl acetate	1,000	—	15
Ethyl acrylate	50	—	15
Ethylamine	25	—	30
Ethyl benzene	200	—	30
Ethylene diamine	20	—	5

Table 2. (Continued)

Substance	Maximum average exposure for the time period specified		
	P.P.M. ^a	Mg. per ^b Cu.M.	Time in minutes
Ethylene glycol dinitrate and Nitroglycerin	0.2	—	30
Ethylene imine	5	—	30
Fluoride	—	10	30
Fluorine	0.5	—	5
Formaldehyde	5	—	5
Hexanone (MBK)	200	—	30
Hexone (MIBK)	400	—	5
Hydrazine	1	—	30
Hydrogen chloride	5	—	5
Hydrogen cyanide	20	—	30
Hydrogen fluoride	3	—	15
Hydrogen sulfide	20	—	5
Iodine	0.1	—	5
Manganese	—	5	30
Methyl acetate	400	—	5
Methyl acrylate	25	—	30
Methyl bromide	20	—	5
Methyl cellosolve	50	—	30
Methyl chloride	100	—	5
Methyl chloroform (1,1,1-trichloro- ethane)	1,500	—	5
Methylene bis phenyl- isocyanate (MDI)	—	0.25	5
Methyl mercaptan	20	—	5
Methyl styrene	100	—	30
Nickel carbonyl	0.04	—	5
Nitric acid	15	—	5
Nitrogen dioxide	25	—	5
Ozone	1	—	30
Perchloroethylene	200	—	30
Phosgene	1	—	5
Propyl alcohol	400	—	30
Selenium compounds (as Se)	—	0.3	30
Styrene monomer	100	—	5
Sulfur dioxide	20	—	5
Sulfuric acid	—	3	5
1,1,2,2-Tetrachloro- ethane	10	—	30
Tin (inorganic com- pounds)	—	5	30
Toluene	600	—	30
Toluene-2,4-diiso- cyanate (TDI)	0.02	—	5
Trichloroethylene	200	—	30

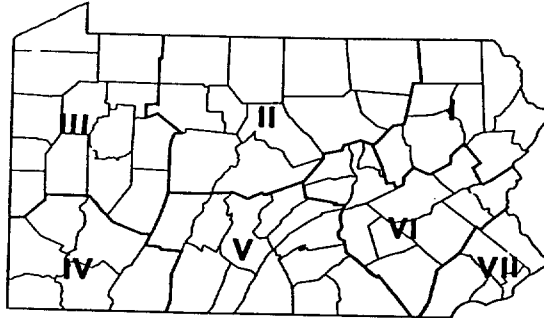
Table 2. (Continued)

Substance	Maximum average exposure for the time period specified		
	P.P.M. ^a	Mg. per ^b Cu.M.	Time in minutes
Vanadium (V_2O_5 dust and/or fume)	—	0.5	30
Vinyl chloride	500	—	5
Xylene	300	—	30
Zinc oxide fume	—	10	30

^aParts of vapor or gas per million parts of air by volume at 25°C and 760 mm. Hg. pressure.

^bMilligrams of dust, fume, or mist per cubic meter of air.

REGIONAL OFFICES



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Phone: 323-3746

REGION III

996 South Main Street
Meadville, Pa.
Phone: 336-1191

REGION IV

505 Pittsburgh State Office Building
300 Liberty Avenue
Pittsburgh 22, Pa.
Phone: EXpress 1-2100

REGION V

29 Chestnut Street
P. O. Box 829
Lewistown, Pa.
Phone: 248-6785

REGION VI

401 Buttonwood Street
West Reading, Pa.
Phone: 373-5175

REGION VII

Philadelphia State Office Building
1400 West Spring Garden Street
Philadelphia 30, Pa.
Phone: Locust 8-4000

CENTRAL OFFICE

Room 933
Health & Welfare Building
7th & Forster Streets
P. O. Box 90
Harrisburg, Pa. 17120