

Injuries Guarded Against by 1968 Recommended Threshold Limit Values

(Likely effect at a small multiple of the TLV; not maximum injury expected at a large multiple. Based on interpretation of ACGIH documentation and personal judgment.)

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Summary 1

Guard against trivial effect

List A. Cosmetic	1 TLV's
B. Inert dust load	21
F. Good housekeeping	6
G. Trivial narcosis	19
H. Odor, ENT irritation	106
	<u>153</u>

Guard against severe effect

List C. Lung fibrosis	8 TLV's
D. Chronic toxicity	72
E. Cancer	9
I. ENT bronchial	76
J. Metal fume fever	3
K. Allergy	9
L. Bronchial, alveolar	14
M. Acute or subacute	54
N. Chemical asphyxia	3
O. Simple asphyxia	10
	<u>258</u>

Summary 2

Time-weighted-average appropriate

List A. Cosmetic	1 TLV's
B. Inert dust load	21
C. Lung fibrosis	8
D. Chronic toxicity	72
E. Cancer	9
	<u>111</u>

Ceiling appropriate

List F. Good housekeeping	6 TLV's
G. Trivial narcosis	19
H. Odor, ENT irritation	106
I. ENT bronchial	76
J. Metal fume fever	3
K. Allergy	9
L. Bronchial, alveolar	14
M. Acute or subacute	54
N. Chemical asphyxia	3
O. Simple asphyxia	10
	<u>300</u>

List A. Cosmetic Effect

1 TLV

Silver metal, and salts

B. Minor Nose, Throat, Bronchial Irritation and Inert Dust Load in Lung 21 TLV's

Alumina	Graphite	Tin, inorganic
Boron oxide	Limestone	Tin oxide
Carbon black	Rouge	Titanium dioxide
Cellulose	Silicon carbide	Tungsten, insoluble
Ferrovandium	Starch	Tungsten, soluble
Fibrous glass	Sucrose	Vegetable oils
Glycerine	Tantalum	Zirconium

C. Lung Fibrosis

8 TLV's

Cristobalite	Quartz
Diatomaceous earth	Soapstone
Mica	Talc
Portland cement	Tremolite

D. Chronic Toxicity

72 TLV's

Acrylamide	Hexachloroethane
Aldrin	Hexachloronaphthalene
2-Amino pyridine	Hydrogen selenide
Antimony	Hydroquinone
ANITU	Lead
Arsenic	Lead arsenate
Barium, soluble	Lindane
Benzene	Manganese
Cadmium, soluble and dust	Mercury
Cadmium fume	Mercury, organic
Calcium arsenate	Methoxychlor
Carbon disulfide	Methyl bromide
Carbon tetrachloride	Molybdenum, insoluble
Chlordane	Molybdenum, soluble
Chlorinated camphene	Nickel, metal and soluble
Chlorodiphenyl 42% Cl	Octachloronaphthalene
Chlorodiphenyl 54% Cl	Pentachloronaphthalene
Chlorodiphenyl oxide	Phenyl hydrazine
Chloroform	Phosphorous, yellow
Chromium, metal and soluble	Propylene dichloride
chromous, chromic salts	Pyridine
Cobalt	Quinone
Copper, dust, mist	Selenium
Copper fume	2,4,5-T
Crag herbicide	Tellurium
2,4-D	Tetrachloroethane
DDT	Tetrachloronaphthalene
1,1-Dichloroethane	Tetraethyl lead
1,2-Dichloroethane	Tetramethyl lead
Dieldrin	Thallium
Dimethyl acetamide	Tin, organic
Dimethyl formamide	1,1,2-Trichloroethane
Dioxane	Trichloronaphthalene
Endrin	Trichloropropane
Hafnium	Triorthocresyl phosphate
Heptachlor	Uranium
	Yttrium

9 TLV's

List E. Cancer

Asbestos
Benzidine
Beryllium
Coal tar pitch volatiles
Chromates, insoluble
2-Naphthylamine
Nickel carbonyl
Nitrosodimethylamine
beta-Propiolactone

F. Nothing, "Good Housekeeping"

Dichlorodifluoromethane
Dichloromonofluoromethane
Dichlorotetrafluoroethane
Fluorotrichloromethane

Sulfur hexafluoride
Trifluoromonobromomethane

6 TLV's

G. Trivial Narcosis

Butadiene
Cyclohexane
Cyclohexene
Cyclopentadiene
1,2-Dichloroethylene
Ethyl chloride
Hexane
LPG
Methyl chloride
Methyl cyclohexane

Methylene chloride
Pentane
Perchloroethylene
Propane
1,1,1-Trichloroethane
Trichloroethylene
Trichlorotrifluoroethane
Toluene
Vinyl chloride

19 TLV's

H. Odor, Eye, Nose, Throat Irritation

Acetic acid
Acetone
Allyl alcohol
Allyl glycidyl ether
Allyl propyl disulfide
n-Amyl acetate
sec-Amyl acetate
Benzyl chloride
2-Butanone
2-Butoxyethanol
n-Butyl acetate
sec-Butyl acetate
t-Butyl acetate
n-Butyl alcohol
sec-Butyl alcohol
t-Butyl alcohol
Butyl amine
n-Butyl glycidyl ether
Butyl mercaptan
Camphor
alpha-Chloroacetophenone
Chlorobenzene
Chloropicrin
Chloroprene
Cresol
Cyclohexanol
Cumene
Cyclohexanone

Diacetone alcohol
o-Dichlorobenzene
p-Dichlorobenzene
Diethyl amine
Diisobutyl ketone
Diisopropyl amine
Dimethylamine
Dipropylene glycol methyl ether
Epichlorohydrin
2-Ethoxyethanol
2-Ethoxyethanol acetate
Ethyl acetate
Ethyl acrylate
Ethyl alcohol
Ethyl amine
Ethyl sec-amyl ketone
Ethyl benzene
Ethyl butyl ketone
Ethyl ether
Ethyl formate
Ethyl mercaptan
Formic acid
Glycidol
Heptane
2-Hexanone
Hexone
sec-Hexyl acetate
Hydrogen sulfide

106 TLV's

(Continued)

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List H. Odor, Eye, Nose, Throat Irritation (continued)

103 TLV's

Isoamyl acetate
 Isoamyl alcohol
 Isobutyl acetate
 Isobutyl alcohol
 Isophorone
 Isopropyl acetate
 Isopropyl alcohol
 Isopropyl amine
 Isopropyl ether
 Isopropyl glycidyl ether
 Maleic anhydride
 Mesityl oxide
 Methyl acrylate
 Methylal
 Methyl alcohol
 Methyl amine
 Methyl n-amyl ketone
 Methyl cellosolve
 Methyl cellosolve acetate
 Methyl cyclohexanol
 Methyl cyclohexanone
 Methyl isobutyl carbinol
 Methyl mercaptan
 alpha-Methyl styrene

Naphtha, coal tar
 Naphthalene
 Nitroethane
 Nitromethane
 1-Nitropropane
 2-Nitropropane
 Octane
 Oxalic acid
 Pentachlorophenol
 2-Pentanone
 Perchloromethylmercaptan
 Petroleum distillate naphtha
 Phenyl ether
 Phenyl glycidyl ether
 Phenol
 Propargyl alcohol
 n-Propyl acetate
 n-Propyl alcohol
 Tetrahydrofuran
 Tetryl
 Triethyl amine
 Turpentine
 Stoddard solvent
 Styrene
 Vinyl toluene
 Xylene

I. Eye, Nose, Throat, Bronchial Irritation

76 TLV's

Acetaldehyde
 Acetic anhydride
 Acrolein
 Allyl chloride
 Ammonia
 Ammonium sulfamate
 Benzoyl peroxide
 Boron pentafluoride
 Boron tribromide
 Boron trifluoride
 Bromine
 t-Butyl chromate
 Calcium oxide
 Chlorine
 Chlorine dioxide
 Chlorine trifluoride
 Chromic acid
 Crotonaldehyde
 Dibutyl phosphate
 Dibutyl phthalate
 Dichloroethyl ether
 Diethylaminoethanol
 Di-2-ethylhexyl phthalate
 Diglycidyl ether
 1,1-Dimethyl hydrazine
 Dimethyl phthalate

Diphenyl
 Ethanolamine
 Ethylene imine
 Ethylene oxide
 N-Ethyl morpholine
 Ethyl silicate
 Ferban
 Fluorine
 Formaldehyde
 Furfural
 Hydrazine
 Hydrogen bromide
 Hydrogen chloride
 Hydrogen fluoride
 Hydrogen peroxide 90%
 Iodine
 Iron, soluble salts
 Ketene
 Lithium hydride
 Methyl acetate
 Methyl acetylene
 Methyl formate
 Methyl silicate
 Monomethyl hydrazine
 Morpholine
 Nitric acid

Nitrogen trifluoride
 Osmium tetroxide
 Oxygen difluoride
 Perchloryl fluoride
 Phthalic anhydride
 Phosphoric acid
 Phosphorous pentachloride
 Phosphorous trichloride
 Picric acid
 Propylene imine
 Propylene oxide
 Selenium hexafluoride
 Sodium hydroxide
 Sulfur dioxide
 Sulfuric acid
 Sulfur monochloride
 Sulfur pentachloride
 Sulfuryl fluoride
 Tellurium hexafluoride
 Terphenyls
 Tetranitro methane
 Triphenyl phosphate
 Vanadium pentoxide
 Zinc chloride fume

J. Metal Fume Fever
Iron oxide fume

Magnesium oxide fume

Zinc oxide fume

3 TLV's

List K. Allergy

Diethylene triamine
Ethylene diamine
Maleic anhydride

Methylene bis-isocyanate
Methyl isocyanate
p-Phenylene diamine

9 TLV's
Platinum, soluble salts
Rhodium, metal or salts
Tolylene diisocyanate

L. Bronchial, Alveolar Injury

Acrolein
Chloroacetaldehyde
1-Chloro-2-nitropropane
Diazomethane
Diborane
1,1-Dichloronitroethane
Difluorodibromomethane

14 TLV's
Dimethyl sulfate
Ethylene chlorohydrin
Nitric oxide
Nitrogen dioxide
Ozone
Phosgene
Tributyl phosphate

M. Acute or Subacute Toxicity

Abate
Acetonitrile
Acrylonitrile
Aniline
Anisidine
Arsine
Bromoform
p-t-Butyl toluene
Carbaryl
Carbon dioxide
o-Chlorobenzyl
malonitrile
Decaborane
Demetron
DDVP
Dibrom
1,2-Dibromoethane
Dimethylaniline
Dinitrobenzene

Dinitro-o-cresol
Diphenyl amine
EPN
Ethyl bromide
Ethylene glycol
dinitrate
Indium
Malathion
Methyl azinophos
Methyl iodide
Monomethyl aniline
Nicotine
Nitrobenzene
Nitroglycerine
Nitrotoluene
Parathion
Parquat
Pentaborane
Phosdrin

54 TLV's
Phosphine
Pival
n-Propyl nitrate
Pyrethrum
RDX
Ronnell
Rotenone
Sodium fluoroacetate
Stibine
Strychnine
TEOP
TEPP
Tetrachlorodifluoroethane
Tetramethyl
succinonitrile
Thiram
o-Toluidine
Trinitrotoluene
Xylidene

N. Chemical Asphyxia

Carbon monoxide
Cyanogen
Hydrogen cyanide

3 TLV's

O. Simple Asphyxia

Acetylene
Argon
Ethane
Ethylene
Helium

10 TLV's
Hydrogen
Methane
Neon
Nitrogen
Nitrous oxide