

Adjustment of occupational exposure limits for unusual work schedules.

There are several models available for adjusting occupational exposure limits for work schedules other than the “normal” 8-hour 5-day week rosters.

The National Occupational Health and Safety Commission recommends the use of the Brief and Scala model for calculating adjustments to the exposure standards.

There are two equations that can be used to apply the Brief and Scala model one for adjustment based on daily exposure and one for adjustment based on average weekly exposure.

The daily adjustment equation is:

$$RF = \frac{8}{h} * \frac{24 - h}{16} \quad \text{Equation 1}$$

Where RF = reduction factor; and
h = hours worked per shift

The average weekly hours adjustment equation is:

$$RF = \frac{40}{h} * \frac{168 - h}{128} \quad \text{Equation 2}$$

Where h = average hours worked per week over full roster cycle

The “reduction factor” is multiplied by the 8-hr exposure standard to obtain the new standard.

The decision to adjust an exposure standard is based on the toxic affects of the agent under consideration. Generally those agents with very short term acute effects are not adjusted and those agents with longer term effects are adjusted. It is recommended that the OSHA system be used to determine which agents are to be adjusted and how they are to be adjusted.

OSHA has placed approximately 500 chemical agents into 6 “Work Schedule Categories” – refer Table 1. The “Work Schedule Category” is selected based on the health effects of the agent. These generic health effects are listed in Table 2. The “Work Schedule Category” then determines the adjustment criteria to be used for that agent – either no adjustment, adjustment based on daily exposure (Equation 1), or adjustment based on average weekly exposure (Equation 2). Table 3 details the “Health Code Number” and the “Work Schedule Category” for a number of agents.

Table 1
Unusual work schedule categories

Work Schedule Category	Classification	Adjustment Criteria
1A	Ceiling standard	None
1B	Irritants	None
1C #	Technologic limitations	None
2	Acute toxicants	Equation 1
3	Cumulative toxicants	Equation 2
4	Both acute and cumulative	Equation 1 and/or Equation 2 ##
#	agents with this category should be further reviewed.	
##	use most conservative adjustment	

Table 2
OSHA Substance Toxicity Table

Health Code No.	Health Effect
1	Cancer – currently regulated by OSHA as carcinogens; chiefly work practice standards
2	Chronic (cumulative) toxicity – Suspect carcinogen or mutagen
3	Chronic (cumulative) toxicity – Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive
4	Acute toxicity – Short-term high hazards effects
5	Reproductive hazards – Fertility impairment or teratogenesis
6	Nervous system disturbances – Cholinesterase inhibition
7	Nervous system disturbances – Nervous system effects other than narcosis
8	Nervous system disturbances – Narcosis
9	Respiratory effects other than irritation – Respiratory sensitisation (asthma)
10	Respiratory effects other than irritation – Cumulative lung damage
11	Respiratory effects – Acute lung damage/oedema
12	Hematologic (blood) disturbances – Anaemias
13	Hematologic (blood) disturbances – Methemoglobinemia
14	Irritation – eye, nose, throat, skin – Marked
15	Irritation – eye, nose, throat, skin – Moderate
16	Irritation – eye, nose, throat, skin – Mild
17	Asphyxiants, anoxiants
18	Explosive, flammable, safety (No adverse effects encountered when good housekeeping practices are followed)
19	Generally low risk health effects – Nuisance particulates, vapours or gases
20	Generally low risk health effects – Odour

Table 3
Determination of Work Schedule Category

Substance	Health Code No.	Health Effects	Work Schedule Category
Abate	6	Cholinesterase inhibition	3
Acetaldehyde	14	Marked irritation – eye, nose, throat, skin	1B
Acetic acid	14	Marked irritation – eye, nose, throat, skin	1B
Acetic anhydride	14	Marked irritation – eye, nose, throat, skin	1B
Acetone	16, 8	Marked irritation – eye, nose, throat/narcosis	1B
Acetonitrile	16, 4	Marked irritation – eye, nose, throat/acute toxicity (cyanosis)	4
2-Acetylaminofluorene	1	Cancer	1C
Acetylene	18, 17	Explosive/simple asphyxiation	1C
Acetylene dichloride		(See 1,2 Dichloroethylene)	
Acetylene tetrabromide	3, 10	Cumulative liver and lung damage	4
Acrolein	14	Marked irritation – eye, nose, throat, lungs, skin	1B
Acrylamide – skin	7, 3	Polyneuropathy, dermatitis/skin, eye irritation	4
Acrylonitrile – skin	2, 5	Suspect carcinogen	
Aldrin – skin	2, 3	Suspect carcinogen/cumulative liver damage	4
Allyl alcohol – skin	4, 14	Eye damage/Marked irritation – eye, nose, throat, bronchi, skin	1B
Allyl chloride	3, 14	Liver damage/Marked irritation – eye, nose, throat	4
Allyl glycidyl ether (AGE) – Skin	14	Contact skin allergy/Marked irritation – eye, nose, throat, bronchi, skin	1B
Allyl propyl disulfide	14	Marked irritation – eye, nose, throat	1B
Aluminium oxide	18, 19	Nuisance particulate	1C
4-Aminodiphenyl – skin	1	Cancer	1C
2-Aminoethanol		(See Ethanolamine)	
2-Aminopyridine	4, 7	CNS stimulation/headache/increased blood pressure	4
Ammonia	11, 14	Marked irritation – eye, nose, throat, bronchi, lungs	1B
Ammonium chloride (fume)	16	Mild irritation – eye, nose, throat	1B
Ammonium sulfamate (ammate)	16	Mild irritation – eye	1B
n-Amyl acetate	15	Moderate irritation – eye, nose, throat	1B
Sec-Amyl	15	Moderate irritation – eye, nose, throat	1B
Aniline – skin	13, 4	Methemoglobinemia/acute toxic effects	4
Anisidine (o.p-isomers) – skin	13, 3	Methemoglobinemia/Cumulative toxicity	4
Antimony & compounds (as Sb)	3, 2	Cumulative heart damage/suspect carcinogen	4
ANTU (alpha naphthyl thiourea)	3	Cumulative endocrine (thyroid and adrenal) damage	4
Argon	17	Simple asphyxiation	1A
Arsenic & compounds (as As)	2, 3	Suspect carcinogen/cumulative systemic poison	4
Arsine	4	Acute systemic toxicity	4
Asbestos (all forms)	1, 10	Cancer/asbestosis	3
Asphalt fumes (petroleum)	2	Suspect carcinogen/skin irritant	4
Azinphos-methyl – skin	6	Cholinesterase inhibition	3
Barium (soluble compounds)	3, 10	Cumulative heart, lung, and brain damage	3
Baygon (Propoxur)	6	Cholinesterase inhibition	3
Benzene – skin	2, 12	Suspect leukemogen/Cumulative bone marrow	1C

Substance	Health Code No.	Health Effects	Work Schedule Category
		damage	
Benzidine – skin	1	Cancer of bladder	1C
p-Benzoquinone		(See Quinone)	
Benzoyl peroxide	15	Moderate irritation – eye, nose, throat, skin	1B
Benzyl chloride	2, 4, 11	Suspect carcinogen/marked irritation – eye, nose, throat, skin/lung oedema	4
Beryllium & compounds	2, 10	Suspect carcinogen/cumulative lung damage (berylliosis)	4
Biphenyl (diphenyl)	15	Moderate irritation – eye, nose, throat, bronchi, lungs	1B
Bismuth telluride	10	Accumulation in lungs	1C
Bismuth telluride (Se-doped)	10	Cumulative lung damage	3
Borates, tetra, sodium salt, anhydrous	15	Moderate irritation – eye, nose, throat, skin	1B
Borates, tetra, sodium salt, decahydrate	15	Moderate irritation – eye. Nose, throat, skin	1B
Borates, tetra, sodium salt, pentahydrate	15	Moderate irritation – nose, throat, skin	1B
Boron oxide	16	Mild irritation – eye, nose, throat, skin	1B
Boron tribromide	14	Marked irritation – eye, nose, throat, lungs	1B
Boron trifluoride	11, 14	Acute and chronic lung irritation (pneumonia)	1A
Bromine	14, 11	Marked irritation – eye, nose, throat, bronchi, lungs	1B
Bromine pentafluoride	14, 11	Marked irritation – eye, nose, throat, bronchi, lungs	1B
Bromoform – skin	14, 3	Marked irritation – eye, nose, throat/cumulative liver damage	4
Butadiene (1,3-butadiene)	16	Mild irritation – eye, nose, throat	1B
Butane	17, 8	Asphyxiant/narcosis	1C
Butanethiol		(See Butyl mercaptan)	
2-Butanone (MEK)	15, 8	Moderate irritation – eye, nose, throat/narcosis	1B
2-Butoxyethanol – skin (butyl cellosolve)	12, 16	Anaemia/mild irritation – eye, nose, throat	4
n-Butyl acetate	15	Moderate irritation – eye, nose, throat	1B
Sec-Butyl acetate	15	Moderate irritation – eye, nose, throat	1B
Tert-Butyl acetate	15	Moderate irritation – eye, nose, throat	1B
Butyl alcohol – skin	15, 7	Moderate irritation – eye, nose, throat/hearing loss	2
Sec-Butyl alcohol	16	Mild irritation – eye, nose, throat	2
Tert-Butyl alcohol	15, 8	Moderate irritation – eye, nose, throat/narcosis	2
Butylamine – skin	2, 14	Suspect carcinogen/marked irritation – eye, nose, throat, lungs, skin	4
Tert-Butyl chromate (As CrO ₃) – skin	2, 14	Suspect carcinogen/marked irritation – eye, nose, throat, skin	1A
n-Butyl glycidyl ether (BGE)	2, 16	Suspect mutagen/mild irritation – eye, nose, throat, skin	4
n-Butyl lactate	15	Moderate irritation – eye, nose, throat, bronchi, lungs	1B
Butyl mercaptan	15, 20	Moderate irritation – eye, nose, throat/odour	1B
p-tert-Butyltoluene	7, 3	CNS damage/cumulative liver, kidney damage	3
Cadmium dust (as Cd)	3, 2	Suspect carcinogen/cumulative kidney and lung damage	4

Substance	Health Code No.	Health Effects	Work Schedule Category
Cadmium fume (as Cd)	3, 2	Cumulative kidney and lung damage/suspect carcinogen	4
Calcium arsenate (as As)	2, 3	Suspect carcinogen/cumulative systemic poisoning	4
Calcium carbonate	19	Nuisance particulate	1C
Calcium cyanamide	15, 2	Moderate irritation – eye, nose, throat, skin/suspect carcinogen	4
Calcium hydroxide	14	Marked irritation – eye, nose, throat, skin	1B
Calcium oxide	14	Marked irritation – eye, nose, throat, skin	1B
Camphor (synthetic)	15, 4	Moderate irritation – eye, nose, throat/acute toxicity	1B
Caprolactam dust	15	Moderate irritation – eye, nose, throat, skin	1B
Caprolactam vapour	16	Mild irritation – eye, nose, throat, skin	1B
Captafol (difolatan ^R) – skin	3, 9, 5	Dermatitis/respiratory sensitisation (asrtm)/teratogen	4
Captan	2, 5	Suspect carcinogen, mutagen, and teratogen	4
Carbaryl (servin ^R)	6, 5	Cholinesterase inhibition/teratogen	3
Carbofuran (furadan ^R)	6	Cholinesterase inhibition	3
Carbon black	2, 3	Suspect carcinogen/cumulative heart damage	4
Carbon dioxide	17	Simple asphyxiation	1C
Carbon disulfide – skin	7, 5	Cumulative CNS damage/reproductive impairment	3
Carbon monoxide	17	Chemical anoxia, asphyxiation	2
Carbon tetrabromide	3, 14	Liver damage/potent lachrymator	4
Carbon tetrachloride – skin	3, 2, 5	Cumulative liver damage/suspect carcinogen/teratogen	4
Catechol pyrocatechol	14, 3	Eye and skin irritation/kidney damage	4
Cellulose (paper fibre)	19	Nuisance particulate	1C
Caesium hydroxide	15	Moderate irritation – eye, nose, throat, skin	1B
1-chloro,2,3, epoxy-propane		(See Epichlorohydrin)	
Chlordane – skin	3, 2	Cumulative liver damage/suspect carcinogen	4
Chlorinated camphene (toxaphene) – skin	3	Cumulative liver damage	3
Chlorinated diphenyl oxide	3	Cumulative liver damage/dermatitis	3
Chlorine	11, 14	Lung injury/marked irritation – eye, nose, throat, bronchi	3
Chlorine dioxide	11, 14	Lung injury/marked irritation – eye, nose, throat, bronchi	1B
Chlorine trifluoride	11, 14	Marked irritation – eye, nose, throat, bronchi, lungs	1A
Chloroacetaldehyde	14	Marked irritation – eye, nose, throat, lungs, skin	1A
alpha-Chloroacetophenone (phenacyl chloride)	14	Marked irritation – eye, nose, throat, bronchi, lungs, skin	1B
Chlorobenzene (monochlorobenze)	3, 8	Cumulative systemic-toxicity/narcosis	4
o-Chlorobenzylidene malonitrile – skin	14	Marked irritation – eye, nose, throat, skin	1B
2-Chloro-1,3-butadiene		(See Chloroprene)	
Chlorobromomethane	3, 8	Cumulative liver damage/narcosis	3
Chlorodifluoromethane (F-22)	18	Good housekeeping practice	1C
Chlorodiphenyl (42% C1)	2, 3	Suspect carcinogen/Chloracne/cumulative liver	4

Substance	Health Code No.	Health Effects	Work Schedule Category
– skin		damage	
Chlorodiphenyl (54% C1) – skin	2, 3	Suspect carcinogen/chloracne/cumulative liver damage	4
1,Chloro 2,3-epoxypropane		(See Epichlorohydrin)	
2-Chloroethanol		(See Ethylene chlorohydrin)	
Chloroethylene		(See Vinyl chloride)	
Chloroform (trichloro-methane)	2, 3, 8	Suspect carcinogen/cumulative liver and kidney damage/narcosis	4
Bis-Chloromethyl ether	1	Cancer (lung)	1C
1-Chloro-1-nitropropane	15	Moderate irritation – eye, nose, throat, skin	1B
Chloropicrin	14, 11	Marked irritation – eye, nose, throat, bronchi, lungs, skin	1B
Chloroprene- (2-chloro-1,3 butadiene) – skin	5, 3, 2	Reproductive hazard/systemic toxicity/suspect mutagen	4
Chloropyrifos (Dursban ^R))- skin	6	Cholinesterase inhibition	4
o-Chlorostyrene	3	Cumulative liver, kidney damage	3
o-Chlorotoluene- skin	2, 15	Mild irritant-eye, skin	1B
2-Chloro-6-trichloromethyl pyridine (N-Serve ^R)	18	Good housekeeping practice	1C
Chromates, certain insoluble forms (as Cr)	2, 10, 3	Suspect carcinogen/cumulative lung damage/dermatitis	4
Chromic acid & chromates (as Cr)	2, 10, 3	Suspect carcinogen/cumulative lung damage/nasal perforation, ulceration	4
Chromium, soluble chromic, chromous salts (as Cr)	10,3	Cumulative lung damage/dermatitis	3
Clopidol (coyden ^R)	18	Good housekeeping practice 1 C	
Coal dust	10	Pneumoconiosis	3
Coal tar pitch volatiles	2, 10	Suspect carcinogen/cumulative lung changes ⁴	
Cobalt, metal, fume & dust (as Co)	9,10,3	Asthma/cumulative lung changes/dermatitis	3
Coke oven emissions	1,3	Cancer-lungs, bladder, kidney/skin sensitisation	1C
Copper dusts & mists (as Cu)	16	Mild irritation-eye, nose, throat, skin	4
Copper fume(as Cu)	15, 11	Moderate irritation ~ eye, nose, throat, lung	4
Corundum (Al ₂ O ₃)	19	Nuisance particulate	1C
Cotton dust (raw)	9, 10	Asthma/cumulative lung damage (byssinosis)	4
CragR herbicide	3	Cumulative liver damage	3
Cresol (all isomers)-skin	14,4, 3	Marked irritation-eye, skin/acute toxicity (CNS), liver and kidney damage	1B
Cristobalilite	10	Pneumoconiosis	3
Crotonaldehyde	14	,Marked irritation-eye, nose, throat, lungs	1B
Crufomate ^R	6	Cholinesterase inhibition	3
Cumene – skin	8,15	Narcosis/moderate irritation – eye, skin`	3
Cyanamide	14,4	Marked irritation – eye, nose, throat, skin/acute toxicity	2
Cyanides (as CN) – skin	15	Marked irritation – skin, eye, nose, throat	1B

Substance	Health Code No.	Health Effects	Work Schedule Category
Cyanogen	15,4	Moderate irritation – eye, nose, throat/acute toxicity (cyanosis)	2
Cyclohexane	15	Moderate irritation – eye, nose, throat	1B
Cyclohexanol	16,3	Mild irritation – nose, throat/cumulative liver and kidney damage	1B
Cyclohexanone	15, 3	Moderate irritation – eye, nose, throat/cumulative liver and kidney damage	4
Cyclohexene	15, 3	Moderate irritation – eye, nose, throat/cumulative systemic toxicity	4
Cyclohexylamine – skin	14, 2	Marked irritation – eye, nose, throat, skin/suspect mutagen	4
Cyclopentadiene	15	Moderate irritation – eye, nose throat	1B
DBCP		(See 1,2 Dibromo-3-chloropropane)	
2,4-D (2,4 dichlorophenoxy-acetic acid)	5	Suspect Teratogen	3
DDT – skin	7,2,3	Cumulative toxicity CNS suspect/carcinogen and mutagen	4
DDVP – skin	6	Cholinesterase inhibition	3
Decaborane – skin	4,7	Acute and chronic CNS toxicity	4
Demeton [®] (systox) – skin	6,5	Cholinesterase inhibition/suspect teratogen	3
Diacetone alcohol (4-hydroxy-4 methyl-2 pentanone)	15,3	Moderate irritation – eye, nose throat/cumulative kidney damage	1B
1,2 Diaminoethane		(See Ethylenediamine)	
2,4 Diaminoanisole		(See NIOSH CIB No. 19)	
4,4 Diaminodiphenylmethane (DDM)		(See NIOSH CIB No. 8)	
Diazinon – skin	6,5	Cholinesterase inhibition/suspect teratogen	3
Diazomethane	2,11,14	Suspect carcinogen/acute lung damage/marked irritation – eye, nose, throat	4
Diborane	11,7,14	Acute respiratory damage, irritation/nervous system damage	4
Dibrom [®]	6	Cholinesterase inhibition	3
1,2 – Dibromo-3-chloropropane (DBCP)	5,2	Male sterility/suspect carcinogen	1C
1,2 – Dibromoethane (ethylene dibromide) – skin	2,3,5	Suspect carcinogen, mutagen, teratogen/cumulative kidney damage/reproductive hazard	4
2-n-Dibutylamino-ethanol – skin	15,3	Moderate irritation – eye, nose, throat, lungs, skin/cumulative liver	4
Dibutyl phosphate	16	Mild irritation – eye, nose, throat, lungs	1B
Dibutylphtalate	19,5	Apparent low toxicity/suspect teratogen	1C
Dichloroacetylene	4,11,7	Acute Toxicity – nausea, headache, lung cumulative/cumulative CNS effects	4
o-Dichlorobenzene	14,4	Marked irritation – eye, nose, throat,/liver damage	1A
p-Dichlorobenzene	3,7	Cumulative systemic toxicity/cataracts	3
3,3 – Dichlorobenzidine – skin	1	Cancer – bladder	1C
Dichlorodifluoromethane (F-12)	18	Good housekeeping practice	1C
1,3-Dichloro-5, 5-dimethylhydantion	14	Mild irritation – eye, nose, throat, lungs	1B
1,1-Dichloroethane	3	Cumulative liver damage	3
1,2-Dichloroethylene	3,7,2	Cumulative liver, kidney damage/CNS effects/suspect carcinogen	4
1,2-Dichloroethylene	8,7	Narcosis/CNS effects	2

Substance	Health Code No.	Health Effects	Work Schedule Category
Dichloroethyl ether – skin	14,2,11	Marked irritation – eye, nose, throat, lungs/suspect carcinogen/lung oedema	1A
Dichloromethane		(See Methylene chloride)	
Dichloromonofluoromethane (F-21)	3	Cumulative liver damage	1C
1,1-Dichloro-1-nitroethane	4,11	Acute systemic toxicity – lungs, heart, liver, kidneys	1A
1,2 Dichloropropane		(See Propylene dichloride)	
Dichlorotetrafluoroethane	18	Good housekeeping practice	1C
Dicrotophos (bidrin [®])	6	Cholinesterase inhibition	3
Dicyclopentadiene	3,16	Cumulative kidney, liver damage/mild irritation-eye, nose, throat	3
Dichylopentadienyl iron	18	Good housekeeping practice	1C
Dieldrin – skin	2,3	Suspect carcinogen/cumulative liver damage	4
Diethylamine	14,3	Marked irritation – eye, nose, throat, lungs, skin/myocardial degeneration	1B
Diethylaminoethanol – skin	14	Marked irritation – eye, nose, throat	1B
Diethylcarbamoyl chloride (DECC)		(See NIOSH CIB No. 12)	
Diethylene triamine	14,9	Marked irritation – eye, nose, throat, lung, skin	1B
Diethyl ether		(See Ethyl ether)	
Diethyl phthalate	16	Mild irritation – nose, throat	1B
Difluorodibromomethane (F-12B2)	16,3	Respiratory irritation/cumulative liver and CNS damage	1B
Diglycidyl ether (DGE)	14,3,2	Marked irritation – eye, nose, throat, lungs, skin/cumulative systemic toxicity/suspect mutagen	1A
Dihydroxybenzene		(See Hydroquinone)	
Diisobutyl ketone	16,8	Mild irritation – eye, nose, throat/narcosis	1B
Diisopropylamine – skin	7,15	CNS Effects/moderate irritation – eye, nose, throat, lungs	1B
Dimethoxymethane		(See Methylal)	
Dimethyl acetamide – skin	3,5	Cumulative liver damage/suspect teratogen	3
Dimethylamine	14,3	Marked irritation – eye, nose, throat, bronchi, lung, skin/cumulative liver, testicular damage	4
Dimethylaminobenzene		(See Xylidene)	
4-Dimethylaminoazobenzene	1	Cancer – liver	
Dimethylaminopropionitril		(See ESN)	
Dimethylaniline – skin	13,7	Methemoglobinemia CNS effects	4
Dimethylbenzene		(See Xylene)	
Dimethyl carbamoyl chloride (DMCC)		(See NIOSH CIB No. 11)	
Dimethylformamide – skin	3,7	Cumulative liver damage/ CNS effects	3
2,6 Dimethylheptanone		(See Diisobutyl ketone)	
1,1-Dimethylhydrazine – skin	2,7,12	Suspect carcinogen/CNS effects/anaemia	4
Dimethylphthalate	5,16	Suspect teratogen/mild irritation – nose, throat	4
Dimethyl sulphate – skin	2,4	Suspect carcinogen/acute eye and lung effects	4
Dinitrobenzene (all isomers) – skin	13,12,3	Blood disturbances/liver, kidney damage	4
Dinitro-o-cresol - skin	3	Cumulative systemic (metabolic) toxin	3
3,5-Dinitro-o-toluamide (zoalene [®])	3	Cumulative liver damage	3
Dinitrotoluene – skin	13,12,3	Methemoglobinemia/liver/liver damage	4
Dioxane (diethylene	2,3	Suspect carcinogen/cumulative liver, kidney	4

Substance	Health Code No.	Health Effects	Work Schedule Category
dioxide) technical grade – skin		damage	
Dioxathion (delnav [®])	6	Cholinesterase inhibition	3
Diphenyl		(See Biphenyl)	
Diphenylamine	3,5	Cumulative liver, kidney bladder damage/suspect teratogen	3
Diphenylmethan diisocyanate		(See Methylene biphenyl isocyanate)	
Dipropylene glycol methyl ether – skin	15,3	Moderate irritation – eye	4
Diquat	3,5	Cumulative effects (cataracts)/suspect teratogen	4
Di-sec, octyl phtalate (Di-2 ethylhexylphthalate)	16	Mild irritation – eye, nose, throat	1C
Direct Black 38, Direct Blue 6, and Direct Brown 95 (Benzidine derived dyes)		(See NIOSH CIB No. 24)	
Disulfiram (tetraethylthiuram disulfide)	4,2	Acute toxicity – antabuse effects with alcohol/suspect carcinogen	4
Disyston – skin	6	Cholinesterase inhibition	3
2,6-Di-tert-butyl-p-cresol	18	Good housekeeping practice	1C
Diuron	19	Apparent low toxicity	1C
Dyfonate	6	Cholinesterase inhibition	3
Emery	19	Nuisance particulate	1C
Endosulfan (thiodan [®]) - skin	4,3,2	Acute CNS toxin/cumulative kidney damage/suspect carcinogen	4
Endrin – skin	4	Acute toxicity	4
Epichlorohydrin (1-chloro, 2,3-epoxypropane) skin	14,2,3	Marked skin irritation, sensitisation/suspect carcinogen and mutagen/kidney and liver damage	4
EPN – skin	6	Cholinesterase inhibition	3
1,2-Epoxypropane		(See Propylene oxide)	
2,3-Epoxy-1-propanol		(See Glycidol)	
ESN [®]		(See NIOSH CIB No. 26)	
Ethane	18,17	Explosive / simple asphyxiation	1C
Ethanethiol		(See Ethyl mercaptan)	
Ethanolamine	14,3	Marked irritation – skin/cumulative liver, lung and kidney damage	3
Ethion (nialate [®]) – skin	6	Cholinesterase inhibition	3
2-Ethoxyethanol (Cello-solve) – skin	15,12	Moderate irritation – eye, nose/cumulative blood disturbances	3
2-Ethoxyethyl acetate (cello-solve acetate) – skin	3,16	Cumulative liver, kidney damage/mild irritant – eye, nose, throat	3
Ethyl acetate	16,20	Mild irritation – eye, nose, throat, lungs/odour	1B
Ethyl acrylate – skin	14,11	Marked irritation – eye, nose, throat, lungs/lung oedema	1B
Ethyl alcohol (ethanol)	14,8	Mild irritation – eye, nose, throat/narcosis	1B
Ethylamine	14,3	Marked irritation – eye, nose, throat, lungs/corneal injury	4
Ethyl sec-amyl ketone (4-methyl-3 heptanone)	15	Moderate irritation – eye, nose, throat	1B
Ethyl benzene	15	Moderate irritation – eye, nose, throat	1B
Ethyl bromide	8,3	Narcosis/cumulative liver, kidney and heart damage	4
Ethyl butyl ketone (3-heptanone)	16, 8	Mild irritation – eye, nose, throat,/narcosis	2

Substance	Health Code No.	Health Effects	Work Schedule Category
Ethyl chloride	8	Narcosis	2
Ethyl ether	8, 16	Narcosis/mild irritation – eye, nose, throat	1B
Ethyl formate	16, 8	Mild irritation – eye, nose, throat/narcosis	1B
Ethyl mercaptan	20, 4	Odour/acute systemic toxicity	1A
Ethyl silicate	3, 16	Cumulative kidney damage/ mild irritation – eye, nose, throat	4
Ethylene	17, 18	Explosive/simple asphyxiation	1C
Ethylene chlorohydrin – skin	4	Acute toxicity (local and systemic)	4
Ethylenediamine	15, 3, 9	Moderate irritation – eye, nose, throat, skin/contact dermatitis, asthma	2
Ethylene dibromide		(See 1,2-Dibromoethane)	
Ethylene dichloride		(See 1,2-Dichloroethane)	
Ethylene glycol dinitrate – skin	3	Cumulative blood pressure lowering/headache	1A
Ethylene glycol, particulate	15	Moderate irritation – eye, nose, throat	1B
Ethylene glycol, vapor	15	Moderate irritation – eye, nose, throat	1B
Ethylene glycol monomethyl ether acetate		(See Methyl cellosolve acetate)	
Ethyleneimine- skin	1	Cancer	1C
Ethylene oxide	15, 3, 2	Moderate irritation – eye, nose, throat/cumulative lung, liver and kidney damage/suspect mutagen	4
Ethylene thiourea		(See NIOSH CIB No. 22)	
Ethylidene chloride		(See 1,1-Dichloroethane)	
Ethylidene norbornene	15, 3, 5	Moderate irritation – eye, nose, throat/cumulative liver and testicular damage	3
N-Ethyl-morpholine – skin	4, 15	Acute CNS effects/Moderate irritation – eye, nose, throat	1B
Fensulfothion (dasanit [®])	6	Cholinesterase inhibition	3
Ferbam	16, 2	Mild irritation – eye, nose, upper respiratory tract/suspect carcinogen	4
Ferrovandium dust	16	Mild irritation – upper respiratory tract	1B
Fluoride (as F)	14, 3	Marked irritation – eye, nose, throat/cumulative bone damage	4
Fluorine	11, 13	Lung kidney/kidney damage	1B
Fluorotrichloromethane (F-11)	7	Acute CNS effects	2
Formaldehyde	14, 2	Marked irritation – eye, lungs, skin/suspect carcinogen	4
Formamide	3	Cumulative system toxicity	3
Formic acid	14	Marked irritation – eye, nose, throat, lungs	1B
Furfural – skin	15	Moderate irritation – eye, nose, throat	1B
Furfuryl alcohol – skin	15, 8	Moderate irritation – eye, lungs/narcosis	2
Gasoline	16, 7, 18	Mild irritation – eye, nose, throat/CNS effects/flammable	4
Germanium tetrahydride	4	Acute systemic toxicity	2
Glass, fibrous or dust	15	Moderate irritation – nose, throat, skin	1B
Glycerin mist	19	Nuisance particulate	1C
Glycidol (2,3-Epoxy-1-propanol)	15, 7	Moderate irritation – eye, nose, throat, skin, CNS effects	2
Glycol monoethyl ether		(See 2-Ethoxyethanol)	
Guthion		(See Azinphos methyl)	
Glycidyl ethers		(See NIOSH CIB No. 29)	
Graphite (natural)	10	Cumulative lung damage (pneumoconiosis)	3
Graphite (synthetic)	19	Nuisance particulate (accumulation in lungs)	1C
Gypsum	19	Nuisance particulate (accumulation in lungs)	1C

Substance	Health Code No.	Health Effects	Work Schedule Category
Hafnium	3	Cumulative liver damage	3
Helium	17	Simple asphyxiation	1C
Heptachlor – skin	2, 3	Suspect carcinogen	4
Heptane	15, 7, 8	Moderate irritation – eye, nose, lungs/CNS effects/narcosis	4
Hexachlorocyclopentadiene	14, 11, 3	Marked irritation – eye, throat, lungs/lung cumulative/cumulative organ damage	4
Hexachloroethane – skin	3, 7	Cumulative organ damage/CNS effects	3
Hexachloronaphthalene – skin	3	Cumulative liver damage/chloracne	3
Hexafluoroacetone	3, 5	Multiple cumulative organ damage	3
Hexamethylphosphoric triamide (HMPA)		(See NIOSH CIB No. 6)	
n-Hexane	7, 8	Polyneuropathy/narcosis	4
2-Hexanone (MBK) – skin	7, 15	Polyneuropathy/ Moderate irritation – eye, nose, throat	4
Hexone (MBK) – skin	15	Moderate irritation – eye, nose, throat	1B
Neo-Hexyl acetate	16	Mild irritation – eye, nose, throat	1B
Hexylene glycol	16	Mild irritation – eye, nose, throat, skin/narcosis	1B
Hydrazine – skin	14,3,2	Marked irritation – respiratory tract/cumulative organ damage/suspect carcinogen	4
Hydrogen	17, 18	Explosive/simple asphyxiation	1C
Hydrogenated terphenyls	3, 10	Cumulative liver, kidney, lung damage	3
Hydrogen bromide	14, 11	Marked irritation – nose, throat/acute lung damage	1B
Hydrogen chloride	14, 11	Marked irritation – eye, nose, throat/lung oedema	1A
Hydrogen cyanide – skin	4, 3	Acute and cumulative systemic toxicity (cyanosis)	4
Hydrogen fluoride	14, 11, 3	Marked irritation – eye, nose, throat/acute lung damage/cumulative bone damage	4
Hydrogen peroxide, (90%)	14,11,18	Marked irritation – eye, nose, throat, skin/acute lung damage/explosive	1B
Hydrogen selenide	11, 7, 3	Acute lung damage/CNS effects/liver damage	4
Hydrogen sulphide	4, 15, 7	Acute systemic toxicity/ Moderate irritation – eye, (conjunctivitis), lungs/CNS effects	2
Hydroquinone	3, 7	Cumulative corneal damage/CNS effects	3
Indene	15, 3	Moderate irritation – eye, nose, throat/cumulative liver and kidney damage	4
Indium & compounds (as In)	10, 3, 5	Cumulative lung, other organ damage/suspect teratogen (InNO ₃)	3
Iodine	14, 11	Marked irritation – eye, nose, throat/lung oedema	1A
Indoform	15, 4	Moderate irritation – eye, nose, throat, lungs/acute CNS effects	2
Iron oxide fume	10	Lung changes (siderosis)	3
Iron Pentacarbonyl	4, 11	Acute toxicity CNS and lungs	2
Iron salts, soluble (as Fe)	15	Moderate irritation – upper respiratory tract, skin	1B
Isoamyl acetate	15	Moderate irritation – upper respiratory tract	1B
Isoamyl alcohol	16, 8, 2	Mild irritation – eye, nose, throat/narcosis/suspect carcinogen	4
Isobutyl acetate	15	Moderate irritation – eye, nose, throat	1B
Isobutyl alcohol	15, 2	Moderate irritation – eye, nose, throat/suspect carcinogen	4
Isophorone	14, 7	Marked irritation – eye, nose, throat/chronic CNS effects	4
Isophorone diisocyanate – skin	9, 14	Respiratory sensitisation/marked irritation – eye, nose, throat, lungs, skin	4
Isopropyl acetate	16	Mild irritation – eye, nose, throat	1B
Isopropyl alcohol – skin	16, 8	Mild irritation – eye, nose, throat/narcosis	4

Substance	Health Code No.	Health Effects	Work Schedule Category
Isopropylamine	14	Marked irritation – eye, nose, throat, lung	1B
Isopropyl ether	16	Mild irritation – eye, nose, throat	1B
Isopropyl glycidyl ether (IGE)	15, 3	Moderate irritation – eye, nose, throat, skin/skin sensitisation	4
Kaolin	19	Nuisance particulate/accumulation in lungs	1C
Ketene	11	Marked irritation, oedema – lungs	2
Lead arsenate (as Pb)	3, 2	Cumulative organ toxicity/suspect carcinogen	4
Lead, inorganic fumes & dusts (as Pb)	12, 7, 5	Cumulative blood and neurologic effects/reproductive hazard	3
Limestone	19	Nuisance particulate/accumulation in lungs	1C
Lindane – skin	7, 3, 2	Cumulative CNS and liver damage/suspect carcinogen	4
Lithium hydride	14, 11, 7	Marked irritation – eye, nose, throat, skin/lung damage/CNS effects	1B
LPG (liquefied petroleum gas)	18, 17, 8	Explosive/ asphyxiant/narcosis	2
Magnesite	19	Nuisance particulate/accumulation in lungs	1C
Magnesium oxide fume	11	Lung effects (fume fever)	2
Malathion – skin	6	Cholinesterase inhibition	3
Maleic anhydride	14, 9, 2	Marked irritation – eye, nose, throat, lungs (oedema), skin/asthma	2
Manganese & compounds (as Mn)	7, 10	Cumulative CNS damage/lung damage	1A
Manganese cyclopentadienyl tricarbonyl (as Mn) – skin	4, 7, 3	Acute CNS and blood effects/cumulative kidney damage	4
Marble	19	Nuisance particulate/accumulation in lungs	1C
Mercury, (organo) alkyl compounds, (as Hg) – skin	7, 3, 14	Acute and cumulative CNS damage/marked skin irritation	4
Mercury, inorganic (as Hg) – skin	7, 3, 2	Acute and cumulative CNS damage/gastrointestinal effects/gingivitis/suspect carcinogen	4
Mesityl oxide	16	Mild irritation – eye, nose, throat	1B
Methane	18, 17	Explosive/simple	1C
Methanethiol		(See Methyl mercaptan)	
Methomyl (lannate [®]) - skin	6	Cholinesterase inhibition	3
Methoxychlor	3	Cumulative kidney damage	3
2 Methoxyethanol		(See Methyl cellusolve)	
4-Methoxy-m-phenylenecliamine		(See 2,4-Diamioanisole)	
Methyl acetate	16, 8, 7	Mild irritation – nose, throat, lungs/narcosis/CNS effects	4
Methyl acetylene (propyne)	18, 8	Explosive/narcosis	1C
Methyl acetylene – propadiene mix (MAPP)	18	Flammable	1C
Methyl acrylate – skin	14, 4, 3	Marked irritation – eye, nose, throat, skin/acute lung damage/cumulative lung, liver and kidney damage	1B
Methyl acrylonitrile – skin	7, 16	Cumulative CNS effects/mild irritation – eye, skin	3
Methylal (dimethoxymethane)	3	Cumulative systemic toxicity	3
Methyl alcohol – skin	7, 8 16	Narcosis/cumulative CNS effects/ mild irritation – eye, nose, throat	4
Methylamine	14	Marked irritation – eye, nose, throat, skin	1B

Substance	Health Code No.	Health Effects	Work Schedule Category
Methyl amyl alcohol		(See Methyl isobutyl carbinol)	
Methyl n-amyl ketone (2-heptanone)	15, 8	Moderate irritation – eye, nose, throat/narcosis	1B
Methyl bromide – skin	4, 11, 13	Acute lung damage/cumulative CNS and organ damage	1A
Methyl butyl ketone		(See 2-Hexanone)	
Methyl cellosolve (2-methoxyethanol) – skin	12, 7	Blood disorders/CNS effects	3
Methyl cellosolve acetate (ethylene glycol monomethyl ether acetate) – skin	12, 7, 3	Blood disorders/ CNS effects/kidney damage	3
Methyl chloride	4, 7, 3	Acute and chronic CNS effects/liver and kidney damage	4
Methyl chloroform	16, 8	Mild irritation – eye, nose throat/narcosis	1B
Methyl chloromethyl ether	1	Cancer – lung	1C
Methyl 2-cyanoacrylate	15	Moderate irritation – eye, nose, throat	1B
Methylcyclohexane	8	Narcosis	4
Methylcyclohexanol	16, 8, 3	Mild irritation – eye, respiratory tract/narcosis/cumulative liver and kidney damage	4
o-Methylcyclohexanone – skin	16, 8	Mild irritation – eye, nose, throat/narcosis	2
Methylcyclopentadienyl manganese tricarbonyl (as Mn) – skin	4, 3, 15	Acute CNS effects/cumulative liver, kidney damage/moderate eye irritation	4
Methyl demeton – skin	6	Cholinesterase inhibition	3
4,4'-Methylene bis (2-Chloroaniline) (MOCA) – skin	1	Cancer	1C
Methylene bis (4-cyclohexylisocyanate)	14, 3, 9	Marked irritation – skin/skin sensitisation/asthma	4
Methylene bisphenyl isocyanate (MDI)	9, 14	Asthma/marked irritation – eye, nose, throat, skin	1A
Methylene chloride (dichloromethane)	17, 3, 8	Chemical anoxia (metabolic conversion to CO)/chronic liver damage/CNS effects/narcosis	4
Methyl ethyl ketone (MEK)		(See 2-Butanone)	
Methyl ethyl ketone peroxide	14, 3, 2	Marked irritation – eye, nose, throat, lungs/cumulative liver and kidney damage/suspect carcinogen	4
Methyl formate	8, 15	Narcosis/moderate irritation – eye, nose, throat, lungs	1B
Methyl iodide – skin	4, 3, 2	Acute and cumulative CNS effects/suspect carcinogen	4
Methyl isoamyl ketone	15, 8	Moderate irritation – eye	1B
Methyl isobutyl carbinol-skin	15, 8	Moderate irritation – eye, nose, throat/narcosis	1B
Methyl isoamyl ketone		(See Hexone)	
Methyl isocyanate – skin	9, 14, 11	Asthma/marked irritation – eye, nose, throat, skin/lung oedema	1B
Methyl mercaptan	20, 15	Odour/ Moderate irritation – eye, nose, throat	1A
Methyl methacrylate	16, 2	Mild irritation – eye, nose, throat/suspect carcinogen	4
Methyl propyl ketone		(See Pentanone)	
alpha-Methyl styrene	15, 7, 8	Moderate irritation – eye, nose, throat/CNS effects/narcosis	2
Methyl parathion – skin	6, 5	Cholinesterase inhibition/suspect teratogen	3

Substance	Health Code No.	Health Effects	Work Schedule Category
Methyl silicate	4, 14, 3	Severe eye damage/ Marked irritation – eye, nose, throat/lungs kidney damage	4
Mica (less than 1% quartz)	10	Accumulation in lungs(pneumoconiosis)	3
Mineral wool fibre	15	Moderate irritation – nose, throat, skin	1B
Molybdenum (as Mo) (insolubles)	3, 16	Cumulative liver and kidney damage/blood disorders/mild irritation – eye, nose, throat, lung	3
Molybdenum (as Mo) (solubles)	3, 16	Cumulative liver and kidney damage/blood disorders/mild irritation – eye, nose, throat, lung	3
Monocrotophos (axodrin [®])	6	Cholinesterase inhibition	3
Monomethyl aniline – skin	13, 12	Methemoglobinemia/anaemia	3
Monomethyl hydrazine – skin	4, 2, 5	Acute lung/CNS and blood damage/suspect carcinogen and teratogen	1A
Morpholine – skin	15, 3	Moderate irritation – eye, nose, throat/cumulative liver and kidney damage	1B
Naphtha (coal tar)	15, 8	Moderate irritation – eye, nose, throat/narcosis	2
Naphthalene	14, 3, 2	Marked irritation – eye, nose, throat/ocular damage//CNS damage/suspect carcinogen	4
alpha-Napthylamine	1	Cancer – bladder (suspect)	1C
beta-Napthylamine	1	Cancer – bladder	1C
Neon	17	Simple asphyxiation	1C
Nickel (soluble compounds)	2, 10, 3	Suspect carcinogen/cumulative lung damage/dermatitis	4
Nickel carbonyl	2, 4	Suspect carcinogen/acute	4
Nickel, metal & insoluble compounds	2, 10, 3	Suspect carcinogen/cumulative lung damage/dermatitis	4
Nicotine – skin	4, 7, 5	Acute systemic toxicity/CNS damage/suspect teratogen	3
Nitric acid	4, 14	Acute lung damage/ Marked irritation – eye, nose, throat, skin	2
Nitric oxide	13, 7	Methemoglobinemia/CNS effects	4
p-Nitroaniline – skin	13, 3	Methemoglobinemia/cumulative liver damage	3
Nitrobenzene – skin	13, 12, 7	Methemoglobinemia//CNS effects	3
4-Nitrobiphenyl	1	Cancer – bladder	1C
p-Nitrochlorobenzene-skin	13, 12	Methemoglobinemia/anaemia	3
Nitroethane	15, 8	Moderate irritation – respiratory tract/narcosis	2
Nitrogen	17	Simple asphyxiation	1C
Nitrogen dioxide	10, 11	Cumulative lung damage (bronchitic, emphysema)/lung oedema	3
Nitrogen trifluoride	13, 3	Methemoglobinemia/cumulative liver and kidney damage	3
Nitroglycerin – skin	3	Cumulative effect on blood pressure (lowering)/headache	1A
Nitromethane	16, 8	Mild irritation – eye nose, throat/narcos2-Nitropropane	2
1-Nitropropane	15, 3	Moderate irritation – eye, nose, throat/cumulative liver damage	4
2-Nitropropane	3, 2, 15	Cumulative liver damage, suspect carcinogen/ Moderate irritation – eye, nose, throat	4
n-Nitrosodimethylamine – skin	1	Cancer	1C
Nitrotrichloromethane		(See Chloropicrin)	
Nitrotoluene – skin	13	Methemoglobinemia	3
Nitrous oxide	5, 7	Reproductive hazard (male and female)/CNS effect	3
Nonane	16, 8	Mild irritation – eye, nose, throat/narcosis	1B
Octachloronaphthalene –	3	Cumulative liver damage/chloracne	3

Substance	Health Code No.	Health Effects	Work Schedule Category
skin			
Octane	16, 8	Mild irritation	1B
Oil mist (mineral)	18, 10	Good housekeeping practice/accumulation in lungs (pneumonitis)	1C
Osmium tetroxide (as Os)	14, 11	Marked irritation – eye, nose, throat, bronchi, lungs/lung oedema	1B
Oxalic acid	14	Marked irritation – eye, nose, throat, skin	1B
Oxygen difluoride	14, 11, 3	Marked irritation – respiratory tract/marked oedema – lungs/cumulative kidney damage	4
Ozone	14, 11	Marked irritation – respiratory tract/lung oedema	4
Paraffin wax fume	16	Mild irritation – eye, nose, throat	1B
Paraquat – skin	3, 16, 5	Cumulative systemic lung damage/mild irritation – eye, nose, throat/suspect teratogen	3
Parathion – skin	6, 5	Cholinesterase inhibition/suspect teratogen	3
Pentaborane	4, 7	Acute and cumulative CNS damage	4
Pentachloronaphthalene – skin	3, 14, 2	Acute systemic toxicity – vascular and CNS injury/marked irritation – eye, nose/suspect carcinogen	4
Pentachlorophenol – skin	4, 3, 7	Acute systemic toxicity/vascular and nervous system injury/chloracne	4
Pentaerythritol	19	Nuisance particulate	1C
Pentane	18, 8	Flammable/narcosis	1B
2-Pentanone	15, 8	Moderate irritation – eye, nose, throat/narcosis	2
Perchloroethylene (tetrachloroethylene) – skin	3, 8, 2	Cumulative liver and CNS damage/narcosis/suspect carcinogen	4
Perchloromethyl mercaptan	14, 2	Marked irritation – eye, nose, throat/suspect carcinogen	4
Perchloroyl fluoride	13, 12, 15	Methemoglobinemia/anaemia/moderate irritation – eye, nose, throat	4
Perlite (less than 1% quartz)	19	Nuisance particulate – accumulation in lungs	1C
Petroleum distillates (naphtha)	15, 8	Moderate irritation/narcosis	1B
Phenacylchloride		(See alpha-Chloroacetophenone)	
Phenol – skin	4, 14, 2	Marked irritation – eye, nose, throat, lungs/acute and chronic systemic toxicity/suspect carcinogen	4
Phenothiazine – skin	15, 3	Moderate irritation – skin/photosensitization – skin	2
Phenyl ether (vapour)	7, 16, 3	Nausea/mild irritation – eye, skin/cumulative liver and kidney damage	4
Phenyl ether-biphenyl mix (vapour)	7, 16, 3	Nausea/mild irritation – eye, skin/cumulative liver and kidney damage	4
p-Phenylene diamine – skin	9, 3	Respiratory sensitisation (asthma)/contract skin irritant sensitiser	2
Phenylglycidyl ether (PGE)	15, 3, 8	Moderate irritation – eye, nose, throat, skin/skin sensitisation/narcosis	2
Phenylhydrazine – skin	12, 3	Haemolytic anaemia/skin irritation and sensitisation	4
Phenylphosphine	12, 7, 5	Haemolytic anaemia/CNS effects/testicular damage	3
Phorate (Thimet [®]) – skin	6	Cholinesterase inhibition	3
Phosdrin (Mevinphos [®])	6	Cholinesterase inhibition	3
Phosgene (carbonyl chloride)	11, 10	Marked oedema-lungs/chronic lung disease	4
Phosphine	4, 7, 11	Acute and chronic systemic toxicity (CNS effects, lung oedema, anaemia)	4

Substance	Health Code No.	Health Effects	Work Schedule Category
Phosphoric acid	14	Marked irritation – eye, nose, throat	1B
Phosphorus (yellow)	3	Cumulative bone and liver damage	3
Phosphorus pentachloride	14, 10, 11	Marked irritation – eye, nose, throat, bronchitis/lung oedema	2
Phosphorus pentasulfide	14, 4	Marked irritation – respiratory tract/H ₂ S hazard	1B
Phosphorus trichloride	14, 10, 11	Marked irritation – eye, nose, throat, bronchi, lungs/bronchial pneumonia	1B
Phthalic anhydride	14, 9, 3	Marked irritation – eye, nose, throat, lungs/asthma/contact skin irritant and sensitiser	2
m-Phthalodinitrile	19	Particulate (apparent low toxicity)	1C
Picloram (Tordon [®])	19	Particulate (apparent low toxicity)	1C
Picric acid – skin	3	Skin irritant and sensitiser/cumulative liver, kidney and red blood cell damage	3
Pival [®] (2 Pivalyl-1 3-indandione)	3	Cumulative anticoagulant effect (Warfarin analogy)	3
Plaster of Paris	19	Nuisance particulate	1C
Platinum (soluble salts as Pt)	9, 3	Respiratory sensitisation (asthma/dermatitis)	1B
Polychlorinated biphenyls (PCB)		(See chlorodiphenyl)	1B
Polytetrafluoroethylene decomposition products	4	Acute toxic effects (polymer fume fever)	2
Portland cement (less than 1% quartz)	19, 16	Nuisance particulate/mild irritation – eye and nose	2
Potassium hydroxide	14	Marked irritation – eye, nose, throat, lungs, skin	1B
Propane	18, 7	Explosive/CNS effects	1C
Propargyl alcohol – skin	14	Marked irritation – eye, nose, throat, skin	1B
beta-Propiolactone	1	Marked irritation – eye, nose, throat, skin	1B
n-Propyl acetate	16, 8	Mild irritation – eye, nose, throat/narcosis	1B
Propyl alcohol – skin	16, 8, 2	Mild irritation – eye, nose, throat/narcosis/suspect carcinogen	1B
n-Propyl nitrate	3, 13	Cumulative systemic effects (methemoglobinemia)	3
Propylene dichloride	3	Cumulative liver damage	3
Propylene glycol monomethyl ether	15, 8	Moderate irritation – eye, nose, throat/narcosis	2
Propylene imine – skin	15, 4	Moderate irritation – eye, nose, throat/acute kidney and lung damage/suspect carcinogen	4
Propylene oxide	15, 3, 2	Moderate irritation – eye, nose, throat, lungs, skin/cumulative CNS/kidney and liver damage/suspect carcinogen	4
Propyne		(See Acetylene)	
Pyrethrum	3, 16	Contact and allergic dermatitis/mild irritation – lungs	3
Pyridine	3, 7	Cumulative liver, kidney and bone marrow damage/CNS effects	3
Quinone (p-benzoquinone)	4, 3, 2	Acute and cumulative – eye (corneal) damage/suspect carcinogen	4
Radon daughters		(See NIOSH CIB No. 10)	
RDX (cyclotrimethylene trinitramine) – skin	7	Chronic CNS effects (nausea, convulsions)	3
Resorcinol	15, 3	Moderate irritation – eye, nose, throat, skin/cumulative systemic toxicity	4
Rhodium, metal fume	9	Respiratory sensitisation	1B
Rhodium, soluble salts (Rh)	9, 2	Respiratory sensitisation (asthma)/suspect carcinogen	4
Ronnel	6	Cholinesterase inhibition	3

Substance	Health Code No.	Health Effects	Work Schedule Category
Rosin core solder pyrolysis products (as formaldehyde)	14	Marked irritation – eye, nose, throat	1B
Rotenone (commercial)	3, 16, 2	Cumulative systemic toxicity/mild irritation – nose, throat/suspect carcinogen	4
Rouge	19	Nuisance particulate (accumulation in lungs)	1C
Rubber solvent	7, 8	Cumulative central and peripheral nervous system damage/narcosis	3
Selenium compounds (as Se)	15, 3, 2	Moderate irritation – eye	4
Selenium hexafluoride (as Se)	11	Lung oedema	4
Silica (amorphous)	19, 10	Good housekeeping practice/possible pneumoconiosis	3
Silica (fused)	10	Pneumoconiosis	3
Silica (quartz), respirable	10	Pneumoconiosis (silicosis)	3
Silicon	19	Nuisance particulate (accumulation in lungs)	1C
Silicon carbide	19	Nuisance particulate (accumulation in lungs)	1C
Silicon tetrahydride (silane)	4	Acute systemic toxicity by (analogy with other metal hydrides)	2
Silver, metal & soluble compound (as Ag)	3	Cumulative skin pigmentation and organ accumulation	3
Soapstone	10	Pneumoconiosis	3
Sodium azide	4, 15	Acute CNS and blood pressure effects/mild irritant – eye	2
Sodium fluoroacetate (1080) – skin	4	Acute systemic toxicity (metabolic poison)	2
Sodium hydroxide	14	Marked irritation – eye, nose, throat, lungs, skin	1B
Starch	19	Nuisance particulate	1C
Stibine	4	Acute systemic toxicity	4
Stoddard solvent	16, 8	Mild irritation – eye, nose, throat/narcosis	4
Strychnine	4	Acute systemic toxicity, CNS (convulsions and paralysis)	4
Styrene monomer (phenylethylene)	15, 7, 8	Moderate irritation – eye, nose, throat/CNS effects/narcosis	2
Subtilisins (proteolytic enzymes)	9, 10, 16	Respiratory allergy (asthma and lung damage)/mild skin irritant	2
Sucrose	19	Nuisance particulate	1C
Sulphur dioxide	14, 4	Marked irritation – eye, nose, throat, lungs/broncho-constriction	1B
Sulphur hexafluoride	19	Apparent low toxicity	1C
Sulphuric acid	14, 10, 3	Marked irritation – eye, nose, throat, skin, bronchi/dental erosion	1B
Sulphur monochloride	14	Marked irritation – eye, nose, throat, lung	1B
Sulphur pentafluoride	11	Marked irritation – lung (oedema)	2
Sulphur tetrafluoride	11	Marked irritation – lung (oedema)	2
Sulphuryl fluoride	3, 10, 4	Cumulative kidney and lung damage/acute CNS effects	3
Systox		(See Demetonr)	
2,4,5-T (2,4,5-Trichloro-phenoxyacetic acid)	5, 2	Suspect teratogen and carcinogen	4
Talc (total)	10	Pneumoconiosis (talcosis)	3
Talc, fibrous tremolite	1	Cancer (lung)	3
Talc, fibrous non-tremolite	1	Cancer (lung)	3
Tantalum	19	Apparent low toxicity	1C
TEDP – skin	6	Cholinesterase inhibition	3
Teflon [®] decomposition	4	Acute systemic toxicity (polymer fume fever)	2

Substance	Health Code No.	Health Effects	Work Schedule Category
products			
Tellurium	4, 3	Acute CNS effects/cumulative organ damage	4
Tellurium hexafluoride (as Te)	11	Lung oedema	4
TEPP – skin	6	Cholinesterase inhibition	3
Terphenyls	15	Moderate irritation – eye, nose, throat, lungs	1A
1,1,1,2-Tetrachloro-2,2-difluoroethane	11, 4	Lung oedema/respiratory failure	4
1,1,2,2-Tetrachloro-1,2-difluoroethane	3, 12, 11	Cumulative liver damage/decreased white blood cell count/lung oedema	3
1,1,2,2-Tetrachloroethane – skin	3	Cumulative liver and other organ damage	3
Tetrachloroethylene		(See Perchloroethylene)	
Tetrachloromethane		(See Carbon tetrachloride)	
Tetrachloronaphthalene – skin	3	Cumulative liver damage/chloracne	3
Tetraethyl lead (as Pb) – skin	3, 7, 4	Cumulative liver, CNS and kidney damage/acute CNS effects	3
Tetrahydrofuran	15, 8	Moderate irritation – eye, nose, throat/narcosis	2
Tetramethyl lead (as Pb) – skin	3, 7, 4	Cumulative liver, CNS and kidney damage/acute CNS effects	3
Tetramethyl succinonitrile – skin	4	Acute systemic toxicity (CNS) – headache, nausea, convulsions	4
Tetranitromethane	14, 4, 3	Marked irritation – eye, nose, throat/acute CNS and lung effects (oedema)/cumulative systemic damage	4
Tetryl (2,4,6-Trinitrophenyl Methylnitramine) – skin	3	Contact dermatitis, skin sensitisation/cumulative systemic toxicity	3
Thallium (soluble compounds) – skin (as Ti)	3	Cumulative systemic toxicity	3
4,4'-Thiobis (6-tert-butyl-m-cresol)	19	Apparent low toxicity	1C
Thiram ^R	4, 5	Acute systemic toxicity (antabuselike effects)/suspect teratogen	4
Tin (Inorganic compounds, except oxide) (as Sn)	4, 3	Acute and chronic systemic toxicity	4
Tin (Organic compounds) (as Sn)	14, 3	Marked irritation – skin, cumulative systemic toxicity	3
Tin oxide	10	Pneumoconiosis (stannosis)	3
Titanium dioxide	19	Nuisance particulate (accumulation in lungs)	1C
Toluene – skin	15, 8	Moderate irritation – eye, nose, throat/narcosis	2
Toluene-2,4-diisocyanate (TDI)	9, 14, 3	Asthma/marked irritation – eye, nose, throat, bronchi, lungs/dermatitis	1A
o-Toluidine – skin	13, 4, 2	Methemoglobinemia/acute systemic effects/suspect carcinogen	4
Toxaphene		(See Chlorinated camphene)	
Tributyl phosphate	15, 7	Moderate irritation – nose, throat, lungs/headache	4
1,1,1-Trichloroethane		(See Methyl chloroform)	
1,1,2-Trichloroethane – skin	3, 8	Cumulative liver damage/narcosis	4
Trichloroethylene	8, 3, 2	Narcosis/cumulative systemic toxic effects/suspect carcinogen	4
Trichloromethane		(See Chloroform)	
Trichloronaphthalene – skin	3	Cumulative liver damage/Chloracne	3

Substance	Health Code No.	Health Effects	Work Schedule Category
1,2,3-Trichloropropane	15, 3	Moderate irritation – eye, nose, throat/cumulative liver damage	4
1,1,2-Trichloro-1,2,2 trifluoroethane (F-113)	19	Apparent low toxicity	1C
Tricyclohexyltin hydroxide (Plictran ^R)	19	Apparent low toxicity	1C
Triethylamine	14, 11, 3	Marked irritation – eye, nose, throat, lungs/lung oedema/corneal damage	4
Trifluoromonobromo-methane	19	Apparent low toxicity	1C
2,4,6-Trinitrophenol		(See Picric acid)	
2,4,6-Trinitrophenylmethyl-nitramine		(See Tetryl)	
Trimellitic anhydride (TMA)		(See NIOSH CIB No. 21)	
Trimethylbenzene	14, 7	Marked irritation – lungs, skin/cumulative CNS effects	4
Trinitrotoluene – skin (TNT)	13, 12, 3	Methemoglobinemia/ aplastic anaemia/cumulative eye (cataracts) and liver damage	3
Triorthocresyl phosphate	7	Polyneuropathy	3
Triphenyl phosphate	6	Cholinesterase inhibition	3
Tungsten & compounds (Insoluble) (as W)	19	Lung accumulation/apparent low toxicity	1C
Tungsten compounds (Insoluble) (as W)	4	Acute CNS effects (metabolic poison)	2
Turpentine	15, 3	Moderate irritation – eye, nose, throat, bronchi, lungs, skin/cumulative kidney damage	1B
Uranium (insoluble compounds)	3	Cumulative kidney damage/lung accumulation	3
Uranium (soluble compounds)	3	Cumulative kidney damage	3
Vanadium (V ₂ O ₅) dust (as V)	14, 11, 10	Moderate irritation – eye, nose, throat, bronchi, lungs, skin/acute and chronic bronchial and lung damage	1A
Vanadium (V ₂ O ₅) fume (as V)	14, 11, 10	Moderate irritation – eye, nose, throat, bronchi, lungs, skin/acute and chronic bronchial and lung damage	1A
Vinyl acetate	16	Mild irritation – eye, nose, throat,	1B
Vinyl benzene		(See Styrene)	
Vinyl bromide	3, 2	Cumulative bromide intoxication (CNS effects)/suspect carcinogen	4
Vinyl chloride	1	Cancer – liver	1C
Vinyl cyanide		(See Acrylonitrile)	
Vinyl cyclohexane dioxide	14, 2	Marked irritation – skin/suspect carcinogen	4
Vinylidene chloride	3, 2	Cumulative liver and kidney damage/suspect carcinogen	4
Vinyl toluene	15	Moderate irritation – eye, nose, throat	1B
VM & P naphtha	16, 8, 3	Mild irritation – eye, nose	1B
Warfarin	3	Cumulative anticoagulant effect	3
Welding fumes (total particulate)	15, 11, 3	Moderate irritation – nose, throat, bronchi, lungs/acute and chronic toxicity from metal oxides	4
Wood dust, hardwood (non-allergenic)	10, 3, 2	Lung damage/dermatitis/suspect carcinogen	4
Wood dust, softwood	19	Nuisance particulate (accumulation in lungs)	1C
Xylene (o-, m- and p-isomers) – skin	15, 8	Moderate irritation – eye, nose, throat/narcosis	2

Substance	Health Code No.	Health Effects	Work Schedule Category
m-Xylene, alpha, alpha'-Diamine	3, 15	Contact skin sensitiser/moderate irritation – skin	2
Xylidene – skin	13, 4	Methemoglobinemia/acute systemic toxicity	4
Yttrium	10	Pneumoconiosis (diffuse fibrosis)	3
Zinc chloride fume	14, 11, 2	Marked irritation – eye, nose, throat, lungs/acute lung damage/suspect carcinogen	4
Zinc chromate (as Cr)	2	Suspect carcinogen	4
Zinc oxide fume	4	Acute systemic toxicity (metal fume fever)	2
Zinc stearate	19	Nuisance particulate (accumulation in lungs)	1C
Zirconium compounds As (Zr)	10, 3	Pneumoconiosis/lung and skin granulomas	3

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