Amendments Feb. 28, 1969

RULES AND REGULATIONS
COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF HEALTH

Amendments to Chapter 4, Article 432 – Regulations Establishing Threshold Limits in Places of Employment*

Section 3. paragraph C, is *changed* to read as follows:

C. "Dust" shall mean finely divided solid particles dispersed in air and having been formed by mechanical means.

Section 3 is amended by *adding* a new paragraph, "N", as follows:

N. "Rock drilling machinery" shall mean any machinery mounted on a vehicle which is used to excavate rock by means of drilling, cutting, chipping, channeling, broaching or crushing.

A new Section 10 is *added* as follows:

Section 10. Rock Drilling Machinery

No person shall engage in rock drilling operations by means of rock drilling machinery as herein defined unless such machinery is equipped with either an integral water or exhaust ventilation dust suppression device and this device is being operated and maintained in proper working condition.

Table 1 (Supplement 1969)

The following Threshold Limit Values, as contained in Table 1, are hereby *changed* to read as follows:

Substance	8-hour maximum average exposure P.P.M.[a]	Mg. per[b] Cu. M.
Cobalt, metal fume and dust	–	0.1
Naphtha (coal tar)	100	–
Phenyl glycidyl ether (PGE)	10	–
Propyl alcohol (isopropyl alcohol)	200	–

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

[b] Milligrams of particulate per cubic meter of air.

The following Threshold Limit Values are hereby *added* to Table 1:

Substance	8-hour maximum average exposure P.P.M.[a]	Mg. per[b] Cu. M.
sec-Butyl alcohol	150	–
alpha-Chloroacetophenone (phenacylchloride)	0.05	–
Chromium, soluble chromic, chromous salts (as Cr)	–	0.5
Chromium, metal and insoluble salts	–	1
Dibutyl phosphate	–	5
Dibutylphthalate	–	5
Diisopropylamine – Skin	5	–
Dimethylphthalate	–	5
Diphenyl (biphenyl)	0.2	–
Hexachloronaphthalene – Skin	–	0.2
Isobutyl alcohol	100	–
Maleic anhydride	0.25	–
Nitric oxide	25	–
Octachloronaphthalene – Skin	–	0.1
Paraquat – Skin	–	0.5
Ronnel	–	5
Terphenyls	1	–
Tetrachloronaphthalene – Skin	–	2
Tributyl phosphate	–	5
Zinc chloride fume	–	1

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

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

[b] Milligrams of particulate per cubic meter of air.

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* *Adopted pursuant to the provisions of the Administrative Code of 1929; Act of April 9, 1929, P.L. 177, as amended this 28th day of February, 1969.*

Table 2 (Supplement 1969)

The following Short-Term Limits are hereby *added* to Table 2:

Substance	Maximum average exposure for the time period specified		
	P.P.M. [a]	Mg. per [b] Cu. M.	Time in minutes
Aldrin	–	1	30
Camphor	3	–	30
Dinito-o-cresol	–	1	30
Epichlorhydrin	10	–	30
2-Ethoxyethanol (Cellosolve)	300	–	30
Ethyl silicate	200	–	30
2-Ethoxyethylacetate	300	–	5
Glycidol	100	–	5
Hydrogen bromide	5	–	5
Nitrobenzene	10	–	30
Turpentine	200	–	30

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

[b] Milligrams of particulate per cubic meter of air.

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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)

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.

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.)

M. (added January 25, 1968) "Confined space" shall mean any tank, vessel or area so enclosed that adequate dilution ventilation will not be obtained by natural air movement.

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

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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. Confined Space

(amended January 25, 1968)

No individual shall be permitted to enter any confined space unless another workman supplied with emergency protective equipment is stationed outside the confined space to summon help and to assist the workman and until one of the three following conditions have been met:

A. It has been ascertained by air sampling that the atmosphere in the confined space contains an adequate quantity of oxygen and that harmful atmospheric contaminants have been diluted to safe concentrations prior to and during occupancy; or

B. The workman is equipped with a supplied-air respirator or self-contained breathing apparatus, a safety harness, a safety line and protective clothing, where necessary; or

C. It is ascertained that no harmful contaminants are present and mechanically induced dilution ventilation is used before entry and during occupancy to insure an adequate quantity of oxygen in the confined space.

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, platforms, 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.

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PHD–Ch. 4-432 (amended August 17, 1965)

Section 10 — Added by Amend. 1/25/68

Table 1. Threshold Limit Values

Substance	8-hour maximum average exposure P.P.M.[a]	Mg. per[b] Cu. M.
Acetaldehyde	200	–
Acetic acid	10	–
Acetic anhydride	5	–
Acetone	1,000	–
Acetonitrile	40	–
Acetylene tetrabromide	1	–
Acrolein	0.1	–
Acrylamide–Skin	–	0.3
Acrylonitrile–Skin	20	–
Aldrin (1, 2, 3, 4, 10, 10-hexachloro-1, 4, 4a, 5, 8, 8a-hexahydro-1, 4, 5, 8-dimethanonaphthalene)–Skin	–	0.25
Allyl alcohol–Skin	2	–
Allyl chloride	1	–
Allyl glycidyl ether (AGE)	10	–
Allyl propyl disulfide	2	–
2–Aminopyridine	0.5	–
Ammonia	50	–
Ammonium sulfamate (Ammate)	–	15
Amyl acetate	100	–
sec-Amyl acetate	125	–
Amyl alcohol (isoamyl alcohol)	100	–
Aniline–Skin	5	–
Anisidine (o-, p-isomers)–Skin	–	0.5
Antimony	–	0.5
ANTU (alpha naphthyl thiourea)	–	0.3
Arsenic	–	0.5
Arsine	0.05	–
Azinphos-methyl–Skin	–	0.2
Barium (soluble compounds)	–	0.5
Benzene (benzol)–Skin	25	–
Benzoyl peroxide	–	5
Benzyl chloride	1	–
Beryllium	–	0.002
Boron oxide	–	15
Boron trifluoride	1	–
Bromine	0.1	–
Bromoform–Skin	0.5	–
Butadiene (1,3-butadiene)	1,000	–
2-Butanone (methyl ethyl ketone)	200	–
2-Butoxy ethanol (Butyl Cellosolve)–Skin	50	–
n-Butyl acetate	200	–
sec-Butyl acetate	200	–
tert. 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 (Metal dust and soluble salts)	–	0.2
Cadmium oxide fume	–	0.1
Calcium arsenate	–	1
Calcium oxide	–	5
Camphor	–	2
Carbaryl (Sevin)	–	5
Carbon black	–	3.5
Carbon dioxide	5,000	–
Carbon disulfide–Skin	20	–
Carbon monoxide	50	–
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%–Skin	–	0.5
Chlorinated diphenyl oxide	–	0.5
Chlorine	1	–
Chlorine dioxide	0.1	–
Chlorine trifluoride	0.1	–
Chloroacetaldehyde	1	–
Chlorobenzene (monochlorobenzene)	75	–
O-Chlorobenzylidene malononitrile (OCBM)	0.05	–
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
Coal tar pitch volatiles (benzene soluble fraction)	–	0.2
Cobalt (Amended 2-28-69)	–	~~0.5~~ 0.1
Copper fume	–	0.1
Copper dusts and mists	–	1
Cotton dust (raw)	–	1

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Table 1. *(Continued)*

Substance	8-hour maximum average exposure P.P.M.[a]	Mg. per[b] Cu. M.
Crag (R) herbicide (sodium 2-[2,4-dichlorophenoxyl] ethanol hydrogen sulfate)	–	15
Cresol (all isomers)–Skin	5	–
Crotonaldehyde	2	–
Cumene–Skin	50	–
Cyanide (as CN)–Skin	–	5
Cyclohexane	300	–
Cyclohexanol	50	–
Cyclohexanone	50	–
Cyclohexene	300	–
Cyclopentadiene	75	–
2,4-D (2,4-dichlorophenoxy-acetic acid)	–	10
DDT (2,2,-bis (p-chlorophenyl)-1,1,1-trichloroethane)–Skin	–	1
Decaborane–Skin	0.05	–
Demeton (systox)–Skin	–	0.1
Diacetone alcohol (4-hydroxy-4-methyl-2-pentanone)	50	–
Diazomethane	0.2	–
Diborane	0.1	–
1,2-Dibromoethane (Ethylene dibromide)–Skin	25	–
o-Dichlorobenzene	50	–
p-Dichlorobenzene	75	–
Dichlorodifluoromethane	1,000	–
1,3-Dichloro-5,5-dimethyl hydantoin	–	0.2
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-hexa-chloro-6,7-epoxy-1,4,4a,5,6,7, 8,8a-octahydro-1,4,5,8-dimethanonaphthalene)–Skin	–	0.25
Diethylamine	25	–
Diethylaminoethanol–Skin	10	–
Difluorodibromomethane	100	–
Diglycidyl ether (DGE)	0.5	–
Diisobutyl ketone	50	–
Dimethyl acetamide–Skin	10	–
Dimethylamine	10	–
Dimethylaniline (n-dimethyl-aniline)–Skin	5	–
Dimethyl 1,2-dibromo-2,2-dichloroethyl phosphate	–	3
Dimethylformamide–Skin	10	–
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–Skin	100	–
Di sec. octyl phthalate (Di-2-ethylhexyl-phthalate)	–	5
Endrin (1,2,3,4,10,10-hexa-chloro-6,7-epoxy-1,4,4a,5, 6,7,8,8a-octa hydro-1,4,-endo-5,8,-dimethanonaphthalene)–Skin	–	0.1
Epichlorhydrin–Skin	5	–
EPN (o-ethyl o-p-nitrophenyl thionobenzenephosphonate)–Skin	–	0.5
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	10	–
Ethyl sec-amyl ketone	25	–
Ethylbenzene	100	–
Ethyl bromide	200	–
Ethyl butyl ketone (3-Heptanone)	50	–
Ethyl chloride	1,000	–
Ethyl ether	400	–
Ethyl formate	100	–
Ethyl mercaptan	10	–

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Table 1. *(Continued)*

Substance	8-hour maximum average exposure P.P.M.[a]	Mg. per[b] Cu. M.
n-Ethylmorpholine–Skin	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	0.5	–
Ethylene oxide	50	–
Ferbam (ferric dimethyl dithiocarbamate)	–	15
Ferrovanadium dust	–	1
Fluoride (as F)	–	2.5
Fluorine	0.1	–
Fluorotrichloromethane	1,000	–
Formaldehyde	5	–
Formic acid	5	–
Furfural–Skin	5	–
Furfuryl alcohol	50	–
Glycidol (2,3-Epoxy-1-propanol)	50	–
Hafnium	–	0.5
Heptachlor (1,4,5,6,7,8,8a-heptachloro-3a,4,7,7a-tetrahydro-4,7-methanoindane)–Skin	–	0.5
Heptane (n-heptane)	500	–
Hexachloroethane–Skin	1	–
Hexane (n-hexane)	500	–
Hexanone (methyl butyl ketone)	100	–
Hexone (methyl isobutyl ketone)	100	–
sec-Hexyl acetate	50	–
Hydrazine–Skin	1	–
Hydrogen bromide	3	–
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	–	10
Isoamyl acetate	100	–
Isobutyl acetate	150	–
Isophorone	25	–
Isopropyl acetate	250	–
Isopropylamine	5	–
Isopropyl glycidyl ether (IGE)	50	–
Ketene	0.5	–
Lead	–	0.2
Lead arsenate	–	0.15
Lindane (hexachlorocyclohexane, gamma isomer)–Skin	–	0.5
Lithium hydride	–	0.025
L.P.G. (liquified petroleum gas)	1,000	–
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 (propine)	1,000	–
Methyl acetylene-propadiene mixture (MAPP)	1,000	–
Methyl acrylate–Skin	10	–
Methylal (dimethoxymethane)	1,000	–
Methyl alcohol	200	–
Methylamine	10	–
Methyl (n-amyl) ketone (2-Heptanone)	100	–
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	–
Methyl formate	100	–

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Table 1. *(Continued)*

Substance	8-hour maximum average exposure P.P.M.[a]	Mg. per[b] Cu. M.
Methyl iodide–Skin	5	–
Methyl isobutyl carbinol (methyl amyl alcohol)–Skin	25	–
Methyl isocyanate–Skin	0.02	–
Methyl mercaptan	10	–
Methyl methacrylate	100	–
αMethyl styrene	100	–
Monomethyl aniline–Skin	2	–
Monomethyl hydrazine–Skin	0.2	–
Molybdenum (soluble compounds)	–	5
(insoluble compounds)	–	15
Morpholine–Skin	20	–
Naphtha (coal tar) (Amended 2-28-69)	~~200~~ 100	–
Naphtha (petroleum)	500	–
Naphthalene	10	–
Nickel, metal and soluble compounds	–	1
Nickel carbonyl	0.001	–
Nicotine–Skin	–	0.5
Nitric acid	2	–
p-Nitroaniline–Skin	1	–
Nitrobenzene–Skin	1	–
p-Nitrochlorobenzene–Skin	–	1
Nitroethane	100	–
Nitrogen dioxide	5	–
Nitrogen trifluoride	10	–
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
Oxalic acid	–	1
Oxygen difluoride	0.05	–
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
Pentane	1,000	–
Pentanone (methyl propyl ketone)	200	–
Perchloroethylene (tetrachloroethylene)	100	–
Perchloromethyl mercaptan	0.1	–
Perchloryl fluoride	3	–
Phenol–Skin	5	–
p-Phenylene diamine–Skin	–	0.1
Phenyl ether (vapor)	1	–
Phenyl glycidyl ether (PGE) (Amended 2-28-69)	~~50~~ 10	–
Phenylhydrazine–Skin	5	–
Phosdrin (2-carbomethoxy-1-methyl vinyl dimethyl phosphate)–Skin	–	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	–
Phthalic anhydride	2	–
Picric acid–Skin	–	0.1
Pival	–	0.1
Platinum (soluble salts)	–	0.002
Propane	1,000	–
Propyl acetate	200	–
Propyl alcohol (isopropyl alcohol) (Amended 2-28-69)	~~400~~ 200	–
Propyl ether (isopropyl ether)	500	–
n-Propyl nitrate	25	–
Propylene dichloride (1,2-dichloropropane)	75	–
Propylene imine–Skin	2	–
Propylene oxide	100	–
Pyrethrum	–	5
Pyridine	5	–
Quinone	0.1	–
Rhodium – Metal fume and dusts	–	0.1
Soluble salts	–	0.001
Rotenone (commercial)	–	5
Selenium compounds (as Se)	–	0.2
Selenium hexafluoride	0.05	–
Silver, metal and soluble compounds	–	0.01
Sodium fluoroacetate (1080)–Skin	–	0.05

Table 1. *(Continued)*

Substance	8-hour maximum average exposure P.P.M.[a]	Mg. per[b] Cu. M.
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
Tellurium	–	0.1
Tellurium hexafluoride	0.02	–
TEPP (tetraethyl pyrophosphate) –Skin	–	0.05
1, 1, 2, 2-Tetrachloroethane–Skin	5	–
1, 1, 2, 2-Tetrachloro-1, 2-difluoroethane	500	–
1, 1, 1, 2-Tetrachloro-2, 2-difluoroethane	500	–
Tetraethyl lead (as Pb)–Skin	–	0.075
Tetrahydrofuran	200	–
Tetramethyl lead (TML) (as Pb)–Skin	–	0.075
Tetramethyl succinonitrile–Skin	0.5	–
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	–
1, 1, 2-Trichloroethane–Skin	10	–
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_2O_5 dust)	–	0.5
(V_2O_5 fume)	–	0.1
Vinyl chloride (chloroethylene)	500	–
Vinyl toluene	100	–
Warfarin (3-[αacetonylbenzyl]-4-hydroxycoumarin)	–	0.1
Xylene (xylol)	100	–
Xylidine–Skin	5	–
Yttrium	–	1
Zinc oxide fume	–	5
Zirconium compounds (as Zr)	–	5

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

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

[b] Milligrams of particulate per cubic meter of air.

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Table 1. *(Continued)*

Mineral Dusts	
Substance	M.P.P.C.F. [c]
Silica	
Crystalline	
Quartz (threshold limit calculated from the formula)	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
Tremolite	5
Portland cement	50
Miscellaneous (less than 1% crystalline silica)	50

Substitute Table I by Amend. 2/28/69

[c]Millions of particles per cubic foot of air based on impinger samples counted by light-field techniques.

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Table 2. Short-Term Limits

Substance	Maximum average exposure for the time period specified: P.P.M.[a]	Mg. per Cu. M.[b]	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
Benzoyl peroxide	–	10	15
Beryllium	–	0.025	5
Boron trifluoride	1	–	5
Bromine	0.4	–	30
2-Butanone (MEK)	300	–	5
2-Butoxy ethanol (butyl cellosolve)	200	–	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
Carbaryl (Sevin)	–	30	30
Carbon disulfide	100	–	30
Carbon monoxide	400	–	15
Carbon tetrachloride	25	–	30
Chlordane	–	2	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
Cyclopentadiene	200	–	15
DDVP	–	3	30
Demeton (Systox)	–	0.5	30
Diacetone alcohol	150	–	30
o-Dichlorobenzene	50	–	15
1,3-Dichloro-5,5-Dimethylhydantoin	–	0.5	15
1,1-Dichloroethane	200	–	30
1,2-Dichloroethane (Ethylene dichloride)	200	–	30
Dichloroethyl ether	35	–	30
1,1-Dichloro-1-nitroethane	10	–	30
Dieldrin	–	1	30
Diethyl amine	100	–	30
Diglycidyl ether	0.5	–	5
Diisobutyl ketone	50	–	30
Dimethylamine	20	–	5
Endrin	–	0.5	30
EPN	–	2.5	30
Ethyl acetate	1,000	–	15
Ethyl acrylate	50	–	15
Ethyl alcohol	5,000	–	15
Ethylamine	25	–	30
Ethyl benzene	200	–	30
Ethylene diamine	20	–	5
Ethylene glycol dinitrate and Nitroglycerin	0.2	–	30
Ethylene glycol monomethyl ether acetate (Methyl Cellosolve acetate)	50	–	30
Ethyl ether	1,000	–	30
Ethylene imine	5	–	30
Ethylene oxide	200	–	30
N-Ethylmorpholine	20	–	15
Fluoride	–	10	30
Fluorine	0.5	–	5
Formaldehyde	5	–	5
Furfural	15	–	15
Furfural alcohol	50	–	15
Gasoline	500	–	30
Heptachlor	–	2	30
Heptane	500	–	30
Hexane	500	–	30
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

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Table 2. *(Continued)*

Substance	Maximum average exposure for the time period specified P.P.M.[a]	Mg. per[b] Cu. M.	Time in minutes
Isopropyl glycidyl ether (IGE)	100	–	30
Lindane	–	1	30
Manganese	–	5	30
Melvinphos (Phosdrin)	–	0.5	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-trichloroethane)	1,500	–	5
Methylene bis phenyl-isocyanate (MDI)	–	0.25	5
Methylene chloride (Dichloromethane)	1,000	–	30
Methyl mercaptan	20	–	5
Methyl methacrylate	200	–	15
Methyl styrene	100	–	30
Morpholine	20	–	15
Naphtha (petroleum)	500	–	30
Naphthalene	15	–	5
Nickel carbonyl	0.04	–	5
Nitric acid	15	–	5
Nitrogen dioxide	25	–	5
Octane	500	–	30
Ozone	1	–	30
Parathion	–	0.5	30
Perchloroethylene	200	–	30
Phosgene	1	–	5
Phosphine	1	–	30
Phthalic anhydride	4	–	5
Propyl alcohol	400	–	30
Pyridine	10	–	30
Selenium compounds (as Se)	–	0.3	30
Styrene monomer	100	–	5
Sulfur dioxide	20	–	5
Sulfuric acid	–	3	5
TEDP	–	1	30
TEPP	–	0.25	30
1,1,2,2-Tetrachloro-ethane	10	–	30
Tetrahydrofuran	500	–	30
Tin (inorganic com-pounds)	–	5	30
Toluene	600	–	30
Toluene-2,4-diiso-cyanate (TDI)	0.02	–	5
Trichloroethylene	200	–	30
Triethyl amine	100	–	30
Trinitrotoluene	–	5	30
Vanadium (V_2O_5 dust and/or fume)	–	0.5	30
Vinyl chloride	500	–	5
Vinyl toluene	400	–	5
Xylene	300	–	30
Zinc oxide fume	–	10	30

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

[b]Milligrams of particulate per cubic meter of air.

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COMMONWEALTH OF PENNSYLVANIA

June 5, 1969

SUBJECT: Amendment to Article 432, Chapter 4, Rules and Regulations

TO: Hon. Joseph J. Kelley, Jr.
Secretary of the Commonwealth

FROM: Thomas W. Georges, Jr., M.D.
Acting Secretary of Health

Enclosed is a copy of an amendment to Article 432, Chapter 4, of the Rules and Regulations of the Department of Health, adopted by the Advisory Health Board on February 28, 1969.

The approval of the Department of Justice and the certification that printed copies are available for public distribution are included. We are also enclosing a copy of this memorandum which we would like you to stamp and return to us for completion of our records.

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RULES AND REGULATIONS
COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF HEALTH

Amendments to Chapter 4, Article 432

Regulations Establishing Threshold
Limits in Places of Employment

1. Paragraph C of Section 3 of Chapter 4, Article 432 of the Rules and Regulations of the Department of Health is amended to read as follows:

   C. "Dust" shall mean finely divided solid particles dispersed in air and having been formed by mechanical means.

2. Section 3 of Chapter 4, Article 432 of the Tules and Regulations of the Department of Health is amended by adding a paragraph to read as follows:

   N. Rock drilling machinery" shall mean any machinery mounted on a vehicle which is used to excavate rock by means of drilling, cutting, chipping, channeling, broaching or crushing.

3. Chapter 4 of Article 432 of the Rules and Regulations of the Department of Health is amended by adding a new section to read as follows:

   Section 10. Rock Drilling Machinery

   No person shall engage in rock drilling operations by means of rock drilling machinery as herein defined unless such machinery is equipped with either an integral water or exhaust ventilation dust suppression device and this device is being operated and maintained in proper working condition.

4. Table 1 of Chapter 4, Article 432 of the Rules and Regulations of the Department of Health are amended as follows:

Table 1

The following Threshold Limit Values, as contained in Table 1, are hereby changed to read as follows:

Substance	P.P.M.[a]	8-Hour Maximum Average Exposure Mg. per[b] Cu. M.
Cobalt, metal fume and dust		0.1
Naphtha (coal tar)	100	
Phenyl glycidyl ether (PGE)	10	
Propyl alcohol (isopropyl alcohol)	200	

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

[b]Milligrams of particulate per cubic meter of air.

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RULES AND REGULATIONS
COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF HEALTH

Amendments to Chapter 4, Article 432
Regulations Establishing Threshold Limits in Places of Employment

Table 1

The following Threshold Limit Values are hereby added to Table 1:

Substance	8-Hour maximum average exposure P.P.M.[a]	Mg. per[b] Cu. M.
sec-Butyl alcohol	150	-
alpha-Chloroacetophenone (phenacylchloride)	0.05	-
Chromium, soluble chromic, chromous salts (as Cr)	-	0.5
metal and insoluble salts	-	1
Dibutyl phosphate	-	5
Dibutylphthalate	-	5
Diisopropylamine - Skin	5	-
Dimethylphthalate	-	5
Diphenyl (biphenyl)	0.2	-
Hexachloronaphthalene - Skin	-	0.2
Isobutyl alcohol	100	-
Maleic anhydride	0.25	-
Nitric oxide	25	-
Octachloronaphthalene - Skin	-	0.1
Paraquat - Skin	-	0.5
Ronnel	-	5
Terphenyls	1	-
Tetrachloronaphthalene - Skin	-	2
Tributyl phosphate	-	5
Zinc chloride fume	-	1

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

[b]Milligrams of particulate per cubic meter of air.

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RULES AND REGULATIONS
COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF HEALTH

Amendments to Chapter 4, Article 432
Regulations Establishing Threshold Limits in Places of Employment

4. Table 2 of Chapter 4, Article 432 of the Rules and Regulations of the Department of Health are amended as follows:

Table 2

The following Short-Term Limits are hereby added to Table 2:

Substance	Maximum average exposure for the time period specified P.P.M.[a]	Mg. per[b] Cu. M.	Time in minutes
Aldrin	-	1	30
Camphor	3	-	30
Dinito-o-cresol	-	1	30
Epichlorhydrin	10	-	30
2-Ethoxyethanol (Cellosolve)	300	-	30
Ethyl silicate	200	-	30
2-Ethoxyethylacetate	300	-	5
Glycidol	100	-	5
Hydrogen bromide	5	-	5
Nitrobenzene	10	-	30
Turpentine	200	-	30

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

[b]Milligrams of particulate per cubic meter of air.

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I, Thomas W. Georges, Jr., M.D., Secretary of Health and Chairman of the Advisory Health Board, do hereby certify that the foregoing is a full, true and correct copy of an adoption of the Rules and Regulations of the Department of Health as adopted by the Advisory Health Board on FEBRUARY 28, 1969.

Date: APR 15 1969

Thomas W. Georges, Jr., M.D.

Approved as to legality this 23rd day of April, 1969

Deputy Attorney General

I, Thomas W. Georges, Jr., M.D., Secretary of Health and Chairman of the Advisory Health Board, do hereby certify that the adoptions herewith submitted for filing are printed or reproduced in quantity for public distribution, upon request.

Date: JUN 6 1969

Thomas W. Georges, Jr., M.D.

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