

ATTACHMENT 2

Z Tables
29 CFR 1910.1000

TABLE Z-1--LIMITS FOR AIR CONTAMINANTS

Substance	CAS No. (c)	p/m (a) ¹	mg/m ³ (b) ¹	Skin designation
Acetaldehyde	75-07-0	200	360	
Acetic acid	64-19-7	10	25	
Acetic anhydride	108-24-7	5	20	
Acetone	67-64-1	1,000	2,400	
Acetonitrile	75-05-8	40	70	
Acetylaminofluorine; see 1910.1014	53-96-3			
Acetylene dichloride, see 1,2-Dichloroethylene				
Acetylene tetrabromide	79-27-6	1	14	
Acrolein	107-02-8	0.1	0.25	
Acrylamide	79-06-1	.....	0.3	X
Acrylonitrile; see 1910.1045	107-13-1	.....	
Aldrin	309-00-2	.....	0.25	X
Allyl alcohol	107-18-6	2	5	X
Allyl chloride	107-05-1	1	3	
Allylglycidyl ether (AGE)	106-92-3	(C)10	(C)45	
Allyl propyl disulfide.	2179-59-1	2	12	
alpha-Alumina	1344-28-1			
Total dust		.....	15	
Respirable fraction		.....	5	
Aluminum, metal (as Al)	7429-90-5			
Total dust		.....	15	
Respirable fraction		.....	5	
4-Aminodiphenyl; see 1910.1011	92-67-1			
2-Aminoethanol; see Ethanolamine				
2-Aminopyridine	504-29-0	0.5	2	
Ammonia	7664-41-7	50	35	
Ammonium sulfamate	7773-06-0			
Total dust		.....	15	
Respirable fraction		.....	5	
n-Amyl acetate	628-63-7	100	525	
sec-Amyl acetate	626-38-0	125	650	
Aniline and homologs	62-53-3	5	19	X
Anisidine (o,p-isomers)	29191-52-4	.....	0.5	X
Antimony and compounds (as Sb)	7440-36-0	.....	0.5	
ANTU (alpha Naphthylthiourea)	86-88-4	.....	0.3	
Arsenic, inorganic compounds (as As); see 1910.1018	7440-38-2			
Arsenic, organic compounds (as As)	7440-38-2	.....	0.5	
Arsine	7784-42-1	0.05	0.2	
Asbestos; see 1910.1001	(^d)			
Azinphos-methyl	86-50-0	.....	0.2	X
Barium, soluble compounds (as Ba)	7440-39-3	.....	0.5	
Barium sulfate	7727-43-7			
Total dust		.....	15	
Respirable fraction		.....	5	
Benomyl	17804-35-2			
Total dust		.....	15	
Respirable fraction		.....	5	
Benzene; see 1910.1028	71-43-2			
See Table Z-2 for the limits applicable in the operations or sectors excluded in 1910.1028 ^d				
Benzidine; see 1910.1010	92-87-5			
p-Benzoquinone; see Quinone				
Benzo(a)pyrene; see Coal tar pitch volatiles				
Benzoyl peroxide	94-36-0	.....	5	
Benzyl chloride.	100-44-7	1	5	
Beryllium and beryllium compounds (as Be)	7440-41-7		(²)	
Biphenyl, see Diphenyl.				
Bismuth telluride, Undoped	1304-82-1			
Total dust		.....	15	
Respirable fraction		.....	5	
Boron oxide	1303-86-2			
Total dust		.....	15	
Boron trifluoride	7637-07-2	(C)1	(C)3	
Bromine	7726-95-6	0.1	0.7	
Bromoform	75-25-2	0.5	5	X

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Substance	CAS No. (c)	p/m (a) ¹	mg/m ³ (b) ¹	Skin designation
Butadiene (1,3-butadiene); See 29 CFR 1910.1051; 29 CFR 1910.19(I)	106-99-0	1 ppm/5 ppm STEL	
Butanethiol, see Butyl mercaptan				
2-Butanone (Methyl ethyl ketone)	78-93-3	200	590	
2-Butoxyethanol	111-76-2	50	240	X
n-Butyl acetate	123-86-4	150	710	
sec-Butyl acetate	105-46-4	200	950	
tert-Butyl acetate	540-88-5	200	950	
n-Butyl alcohol	71-36-3	100	300	
sec-Butyl alcohol	78-92-2	150	450	
tert-Butyl alcohol	75-65-0	100	300	
Butylamine	109-73-9	(C)5	(C)15	X
tert-Butyl chromate (as CrO ₃)	1189-85-1	.....	(C)0.1	X
n-Butyl glycidal ether (BGE)	2426-08-6	50	270	
Butyl mercaptan	109-79-5	10	35	
p-tert-Butyltoluene	98-51-1	10	60	
Cadmium (as Cd); see 1910.1027	7440-43-9			
Calcium carbonate	1317-65-3			
Total dust		.....	15	
Respirable fraction		.....	5	
Calcium hydroxide	1305-62-0			
Total dust		.....	15	
Respirable fraction		.....	5	
Calcium oxide	1305-78-8		5	
Calcium silicate	1344-95-2			
Total dust		.....	15	
Respirable fraction		.....	5	
Camphor, synthetic	76-22-2		2	
Carbaryl (Sevin)	63-25-2		5	
Carbon black	1333-86-4		3.5	
Carbon dioxide	124-38-9	5000	9000	
Carbon disulfide	75-15-0		(²)	
Carbon monoxide	630-08-0	50	55	
Carbon tetrachloride	56-23-5		(²)	
Cellulose	9004-34-6			
Total dust		.....	15	
Respirable fraction		.....	5	
Chlordane	57-74-9		0.5	X
Chlorinated camphene	8001-35-2		0.5	X
Chlorinated diphenyl oxide	55720-99-5		0.5	
Chlorine	7782-50-5	(C)1	(C)3	
Chlorine dioxide	10049-04-4	0.1	0.3	
Chlorine trifluoride	7790-91-2	(C)0.1	(C)0.4	
Chloroacetaldehyde	107-20-0	(C)1	(C)3	
a-Chloroacetophenone (Phenacylchloride)	532-27-4	0.05	0.3	
Chlorobenzene	108-90-7	75	350	
o-Chlorobenzylidene malonitrile	2698-41-1	0.05	0.4	
Chlorobromomethane	74-87-5	200	1,050	
2-Chloro-1,3-butadiene; see beta-Chloroprene				
Chlorodiphenyl (42 % Chlorine) (PCB)	53469-21-9	.....	1	X
Chlorodiphenyl (54 % Chlorine) (PCB)	11097-69-1	.....	0.5	X
1-Chloro-2,3-epoxypropane; see Epichlorohydrin				
2-Chloroethanol; see Ethylene chlorohydrin				
Chloroethylene; see Vinyl chloride				
Chloroform (Trichloromethane)	67-66-3	(C)50	(C)240	
bis(Chloromethyl) ether; see 1910.1008	542-88-1			
Chloromethyl methyl ether; see 1910.1006	107-30-2			
1-Chloro-1-nitropropane	600-25-9	20	100	
Chloropicrin	76-06-2	0.1	0.7	
2-Chloro-6-(trichloromethyl) pyridine	1929-82-4			
Total dust		.....	15	
Respirable fraction		.....	5	
Chromic acids and chromates (as CrO ₃)	(⁴)		(²)	
Chromium (II) compounds (as Cr)	7440-47-3		0.5	
Chromium (III) compounds (as Cr)	7440-47-3		0.5	
Chromium metal and insol. salts (as Cr)	7440-47-3		1	
Chrysene; see Coal tar pitch volatiles				
Clopidol	2971-90-6			
Total dust		15	
Respirable fraction		5	
Coal dust (less the 5% SiO ₂), respirable fraction			(³)	

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Substance	CAS No. (c)	p/m (a) ¹	mg/m ³ (b) ¹	Skin designation
Coal dust (greater than or equal to 5% SiO ₂), respirable fraction			(³)	
Coal tar pitch volatiles (benzene soluble fraction) anthracene, BaP, phenanthrene, acridine, chrysene, pyrene	65966-93-2	.....	0.2	
Cobalt metal, dust, and fume (as Co)	7440-48-4	.....	0.1	
Coke oven emissions ¹ see 1910.1029				
Copper	7440-50-8			
Fume (as Cu)		.....	0.1	
Dusts and mists (as Cu)		.....	1	
Cotton dust ² ; see 1910.1043		.....	1	
Crag herbicide (Sesone)	136-78-7			
Total dust		.....	15	
Respirable fraction		.....	5	
Cresol (all isomers)	1319-77-3	5	22	X
Crotonaldehyde	123-73-9	2	6	
	4170-30-3			
Cumene	98-82-8	50	245	X
Cyanide (as CN)	(⁴)	.....	5	
Cyclohexane	110-82-7	300	1050	
Cyclohexanol	108-93-0	50	200	
Cyclohexanone	108-94-1	50	200	
Cyclohexene	110-83-8	300	1015	
Cyclopentadiene	542-92-7	75	200	
2,4-D (Dichlorophenoxyacetic acid)	94-75-7	.....	10	
Decaborane	17702-41-9	0.05	0.3	X
Demeton (Systox)	8065-48-3	.....	0.1	X
Diacetone alcohol (4-hydroxy-4-methyl-2-pentanone)	123-42-2	50	240	
1,2-Diaminoethane, see Ethylenediamine				
Diazomethane	334-88-3	0.2	0.4	
Diborane	19287-45-7	0.1	0.1	
1,2-Dibromo-3-chloropropane (CBCP); see 1910.1044	96-12-8			
1,2-Dibromoethane; see Ethylene dibromide				
Dibutyl phosphate	107-66-4	1	5	
Dibutylphthalate	84-74-2	.....	5	
o-Dichlorobenzene	95-50-1	(C)50	(C)300	
p-Dichlorobenzene	106-46-7	75	450	
3,3-Dichlorobenzidine; see 1910.1007	91-94-1			
Dichlorodifluoromethane	75-71-8	1000	4950	
1,3-Dichloro-5,5-dimethyl hydantoin	118-52-5	.....	0.2	
Dichlorodiphenyltrichloroethane (DDT)	50-29-3	.....	1	X
1,1-Dichloroethane	75-34-3	100	400	
1,2-Dichloroethane; see Ethylene dichloride				
1,2-Dichloroethylene	540-59-0	200	790	
Dichloroethyl ether	111-44-4	(C)15	(C)90	X
Dichloromethane; see Methylene chloride				
Dichloromonofluoromethane	75-43-4	1000	4200	
1,1-Dichloro-1-nitroethane	594-72-9	(C)10	(C)60	
1,2-Dichloropropane, see Propylenedichloride				
Dichlorotetrafluoroethane	76-14-2	1000	7000	
Dichlorvos (DDVP)	62-73-7	.....	1	X
Dicyclopentadienyl iron	102-54-5			
Total dust		.....	15	
Respirable fraction		.....	5	
Dieldrin	60-57-1	.....	0.25	X
Diethylamine	109-89-7	25	75	
2-Diethylaminoethanol	100-37-8	10	50	X
Diethylether, see Ethyl ether				
Difluorodibromomethane	75-61-6	100	860	
Diglycidal ether (DGE)	2238-07-5	(C)0.5	(C)2.8	
Dihydroxybenzene, see Hydroquinone				
Diisobutyl ketone	108-83-8	50	290	
Diisopropylamine	108-18-9	5	20	X
4-Dimethylaminoazobenzene; see 1910.1015	60-11-7			
Dimethoxymethane, see Methylal				
Dimethyl acetamide	127-19-5	10	35	X
Dimethylamine	124-40-3	10	18	
Dimethylaminobenzene, see Xylidene				
Dimethylaniline (N,N-Dimethylaniline)	121-69-7	5	25	X
Dimethylbenzene, see Xylene				
Dimethyl-1,2-dibromo-2,2-dichloroethyl phosphate	300-76-5	3	

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Substance	CAS No. (c)	p/m (a) ¹	mg/m ³ (b) ¹	Skin designation
Dimethylformamide	68-12-2	10	30	X
2,6-Dimethylheptanone, see Diisobutyl ketone				
1,1-Dimethylhydrazine	57-14-7	0.5	1	X
Dimethylphthalate	131-11-3	.....	5	
Dimethylsulfate	77-78-1	1	5	X
Dinitrobenzene (all isomers)			1	X
(ortho)	528-29-0			
(meta)	99-65-0			
(para)	100-25-4			
Dinitro-o-cresol	534-52-1	.....	0.2	X
Dinitrotoluene	25321-14-6	.....	1.5	X
Dioxane (Diethylene dioxide)	123-91-1	100	360	X
Diphenyl (Biphenyl)	92-52-4	0.2	1	
Diphenylmethane diisocyanate; see Methylene bisphenyl isocyanate				
Dipropylene glycol methyl ether	34590-94-8	100	600	X
Di-sec, octyl phthalate (Di-(2-ethylhexyl) phthalate)	117-81-7	.....	5	
Emery	12415-34-8			
Total dust		.....	15	
Respirable fraction		.....	5	
Endosulfan	115-29-7	.....	0.1	X
Endrin	72-20-8	.....	0.1	X
Epichlorohydrin	106-89-8	5	19	X
EPN	2104-64-5	.....	0.5	X
1,2-Epoxy-propane, see Propylene oxide				
2,3-Epoxy-1-propanol, see Glycidol				
Ethanethiol, see Ethyl mercaptan				
Ethanolamine	141-43-5	3	6	
2-Ethoxyethanol (Cellosolve)	110-80-5	200	740	X
2-Ethoxyethylacetate (Cellosolve acetate)	111-15-9	100	540	X
Ethyl acetate	141-78-6	400	1400	
Ethyl acrylate	140-88-5	25	100	X
Ethyl alcohol (Ethanol)	64-17-5	1000	1900	
Ethylamine	75-04-7	10	18	
Ethyl amyl ketone (5-Methyl-3-heptone)	541-85-5	25	130	
Ethyl benzene	100-41-4	100	435	
Ethyl bromide	74-96-4	200	890	
Ethyl butyl ketone (3-Heptanone)	106-35-4	50	230	
Ethyl chloride	75-00-3	1000	2600	
Ethyl ether	60-29-7	400	1,200	
Ethyl formate	109-94-4	100	300	
Ethyl mercaptan	75-08-1	(C)10	(C)25	
Ethyl silicate	78-10-4	100	850	
Ethylene chlorohydrin	107-07-3	5	16	X
Ethylenediamine	107-15-3	10	25	
Ethylene dibromide	106-93-4		(²)	
Ethylene dichloride (1,2-Dichloroethane)	107-06-2		(²)	
Ethylene glycol dinitrate	628-96-6	(C)0.2	(C)1	X
Ethylene glycol methyl acetate, see Methyl cellosolve acetate				
Ethyleneimine; see 1910.1012	151-56-4			
Ethyleneoxide; see 1910.1047	75-21-8			
Ethylidene chloride, see 1,1-Dichloroethane				
N-Ethylmorpholine	100-74-3	20	94	X
Ferbam	14484-64-1			
Total dust		.....	15	
Ferrovandium dust	12604-58-9	.....	1	
Fluoride (as F)	(⁴)	.....	2.5	
Fluorine	7782-41-4	0.1	0.2	
Fluorotrichloromethane (Trichlorofluoromethane)	75-69-4	1000	5600	
Formaldehyde; see 1910.1048	50-00-0			
Formic acid	64-18-6	5	9	
Furfural	98-01-1	5	20	X
Furfuryl alcohol	98-00-0	50	200	
Grain dust (oat, wheat, barley)	.....	.....	10	
Glycerin (mist)	56-81-5			
Total dust		.....	15	
Respirable fraction		.....	5	
Glycidol	556-52-5	50	150	
Glycol monoethyl ether, see 2-Ethoxymethanol				
Graphite, natural, respirable dust	7782-42-5		(³)	

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Substance	CAS No. (c)	p/m (a) ¹	mg/m ³ (b) ¹	Skin designation
Graphite, synthetic				
Total dust		15	
Respirable fraction		.....	5	
Guthion [®] , see Azinphos methyl				
Gypsum	13397-24-5			
Total dust		.....	15	
Respirable fraction		.....	5	
Hafnium	7440-58-6	.....	0.5	
Heptachlor	76-44-8	.....	0.5	X
Heptane (n-Heptane)	142-82-5	500	2,000	
Hexachloroethane	67-72-1	1	10	X
Hexachloronaphthalene	1335-87-1	.....	0.2	X
n-Hexane	110-54-3	500	1800	
2-Hexanone (Methyl n-butyl ketone)	591-78-6	100	410	
Hexone (Methyl isobutyl ketone)	108-10-1	100	410	
sec-Hexyl acetate	108-84-9	50	300	
Hydrazine	302-01-2	1	1.3	X
Hydrogen bromide	10035-10-6	3	10	
Hydrogen chloride	7647-01-0	(C)5	(C)7	
Hydrogen cyanide	74-90-8	10	11	X
Hydrogen fluoride (as F)	7664-39-3	.....	(²)	
Hydrogen peroxide	7722-84-1	1	1.4	
Hydrogen selenide (as Se)	7783-07-5	0.05	0.2	
Hydrogen sulfide	7783-06-4	.....	(²)	
Hydroquinone	123-31-9	.....	2	
Iodine	7553-56-2	(C)0.1	(C)1	
Iron oxide fume	1309-37-1	.....	10	
Isoamyl acetate	123-92-2	100	525	
Isoamyl alcohol (primary and secondary)	123-51-3	100	360	
Isobutyl acetate	110-19-0	150	700	
Isobutyl alcohol	78-83-1	100	300	
Isophorone	75-59-1	25	140	
Isopropyl acetate	108-21-4	250	950	
Isopropyl alcohol	67-63-0	400	980	
Isopropylamine	75-31-0	5	12	
Isopropylether	108-20-3	500	2100	
Isopropyl glycidal ether (IGE)	4016-14-2	50	240	
Kaolin	1332-58-7			
Total dust		.....	15	
Respirable fraction		.....	5	
Ketene	463-51-4	0.5	0.9	
Lead, inorganic (as Pb); see 1910.1025	7439-92-1			
Limestone	1317-65-3			
Total dust		.....	15	
Respirable fraction		.....	5	
Lindane	58-89-9	.....	0.5	X
Lithium hydride	7580-67-8	.....	0.025	
L.P.G. (Liquefied petroleum gas)	68476-85-7	1000	1800	
Magnesite	546-93-0			
Total dust		.....	15	
Respirable fraction		.....	5	
Magnesium oxide fume	1309-48-4			
Total particulate		.....	15	
Malathion	121-75-5			
Total dust		.....	15	X
Maleic anhydride	108-31-6	0.25	1	
Manganese compounds (as Mn)	7439-96-5	.....	(C)5	
Manganese fume (as Mn)	7439-96-5	.....	(C)5	
Marble	1317-65-3			
Total dust		.....	15	
Respirable fraction		.....	5	
Mercury (aryl and inorganic) (as Hg)	7439-97-6	.....	(²)	
Mercury (organo) alkyl compounds (as Hg)	7439-97-6	.....	(²)	
Mercury (vapor) (as Hg)	7439-97-6	.....	(²)	
Mesityl oxide	141-79-7	25	100	
Methanethiol, see Methyl mercapton				
Methoxychlor	72-43-5			
Total dust		.....	15	
2-Methoxyethanol (Methylcellosolve)	109-86-4	25	80	X
2-Methoxyethyl acetate (Methyl cellosolve acetate)	110-49-6	25	120	X
Methyl acetate	79-20-9	200	610	
Methyl acetylene (Propyne)	74-99-7	1000	1650	
Methyl acetylene-propadiene mixture (MAPP)		1000	1800	

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Substance	CAS No. (c)	p/m (a) ¹	mg/m ³ (b) ¹	Skin designation
Methyl acrylate	96-33-3	10	35	X
Methylal (Dimethoxy-methane)	109-87-5	1000	3100	
Methyl alcohol	67-56-1	200	260	
Methylamine	74-89-5	10	12	
Methyl amyl alcohol, see Methyl isobutyl carbinol				
Methyl (n-amyl) ketone	110-43-0	100	465	
Methyl bromide	74-83-9	(C)20	(C)80	
Methyl butyl ketone; see 2-Hexanone				
Methyl cellosolve; see 2-Methoxyethanol				
Methyl cellosolve acetate; see 2-Methoxyethyl acetate				
Methyl chloride	74-87-83		(²)	
Methyl chloroform (1,1,1-Trichloroethane)	71-55-6	350	1900	
Methylcyclohexane	108-87-2	500	2000	
Methylcyclohexanol	25639-42-3	100	470	
o-Methylcyclohexanone	583-60-8	100	460	X
Methylene chloride	75-09-2		(²)	
Methyl ethyl ketone (MEK), see 2-Butanone				
Methyl formate	107-31-3	100	250	
Methyl hydrazine (Monomethyl hydrazine)	60-34-4			
Methyl iodide	74-88-4	5	28	X
Methyl isoamyl ketone	110-12-3	100	475	
Methyl isobutyl carbinol	108-11-2	25	100	X
Methyl isobutyl ketone, see Hexone				
Methyl isocyanate	624-83-9	0.02	0.05	X
Methyl mercaptan	74-93-1	(C)10	(C)20	
Methyl methacrylate	80-62-6	100	410	
Methyl propyl ketone, see 2-Pentanone				
alpha- Methyl styrene	98-83-9	(C)100	(C)480	
Methylene bisphenyl isocyanate (MDI)	101-68-8	(C)0.02	(C)0.2	
Mica; see Silicates				
Molybdenum (as Mo)	7439-98-7			
Soluble compounds		.....	5	
Insoluble compounds				
Total dust		.....	15	
Monomethyl aniline	100-61-8	2	9	X
Monomethyl hydrazine; see Methyl hydrazine				
Morpholine	110-91-8	20	70	X
Naphtha (coal tar)	8030-30-6	100	400	
Naphthalene	91-20-3	10	50	
alpha-Naphthylamine; see 1910.1004	134-32-7			
beta-Naphthylamine; see 1910.1009	91-59-8			
Nickel carbonyl	13463-39-3	0.001	0.007	
Nickel, metal and insoluble compounds (as Ni)	7440-02-0	.....	1	
Nickel, soluble compounds (as Ni)	7440-02-0	.....	1	
Nicotine	54-11-5	.....	0.5	X
Nitric acid	7697-37-2	2	5	
Nitric oxide	10102-43-9	25	30	
p-Nitroaniline	100-01-6	1	6	X
Nitrobenzene	98-95-3	1	5	X
p-Nitrochlorobenzene	100-00-5	.....	1	X
4-Nitrodiphenyl; see 1910.1003	92-93-3			
Nitroethane	79-24-3	100	310	
Nitrogen dioxide	10102-44-0	(C)5	(C)9	
Nitrogen trifluoride	7783-54-2	10	29	
Nitroglycerin	55-63-0	(C)0.2	(C)2	X
Nitromethane	75-52-5	100	250	
1-Nitropropane	108-03-2	25	90	
2-Nitropropane	79-46-9	25	90	
N-Nitrosodimethylamine; see 1910.1016				
Nitrotoluene (all isomers)		5	30	
o-isomer	88-72-2			
m-isomer	99-08-1			
p-isomer	99-99-0			
Nitrotrichloromethane, see Chloropicrin				
Octachloronaphthalene	2234-13-1	.....	0.1	X
Octane	111-65-9	500	2350	
Oil mist, mineral	8012-95-1	.....	5	
Osmium tetroxide (as Os)	20816-12-0	.....	0.002	
Oxalic acid	144-62-7	1	
Oxygen difluoride	7783-41-7	0.05	0.1	
Ozone	10028-15-6	0.1	0.2	

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Paraquat, respirable dust	4685-14-7; 1910-42-5; 2074-50-2	0.5	X
Parathion	56-38-2	0.1	X
Particulates not otherwise regulated (PNOR) ^f				
Total dust		.....	15	
Respirable fraction		.....	5	
PCB; see Chlorodiphenyl (42% and 54% chlorine)				
Pentaborane	19624-22-7	0.005	0.01	
Pentachloronaphthalene	1321-64-8	.....	0.5	X
Pentachlorophenol	87-86-5	.....	0.5	X
Pentaerythritol	115-77-5			
Total dust		.....	15	
Respirable fraction		.....	5	
Pentane	109-66-0	1000	2950	
2-Pentanone (methyl propyl ketone)	107-87-9	200	700	
Perchloroethylene (Tetrachloroethylene)	127-18-4		(²)	
Perchloromethyl mercaptan	594-42-3	0.1	0.8	
Perchloryl fluoride	7616-94-6	3	13.5	
Perlite	93763-70-3			
Total dust		.....	15	
Respirable fraction		.....	5	
Petroleum distillates (Naphtha) (Rubber Solvent)		500	2000	
Phenol	108-95-2	5	19	X
p-Phenylene diamine	106-50-3	.....	0.1	X
Phenyl ether, vapor	101-84-8	1	7	
Phenyl ether-biphenyl mixture, vapor		1	7	
Phenylethylene, see Styrene				
Phenyl glycidyl ether (PGE)	122-60-1	10	60	
Phenylhydrazine	100-63-0	5	22	X
Phosdrin (Mevinphos)	7786-34-7	.....	0.1	X
Phosgene (Carbonyl chloride)	75-44-5	0.1	0.4	
Phosphine	7803-51-2	0.3	0.4	
Phosphoric acid	7664-38-2	.....	1	
Phosphorus (yellow)	7723-14-0	.....	0.1	
Phosphorus pentachloride	10026-13-8	.....	1	
Phosphorus pentasulfide	1314-80-3	.....	1	
Phosphorus trichloride	7719-12-2	0.5	3	
Phthalic anhydride	885-44-9	2	12	
Picloram	1918-02-1			
Total dust		.....	15	
Respirable fraction		.....	5	
Picric acid	88-89-1	.....	0.1	X
Pindone (2-Pivalyl-1,3-indandione)	83-26-1	.....	0.1	
Plaster of Paris	26499-65-0			
Total dust		.....	15	
Respirable fraction		.....	5	
Platinum (as Pt)	7440006-4			
Metal		.....	.....
Soluble salts		.....	0.002	
Portland cement	65997-15-1			
Total dust		.....	15	
Respirable fraction		.....	5	
Propane	74-98-6	1000	1800	
beta-Propiolactone; see 1910.1013	57-57-8			
n-Propyl acetate	109-60-4	200	840	
n-Propyl alcohol	71-23-8	200	500	
n-Propyl nitrate	627-13-4	25	110	
Propylene dichloride	78-87-5	75	350	
Propylene imine	75-55-8	2	5	X
Propylene oxide	75-56-9	100	240	
Propyne, see Methyl acetylene				
Pyrethrum	8003-34-7	.....	5	
Pyridine	110-86-1	5	15	
Quinone	106-51-4	0.1	0.4	
RDX; see Cyclonite				
Rhodium (as Rh), metal fumes and insoluble compounds	7440-16-6	.....	0.1	
Rhodium (as Rh), soluble compounds	7440-16-6	.....	0.001	
Ronnel	299-84-3	.....	15	
Rotenone	83-79-4	.....	5	

ATTACHMENT 2

Substance	CAS No. (c)	p/m (a) ¹	mg/m ³ (b) ¹	Skin designation
Rouge				
Total dust		.....	15	
Respirable fraction		.....	5	
Selenium compounds (as Se)	7782-49-2	.....	0.2	
Selenium hexafluoride (as Se)	7783-79-1	0.05	0.4	
Silica, amorphous, precipitated and gel	112926-00-8		(³)	
Silica, amorphous, diatomaceous earth, containing less than 1% crystalline silica	61790-53-2		(³)	
Silica, crystalline cristoblaite, respirable dust	14464-46-1		(³)	
Silica, crystalline, quartz, respirable dust	14808-60-7		(³)	
Silica, crystalline, tripoli (as quartz), respirable dust	1317-95-9		(³)	
Silica, crystalline tridymite, respirable dust	15468-32-3		(³)	
Silica, fused, respirable dust	60676-86-0		(³)	
Silicates (less than 1% crystalline silica)				
Mica (respirable dust)	12001-26-2		(³)	
Soapstone, total dust	.....		(³)	
Soapstone, respirable dust	.....		(³)	
Talc (containing asbestos); use asbestos limit; see 29 CFR 1910.1001	14807-96-6		(³)	
Tremolite, asbestiform; see 1910.1001				
Silicon	7440-21-3			
Total dust		.....	15	
Respirable fraction		.....	5	
Silicon carbide	409-21-2			
Total dust		.....	15	
Respirable fraction		.....	5	
Silver, metal and soluble compounds (as Ag)	7440-22-4		0.01	
Soapstone; see Silicates				
Sodium fluoroacetate	62-74-8		0.05	X
Sodium hydroxide	1310-73-2		2	
Starch	9005-25-8			
Total dust		.....	15	
Respirable fraction		.....	5	
Stilbine	7803-52-3	0.1	0.5	
Stoddard solvent	8052-41-3	500	2900	
Strychnine	57-24-9	.....	0.15	
Styrene	100-42-5		(²)	
Sucrose	57-50-1			
Total dust		.....	15	
Respirable fraction		.....	5	
Sulfur dioxide	7446-09-5	5	13	
Sulfur hexafluoride	2551-062-4	1000	6000	
Sulfuric acid	7664-93-9	.....	1	
Sulfur monochloride	10025-67-9	1	6	
Sulfur pentafluoride	5714-22-7	0.025	0.25	
Sulfuryl fluoride	2699-79-8	5	20	
Systox; see Demeton				
2,4,5T (2,4,5-trichlorophenoxyacetic acid)	93-76-5	.....	10	
Talc; see Silicates				
Tantalum, metal and oxide dust	7440-25-7	.....	5	
TEDP (Sulfotep)	3689-24-5	.....	0.2	X
Tellurium and compounds (as Te)	13494-80-9	.....	0.1	
Tellurium hexafluoride (as Te)	7783-80-4	0.02	0.2	
Temphos	3383-96-8			
Total dust		.....	15	
Respirable fraction		.....	5	
TEPP(Tetraethyl pyrophosphate)	107-49-3	.....	0.05	X
Terphenyls	26140-60-3	(C)1	(C)9	
1,1,1,2-Tetrachloro-2,2-difluoroethane	76-11-9	500	4170	
1,1,2,2-Tetrachloro-1,2-difluoroethane	76-12-0	500	4170	
1,1,2,2-Tetrachloroethane	79-34-5	5	35	X
Tetrachloroethylene; see Perchloroethylene				
Tetrachloromethane, see Carbon tetrachloride				
Tetrachloronaphthalene	1335-88-2	.....	2	X
Tetraethyl lead (as Pb)	78-00-2	.....	0.075	X
Tetrahydrofuran	109-99-9	200	590	
Tetramethyl lead (as Pb)	75-74-1	.....	0.075	X
Tetramethyl succinonitrile	3333-52-6	0.5	3	X
Tetranitromethane	509-14-8	1	8	X
Tertyl (2,4,6-trinitrophenyl-methyl-nitramine)	479-45-8	.....	1.5	X
Thallium, soluble compounds (as T1)	7440-28-0	.....	0.1	X

ATTACHMENT 2

Substance	CAS No. (c)	p/m (a) ¹	mg/m ³ (b) ¹	Skin designation
4,4'-thiobis(6-tert, Butyl-m-cresol)	96-69-5			
Total dust		.....	15	
Respirable fraction		.....	5	
Thiram	137-26-8	.....	5	
Tin, inorganic compounds (except oxides) (as Sn)	7440-31-5	.....	2	
Tin, organic compounds (as Sn)	7440-31-5	.....	0.1	
Titanium dioxide	13463-67-7			
Total dust		.....	15	
Toluene	108-88-3		(²)	
Toluene-2,4-diisocyanate (TDI)	584-84-9	(C)0.02	(C)0.14	
o-Toluidine	95-53-4	5	22	X
Toxaphene, see Chlorinated camphene				
Tremolite; see Silicates				
Tributyl phosphate	126-73-8	.....	5	
1,1,1-Trichloroethane, see Methyl chloroform				
1,1,2-Trichloroethane	79-00-5	10	45	X
Trichloroethylene	79-01-6		(³)	
Trichloromethane, see Chloroform				
Trichloronaphthalene	1321-65-9	.....	5	X
1,2,3-Trichloropropane	96-18-4	50	300	
1,1,2-Trichloro-1,2,2,-trifluoroethane	76-13-1	1000	6100	
Triethylamine	121-44-8	25	100	
Trifluorobromomethane	75-63-8	1000	6100	
2,4,6-Trinitrophenyl, see Picric acid				
2,4,6-Trinitrophenylmethylnitramine; see Tetryl				
2,4,6-Trinitrotoluene (TNT)	118-96-7	.....	1.5	X
Triorthocresyl phosphate	78-30-8	.....	0.1	
Triphenyl phosphate	115-86-6	.....	3	
Turpentine	8006-64-2	100	560	
Uranium (asU)	7440-61-1			
Soluble compounds		.....	0.05	
Insoluble compounds		.....	0.05	
Vanadium	1314-62-1			
Respirable dust (as V ₂ O ₅)		.....	(C)0.5	
Fume (as V ₂ O ₅)		.....	(C)0.1	
Vegetable oil mist				
Total dust		.....	15	
Respirable fraction		.....	5	
Vinyl benzene; see Styrene				
Vinyl chloride; see 1910.1017	75-01-4			
Vinylcyanide, see Acrylonitrile				
Vinyl toluene	25013-15-4	100	480	
Warfarin	81-81-2	.....	0.1	
Xylene (o-,m-, p-isomers)	1330-73-8	100	435	
Xylidine	1300-73-8	5	25	X
Yttrium	7440-65-5	.....	1	
Zinc chloride fume	7646-85-7	.....	1	
Zinc oxide fume	1314-13-2	.....	5	
Zinc oxide	1314-13-2			
Total dust		.....	15	
Respirable fraction		.....	5	
Zinc stearate	557-05-1			
Total dust		.....	15	
Respirable fraction		.....	5	
Zirconium compounds (as Zr)	7440-67-7	.....	5	

¹The PELs are 8-hour TWAs unless otherwise noted; a (C) designation denotes a ceiling limit. They are to be determined from breathing-zone air samples.

(a)Parts of vapor or gas per million parts of contaminated air by volume at 25 °C and 760 torr.

(b)Milligrams of substance per cubic meter of air. When entry is in this column only, the value is exact; when listed with a ppm entry, it is approximate.

(c)The CAS number is for information only. Enforcement is based on the substance name. For an entry covering more than one metal compound, measured as the metal, the CAS number for the metal is given--not CAS numbers for the individual compounds.

(d)The final benzene standard in 1910.1028 applies to all occupational exposures to benzene except in some circumstances the distribution and sale of fuels, sealed containers and pipelines, coke production, oil and gas drilling and production, natural gas processing, and the percentage exclusion for liquid mixtures; for the excepted subsegments, the benzene limits in Table Z-2 apply. See 1910.1028 for specific circumstances.

(e)This 8-hour TWA applies to respirable dust as measured by a vertical elutriator cotton dust sampler or equivalent instrument. This time-weighted average applies to the cotton waste processing operations of waste recycling (sorting, blending, cleaning, and willowing) and gartnetting. See also 1910.1043 for cotton dust limits applicable to other sectors.

(f)All inert or nuisance dusts, whether mineral, inorganic, or organic, not listed specifically by substance name are covered by the Particulates Not Otherwise Regulated (PNOR) limit which is the same as the inert or nuisance dust limit of Table Z-3.

²See Table Z-2.

³See Table Z3.

⁴Varies with compound.

ATTACHMENT 2

ATTACHMENT 2

TABLE Z-2

Substance	8-hour time weighted average	Acceptable ceiling concentration	Acceptable maximum peak above the acceptable ceiling concentration for an 8-hr shift	
			Concentration	Maximum duration
Benzene ^a (Z37.40-1969)	10 ppm	25 ppm	50 ppm	10 minutes
Beryllium and beryllium compounds (Z37.29-1970)	2 µg/m ³	5 µg/m ³	25 µg/m ³	30 minutes
Cadmium fume ^b (Z37.5-1970)	0.1 mg/m ³	0.3 mg/m ³	.....	.....
Cadmium dust ^b (Z37.5-1970)	0.2 mg/m ³	0.6 mg/m ³	.....	.....
Carbon disulfide (Z37.3-1968)	20 ppm	30 ppm	100 ppm	30 minutes
Carbon tetrachloride (Z37.17-1967)	10 ppm	25 ppm	200 ppm	5 min. in any 4 hrs.
Chromic acid and chromates (Z37.7-1971)	.....	1 mg/10m ³	.....	.....
Ethylene dibromide (Z37.31-1970)	20 ppm	30 ppm	50 ppm	5 minutes
Ethylene dichloride (Z37.21-1969)	50 ppm	100 ppm	200 ppm	5 min. in any 3 hrs.
Fluoride as dust (Z37.28-1969)	2.5 mg/m ³	.....	.....	.....
Formaldehyde; see 1910.10448	.....	.....	.....	.....
Hydrogen fluoride (Z37.28-1969)	3 ppm	.....	.....	.....
Hydrogen sulfide (Z37.2-1966)	.....	20 ppm	50 ppm	10 min. once, only if no other measurable exp. occurs
Mercury (Z37.8-1971)	.....	1 mg/10m ³	.....	.....
Methyl chloride (Z37.18-1969)	100 ppm	200 ppm	300 ppm	5 min. in any 3 hrs.
Methylene chloride; see 1919.52	.....	.....	.....	.....
Organo(alkyl)mercury (Z37.30-1969)	0.01 mg/m ³	0.04 mg/m ³	.....	.....
Styrene (Z37.15-1969)	100 ppm	200 ppm	600 ppm	5 min. in any 3 hrs.
Tetrachloroethylene (Z37.22-1967)	100 ppm	200 ppm	300 ppm	5 min. in any 3 hrs.
Toluene (Z37.12-1967)	200 ppm	300 ppm	500 ppm	10 minutes
Trichloroethylene (Z37.19-1967)	100 ppm	200 ppm	300 ppm	5 min. in any 2 hrs.

^aThis standard applies to the industry segments exempt from the 1 ppm 8 hour TWA and 5 ppm STEL of the benzene standard at 1910.1028.

^bThis standard applies to any operations or sectors for which the Cadmium standard, 1910.1027, is stayed or otherwise not in effect.

TABLE Z-3--MINERAL DUSTS

Substance	mppcf ^a	mg/m ³
Silica:		
Crystalline		
Quartz (Respirable)	<u>250^b</u>	<u>10 mg/m³^c</u>
Quartz (Total dust)	.....	<u>%SiO₂+2</u> <u>30 mg/m³</u> <u>%SiO₂+2</u>
Cristobalite: Use 1/2 the value calculated from the count or mass formulae for quartz		
Tridymite: Use 1/2 the value calculated from the formulae for quartz		
Amorphous, including natural diatomaceous earth	20	<u>80 mg/m³</u> <u>%SiO₂</u>
Silicates (less than 1% crystalline silica):		
Mica	20	
Soapstone	20	
Talc (not containing asbestos)	20 ^e	
Talc (containing asbestos). Use asbestos limit.		
Tremolite, asbestiform (see 29 CFR 1910.1001)		
Portland cement	50	
Graphite (natural)	15	
Coal Dust:		
Respirable fraction less than 5% SiO ₂	.....	<u>2.4 mg/m³</u> <u>%SiO₂+2</u>
Respirable fraction greater than 5% SiO ₂	.....	<u>10 mg/m³</u> <u>%SiO₂+2</u>
Inert of Nuisance Dust:		
Respirable fraction	15	5 mg/m ³
Total dust	50	15 mg/m ³

NOTE--Conversion factors--mppcf x 35.3 = million particles per cubic meter = particles per c.c.

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

^bThe percentage of crystalline silica in the formula is the amount determined from air borne samples, except in those instances in which other methods have been shown to be applicable.

^cContaining less than 1% quartz; if 1% quartz or more, use quartz limit.

^dAll inert or nuisance dusts, whether mineral, inorganic, or organic, not listed specifically by Regulated (PNOR) limit in Table Z-1.

^eBoth concentration and percent quartz for the application of this limit are to be determined from the fraction passing a size-selector with the following characteristics:

Aerodynamic diameter (unit density sphere)	Percent passing selector	Aerodynamic diameter (unit density sphere)	Percent passing selector
2	90	5.0	25
2.5	75	10	0
3.5	50		50

The measurements under this note refer to the use of an AEC (now NRC) instrument. The respirable fraction of coal dust is determined with an MRE; the figure corresponding to that of 2.4 mg/m³ in the table for coal dust is 4.5 mg/m^{3K}.