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General Headquarters
April 6, 1954
(Dict. b-1)

Asst Abatement - General

G. S. Smith - Gen. Engineering Manville

Threshold Limits
(Maximum Allowable Concentrations)

Attached is a list of the 1953 Threshold Limits as established by the American Conference of Governmental Industrial Hygienists. These are the standards referred to by most state health department organizations and represents the standards we should apply except where individual state standards are lower.

The one exception to this list is the threshold limit for asbestos. We have tentatively established 1 Million Fibers Per Cubic Foot instead of the American Conference of Governmental Industrial Hygienists m.a.c. of 5 mppcf. As I have indicated in our discussion, this standard is based on the animal experimental research at Saranac Laboratory, and the conclusions that the long fibers (10 microns and longer) not the dust particles per se, are the fibrosis-producing element. We have indication that the State of New Jersey will adopt this standard, and the data has been presented to the A.C.G.I.H. for their consideration.

For your reference, attached is copy of the animal experimental work on asbestosis, sponsored by J-M and other asbestos-producing companies, at Saranac Laboratory.

H. M. Jackson

HMJ:EL
Enclosures
cc: C. B. Burnett

Copies sent to all dist engineers 4/14/54.

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THRESHOLD LIMIT VALUES FOR 1953

Adopted at the Meeting of the American Conference of Governmental Industrial Hygienists, Los Angeles, April, 1953

These values are based on the best available information from industrial experience, from experimental studies, and, when possible, from a combination of the two. They are not fixed values but are reviewed annually by the Committee on Threshold Limits for changes, revisions, or additions as further information becomes available. Threshold limits should be used as guides in the control of health hazards and should not be regarded as fine lines between safe and dangerous concentrations. They represent conditions only within which it is felt that workers may be repeatedly exposed, day after day, without their health being adversely affected. It is felt, at the present time, that workers should not be exposed to a working environment containing any of these substances in excess of the value indicated.

Gases and Vapors

Substance	PPM	Substance	PPM
Acetaldehyde	200	Cyclohexanone	100
Acetic Acid	10	Cyclohexene	400
Acetic anhydride	5	Cyclopropane (propene)	400
Acetone	1000	1-2 Dibromoethane (ethylene dibromide)	25
Acrolein	0.5	o-Dichlorobenzene	50
Acrylonitrile	20	Dichlorodifluoromethane	1000
Ammonia	100	1,1-Dichloroethane	100
Amyl acetate	200	1,2-Dichloroethane (ethylene dichloride)	100
Isoamyl alcohol	100	1,2-Dichloroethylene	200
Aniline	5	Dichloroethyl ether	15
Arsine	0.05	Dichloromethane	500
Benzene (benzol)	35	Dichloromonofluoromethane	1000
Bromine	1	1,1-Dichloro-1-nitroethane	10
1,3-Butadiene	1000	1,2-Dichloropropane (propylene dichloride)	75
n-Butanol	100	Dichlorotetrafluoroethane	1000
2-Butanone	250	Diethylamine	25
n-Butyl acetate	200	Dimethylaniline	5
Butyl Cellosolve (2-butoxyethanol)	200	Dimethylsulfate	1
Carbon dioxide	5000	Dioxane	100
Carbon disulfide	20	Ethyl acetate	400
Carbon monoxide	100	Ethyl alcohol	1000
Carbon tetrachloride	25	Ethylamine	25
Cellosolve (2-ethoxyethanol)	200	Ethyl benzene	200
Cellosolve acetate	100	Ethyl bromide	200
Chlorine	1	Ethyl chloride	1000
Chlorobenzene	75	Ethylene chlorohydrin	5
2-Chlorobutadiene	25	Ethylene oxide	100
Chloroform	100	Ethyl ether	400
1-Chloro-1 nitropropane	20	Ethyl formate	100
Cresol	5	Ethyl silicate	100
Cyclohexane	400		
Cyclohexanol	100		

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Substance	PPM	Substance	PPM
Fluorine	0.1	Nitrobenzene	1
Fluorotrichloromethane	1000	Nitroethane	100
Formaldehyde	5	Nitrogen oxides (other than N_2O)	25
Gasoline	500	Nitroglycerin	0.5
Heptane	500	Nitromethane	100
Hexane	500	2-Nitropropane	50
Hydrogen chloride	5	Nitrotoluene	5
Hydrogen cyanide	10	Octane	500
Hydrogen fluoride	3	Ozone	1
Hydrogen selenide	0.05	Pentane	1000
Hydrogen sulfide	20	Pentanone (methyl propanone)	200
Iodine	1	Phenol	5
Isophorone	25	Phosgene	1
Isopropyl alcohol	400	Phosphine	0.05
Isopropyl ether	500	Phosphorus trichloride	0.5
Mesityl oxide	50	Propyl acetate	200
Methanol	200	Stibine	0.1
Methyl acetate	200	Stoddard solvent	500
Methylal	1000	Styrene monomer	200
Methyl bromide	20	Sulfur chloride	1
Methyl butanone	100	Sulfur dioxide	10
Methyl Cellosolve (2-methoxyethanol)	25	1,1,2,2,-Tetrachloroethane	5
Methyl Cellosolve acetate	25	Tetrachloroethylene	200
Methyl chloride	100	Toluene	200
Methylcyclohexane	500	Toluidine	5
Methylcyclohexanol	100	1-1-1 Trichloroethane (methyl chloroform)	500
Methylcyclohexanone	100	Trichloroethylene	200
Methyl formate	100	Turpentine	100
Methyl iso-butyl ketone	100	Vinyl chloride	500
Naphtha (coal tar)	200	Xylene	200
Naphtha (petroleum)	500		
Nickel carbonyl	1		

Toxic Dusts, Fumes, and Mists

Substance	Mg. Per CU. M.	Substance	Mg. Per CU. M.
Antimony	0.5	o-Dinitrocresol	0.2
Arsenic	0.5	Fluorides	2.5
Barium	0.5	Iron oxide fume	15
Cadmium	0.1	Lead	0.15
Chlorodiphenyl	1	Magnesium oxide fume	15
Chromic acid and chromates as CrO_3	0.1	Manganese	6
		Mercury	0.1
0,0-Diethyl-O-p-nitrophenyl thiophosphate (parathion)	0.1	Pentachloronaphthalene	0.5
		Pentachlorophenol	0.5
Dinitrotoluene	1.5	Phosphorus (yellow)	0.1
Cyanide as CN	5		

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Substance	Mg. Per CU. M.	Substance	Mg. Per CU. M.
Phosphorus pentachloride	1	Trichloronaphthalene	5
Phosphorus pentasulfide	1	Trinitrotoluene	1.5
Selenium, as Se	0.1	Uranium (soluble compounds)	0.05
Sulfuric acid	1	Uranium (insoluble compounds)	0.25
Tellurium	0.1	Zinc oxide fume	15
Tetryl	1.5		

Mineral Dusts

Substance	MPPCF	Substance	MPPCF
Alundum	50	Silica	
Asbestos	5	high (above 50% free SiO_2	5
Carborundum	50	medium (5 to 50% free SiO_2	20
Dust (nuisance, no free silica)	50	low (below 5% free SiO_2	50
Mica (below 5% free silica)	20	Slate (below 5% free SiO_2	50
Portland cement	50	Soapstone (below 5% free SiO_2)	20
Talc	20	Total dust (below 5% free SiO_2)	50

Radiations

Material or Radiation		Material or Radiation	
Gamma (roentgens per week)	0.3	Roentgen (roentgens per week)	0.3

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