

§12-202-4.02 Air contaminants. (a) An employee's exposure to any substance listed in tables 202-1 and 202-2 in this section, or table 202-3 in section 12-202-9 shall be limited in accordance with the requirements of this section.

- (1) Air Contaminants Limits Column. An employee's exposure to any substance listed in table 202-1 shall not exceed the PEL-TWA, PEL-STEL and PEL-Ceiling specified for that substance shown in table 202-1.
 - (A) Because many industrial exposures are not continuous, but instead are short-term, or intermittent, to which the PEL-TWAs cannot be applied, PEL-STELs for selected air contaminants are listed in table 202-1.
 - (B) The PEL-STELs listed in table 202-1 are 15-minute time-weighted average (TWA) exposures that shall not be exceeded at any time during a workday.
 - (C) Exposures at the PEL-STEL shall not be longer than 15-minutes and shall not be repeated more than four times per day. There shall be at least 60 minutes between successive exposures at the PEL-STEL.
 - (2) Skin Designation. To prevent or reduce skin absorption, an employee's skin exposure to substances listed in table 202-1 with an "X" in the Skin Designation columns shall be prevented or reduced to the extent necessary in the circumstances through the use of gloves, coveralls, goggles, or other appropriate personal protective equipment, engineering controls, or work practices.
- (b) Table 202-2.
- (1) PEL-TWA. An employee's exposure to any material listed in table 202-2, in any 7- to 8-hour work shift of a 40-hour workweek, shall not exceed the PEL-TWA given for that material in table 202-2.
 - (2) Acceptable ceiling concentration. An employee's exposure to a material listed in table 202-2 shall not exceed at any time during a 7- to 8-hour work shift the acceptable ceiling concentration given for that material in the table.
- (c) Effective date. The effective date for the permissible exposure limits specified in the Air Contaminants Limits column of table 202-1 is six months after the effective date of this standard.
- (d) Enforcement of the limits are indefinitely stayed for: aluminum alkyls; ethylidene norbornene; hexafluoroacetone; mercury (alkyl compounds); oxygen difluoride; phenylphosphine; and sulfur pentafluoride; until OSHA publishes in the Federal Register a notice that adequate sampling and analytical techniques are developed.

TABLE 202-1 Limits for Air Contaminants¹

Substance	CAS No. ^b	Air Contaminant Limits**						Skin Desig- nation
		PEL-TWA*		PEL-STEL ^a		PEL-CEILING		
		ppm ^c	mg/m ^{3d}	ppm ^c	mg/m ^{3d}	ppm ^c	mg/m ^{3d}	
Acetaldehyde	75-07-0	100	180	150	270	-	-	-
Acetic acid	64-19-7	10	25	15	37	-	-	-
Acetic anhydride	108-24-7	-	-	-	-	5	20	-
Acetone	67-64-1	750	1,780	1,000	2,375	-	-	-
Acetonitrile	75-05-8	40	70	60	105	-	-	X
2-Acetylaminofluorene	53-96-3	See §12-202-14.1						
Acetylene dichloride		See 1,2-Dichloroethylene						
Acetylene ttrabromide	79-27-6	1	14	1.5	20	-	-	-
Acetylsalicylic acid (Aspirin)	50-78-2	-	5	-	-	-	-	-
Acrolein	107-02-8	0.1	0.25	0.3	0.8	-	-	-
Acrylamide	79-06-1	-	0.03	-	-	-	-	X
Acrylic acid	79-10-7	2	6	-	-	-	-	X
Acrylonitrile	107-13-1	See §12-202-30						
Aldrin	309-00-2	-	0.25	-	0.75	-	-	X
Allyl alcohol	107-18-6	2	5	4	10	-	-	X
Allyl chloride	107-05-1	1	3	2	6	-	-	-
Allyl glycidyl ether (AGE)	106-92-3	5	22	10	44	-	-	X
Allyl propyl disulfide	2179-59-1	2	12	3	18	-	-	-
∇- Alumina	1344-28-1							
Total dust		-	10	-	20	-	-	-
Respirable fraction		-	5	-	-	-	-	-
Aluminum (as Al)	7429-90-5							
Metal & oxide								
Total dust		-	10	-	20	-	-	-
Respirable fraction		-	5	-	-	-	-	-
Pyro powders		-	5	-	-	-	-	-
Welding fumes		-	5	-	-	-	-	-
Soluble salts		-	2	-	-	-	-	-
Alkyls		-	2	-	-	-	-	-
4-Aminodiphenyl	92-67-1	See §12-202-14.1						
2-Aminoethanol		See Ethanolamine						
2-Aminopyridine	504-29-0	0.5	2	2	4	-	-	-
Amitrole	61-82-5	-	0.2	-	-	-	-	-
Ammonia	7664-41-7	25	18	35	27	-	-	-
Ammonium chloride Fume	12125-02-9	-	10	-	20	-	-	-
Ammonium sulfamate	7773-06-0							
Total dust		-	10	-	20	-	-	-
Respirable fraction		-	5	-	-	-	-	-
n-Amyl acetate	628-63-7	100	525	150	800	-	-	-
sec-Amyl acetate	626-38-0	125	650	150	800	-	-	-
Aniline and homologs	62-53-3	2	8	5	20	-	-	X

TABLE 202-1 Limits for Air Contaminants¹

Substance	CAS No. ^b	Air Contaminant Limits**						Skin Desig- nation
		PEL-TWA*		PEL-STEL ^a		PEL-CEILING		
		ppm ^c	mg/m ^{3d}	ppm ^c	mg/m ^{3d}	ppm ^c	mg/m ^{3d}	
Anisidine (o-, p-isomers)	29191-52-4	0.1	0.5	-	-	-	-	X
Antimony and compounds (as Sb)	7440-36-0	-	0.5	-	-	-	-	-
Antimony trioxide Handling and use, as Sb	1309-64-4	-	0.5	-	-	-	-	-
ANTU (Alpha Naphthyl- thiourea)	86-88-4	-	0.3	-	0.9	-	-	-
Arsenic, organic compounds (as As)	7440-38-2	-	0.2	-	-	-	-	-
Arsenic, inorganic compounds, (as As)	7440-38-2	See §12-202-31						-
Arsine	7784-42-1	0.05	0.2	-	-	-	-	-
Asbestos	Varies	See §12-206 and 12-145						-
Asphalt (petroleum) fumes	8052-42-4	-	5	-	10	-	-	-
Atrazine	1912-24-9	-	5	-	-	-	-	-
Azinphos-methyl	86-50-0	-	0.2	-	0.6	-	-	X
Barium, soluble compounds (as Ba)	7440-39-3	-	0.5	-	-	-	-	-
Barium sulfate	7727-43-7							-
Total dust		-	10	-	-	-	-	-
Respirable fraction		-	5	-	-	-	-	-
Benomy	117804-35-2							-
Total dust		0.8	10	1.3	15	-	-	-
Respirable fraction		-	5	-	-	-	-	-
Benzene; see §12-202-36	71-43-2	See Table 202-2 for operations excludede						-
Benzidine	92-87-5	See §12-202-14.1						-
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	0.002		0.005		0.025		-
		(see Table 202-2)						-
Biphenyl		See Diphenyl						-
Bismuth telluride, Undoped	1304-82-1							-
Total dust		-	10	-	20	-	-	-
Respirable fraction		-	5	-	-	-	-	-
Bismuth telluride, Se-doped		-	5	-	10	-	-	-
Borates, tetra, sodium salts								-

TABLE 202-1 Limits for Air Contaminants¹ (Continued)

Substance	CAS No. ^b	Air Contaminant Limits**						Skin Desig- nation
		PEL-TWA*		PEL-STEL ^a		PEL-CEILING		
		ppm ^c	mg/m ^{3d}	ppm ^c	mg/m ^{3d}	ppm ^c	mg/m ^{3d}	
Anhydrous	1330-43-4	-	1	-	-	-	-	-
Decahydrate	1303-96-4	-	5	-	-	-	-	-
Pentahydrate	12179-04-3	-	1	-	-	-	-	-
Boron oxide	1303-86-2	-	-	-	-	-	-	-
total dust		-	10	-	20	-	-	-
Respirable fraction		-	-	-	-	-	-	-
Boron tribromide	10294-33-4	-	-	-	-	1	10	-
Boron trifluoride	7637-07-2	-	-	-	-	1	3	-
Bromacil	314-40-9	1	10	2	20	-	-	-
Bromine	7726-95-6	0.1	0.7	0.3	2	-	-	-
Bromine pentafluoride	7789-30-2	0.1	0.7	0.3	2	-	-	-
Bromoform	75-25-2	0.5	5	-	-	-	-	X
Butadiene (1,3- Butadiene)	106-99-0	See	§12-202-40					
Butane	106-97-8	800	1,900	-	-	-	-	-
Butanethiol		See	Butyl mercaptan					
2-Butanone (Methyl ethyl ketone) (MEK)	8-93-3	200	590	300	885	-	-	-
2-Butoxyethanol	111-76-2	25	120	75	360	-	-	X
n-Butyl-acetate	123-86-4	150	710	200	950	-	-	-
sec-Butyl acetate	105-46-4	200	950	250	1,190	-	-	-
tert-Butyl acetate	540-88-5	200	950	250	1,190	-	-	-
Butyl acrylate	141-32-2	10	55	-	-	-	-	-
n-Butyl alcohol	71-36-3	-	-	-	-	50	150	X
sec-Butyl alcohol	78-92-2	100	305	150	455	-	-	-
tert-Butyl alcohol	75-65-0	100	300	150	450	-	-	-
Butylamine	109-73-9	-	-	-	-	5	15	X
tert-Butyl chromate (as CrO ₃)	1189-85-1	See	§12-202-42 ⁿ and		§12-157-1 ⁿ			X
n-Butyl glycidyl ether (BGE)	2426-08-6	25	135	-	-	-	-	-
n-Butyl lactate	138-22-7	5	25	-	-	-	-	-
Butyl mercaptan	109-79-5	0.5	1.5	-	-	-	-	-
o-sec Butylphenol	89-72-5	5	30	-	-	-	-	X
p-tert-Butyltoluene	98-51-1	10	60	20	120	-	-	-
Cadmium fume (as Cd)	7440-43-9	-	-	-	-	-	0.05	-
Cadmium dust (as Cd)	7440-43-9	-	0.05	-	-	-	0.2	-
Calcium carbonate	1317-65-3	-	-	-	-	-	-	-
Total dust		-	10	-	20	-	-	-
Respirable fraction		-	5	-	-	-	-	-
Calcium cyanamide	156-62-7	-	0.5	-	1	-	-	-
Calcium hydroxide	1305-62-0	-	5	-	-	-	-	-
Calcium oxide	1305-78-8	-	2	-	-	-	-	-
Calcium silicate	1344-95-2	-	-	-	-	-	-	-
Total dust		-	10	-	-	-	-	-

TABLE 202-1 Limits for Air Contaminants¹ (Continued)

Substance	CAS No. ^b	Air Contaminant Limits**						Skin Desig- nation
		PEL-TWA*		PEL-STEL ^a		PEL-CEILING		
		ppm ^c	mg/m ^{3d}	ppm ^c	mg/m ^{3d}	ppm ^c	mg/m ^{3d}	
Respirable fraction		-	5	-	-	-	-	-
Calcium sulfate	7778-18-9							
Total dust		-	10	-	-	-	-	-
Respirable fraction		-	5	-	-	-	-	-
Camphor, synthetic	76-22-2	0.3	2	-	-	-	-	-
Caprolactam	105-60-2							
Dust		-	1	-	3	-	-	-
Vapor & Aerosol		5	20	-	40	-	-	-
Captafol (DifolatanR)	2425-06-1	-	0.1	-	-	-	-	-
Captan	133-06-2	-	5	-	15	-	-	-
Carbaryl (SevinR)	63-25-2	-	5	-	10	-	-	-
Carbofuran (FuradanR)	1563-66-2	-	0.1	-	-	-	-	-
-	-							
Carbon black	1333-86-4	-	3.5	-	7	-	-	-
Carbon dioxide	124-38-9	5,000	9,000	15,000	27,000	-	-	-
Carbon disulfide	75-15-0	4	12	12	36	-	-	X
Carbon monoxide	630-08-0	35	40			200	229	-
Carbon tetrabromide	558-13-4	0.1	1.4	0.3	4	-	-	X
Carbon tetrachloride	56-23-5	2	12.6	-	-	-	-	-
Carbonyl fluoride	353-50-4	2	5	5	15	-	-	-
Catechol (Pyrocatechol)	120-80-9	5	20	-	-	-	-	X
Cellulose	9004-34-6							
Total dust		-	10	-	20	-	-	-
Respirable fraction		-	5	-	-	-	-	-
Cesium hydroxide	21351-79-1	-	2	-	-	-	-	-
Chlordane	57-74-9	-	0.5	-	2	-	-	X
Chlorinated camphene	8001-35-2	-	0.5	-	1	-	-	X
Chlorinated diphenyl Oxide	55720-99-5	-	0.5	-	2	-	-	-
Chlorine	7782-50-5	0.5	1.5	1	3	-	-	-
Chlorine dioxide	10049-04-4	0.1	0.3	0.3	0.9	-	-	-
Chlorine trifluoride	7790-91-2	-	-	-	-	0.1	0.4	-
Chloroacetaldehyde	107-20-0	-	-	-	-	1	3	-
Chloroacetone	78-95-5	-	-	-	-	1	4	X
α-Chloroacetophenone (Phenacyl chloride)	532-27-4	0.05	0.3	-	-	-	-	-
Chloroacetyl chloride	79-04-9	0.05	0.2	-	-	-	-	-
Chlorobenzene	108-90-7	75	350	-	-	-	-	-
o-Chlorobenzylidene malonitrile	2698-41-1	-	-	-	-	0.05	0.4	X
Chlorobromomethane	74-97-5	200	1,050	250	1,300	-	-	-
2-Chloro-1,3-Butadiene			see β-Chloroprene					
Chlorodifluoromethane	75-45-6	1,000	3,500	1,250	4,375	-	-	-

TABLE 202-1 Limits for Air Contaminants¹ (Continued)

Substance	CAS No. ^b	Air Contaminant Limits**						Skin Desig- nation
		PEL-TWA*		PEL-STEL ^a		PEL-CEILING		
		ppm ^c	mg/m ^{3d}	ppm ^c	mg/m ^{3d}	ppm ^c	mg/m ^{3d}	
Chlorodiphenyl (42% chlorine) (PCB)	53469-21-9	-	1	-	2	-	-	X
Chlorodiphenyl (54% Chlorine) (PCB)	11097-69-1	-	0.5	-	1	-	-	X
1-Chloro, 2,3-epoxypropane		See Epichlorohydrin						
2-Chloroethanol		See Ethylene chlorohydrin						
Chloroethylene		See Vinyl chloride						
Chloroform (Trichloromethane)	67-66-3	2	9.78	-	-	-	-	-
bis(Chloromethyl) ether	542-88-1	see §12-202-14.1						
Chloromethyl methyl ether	107-30-2	see §12-202-14.1						
1-Chloro-1-nitropropane	600-25-9	2	10	-	-	-	-	-
Chloropentafluoroethane	76-15-3	1,000	6,320	-	-	-	-	-
Chloropicrin	76-06-2	0.1	0.7	0.3	2	-	-	-
β-Chloroprene	126-99-8	10	35	-	-	-	-	X
o-Chlorostyrene	2039-87-4	50	285	75	428	-	-	-
o-Chlorotoluene	95-49-8	50	250	75	375	-	-	X
2-Chloro-6-(trichloro-methyl) pyridine	1929-82-4							
Total dust		-	10	-	20	-	-	-
Respirable fraction		-	5	-	-	-	-	-
Chlorpyrifos	2921-88-2	-	0.2	-	0.6	-	-	X
Chromic acid and chromates (as CrO ₃)	Varies with compound	-	-	-	-	-	0.1	-
Chromite ore processing (Chromate), (as Cr)		-	0.05	-	-	-	-	-
Chromium (II)	7440-47-3	-	0.5	-	-	-	-	-
Chromium (III) compounds (as Cr)	7440-47-3	-	0.5	-	-	-	-	-
Chromium (VI)		See §12-202-42 ^m and §12-157-1 ^m						-
Chromium metal (as Cr)	7440-47-3	-	0.5	-	-	-	-	-
Chromyl chloride	14977-61-8	0.025	0.15	-	-	-	-	-
Chrysene		See Coal tar pitch volatiles						
Clodolol	2971-90-6							
Total dust		-	10	-	20	-	-	-
Respirable fraction		-	5	-	-	-	-	-

TABLE 202-1 Limits for Air Contaminants¹ (Continued)

Substance	CAS No. ^b	Air Contaminant Limits**						Skin Desig- nation
		PEL-TWA*		PEL-STEL ^a		PEL-CEILING		
		ppm ^c	mg/m ^{3d}	ppm ^c	mg/m ^{3d}	ppm ^c	mg/m ^{3d}	
Coal dust (less than 5% SiO ₂), Respirable fraction		-	2	-	-	-	-	-
Coal dust (greater than or equal to 5% SiO ₂), Respirable quartz fraction		-	0.1	-	-	-	-	-
Coal tar pitch volatiles (benzene soluble fraction), anthracene, BaP, phenanthrene, acridine, chrysene, pyrene	65966-93-2	-	0.2f	-	-	-	-	-
Cobalt metal, dust, and fume (as Co)	7440-48-4	-	0.05	-	-	-	-	-
Cobalt carbonyl (as Co)	10210-68-1	-	0.1	-	-	-	-	-
Cobalt hydrocarbonyl (as Co)	16842-03-8	-	0.1	-	-	-	-	-
Coke oven emissions		See §12-202-9						
Copper	7440-50-8							
Fume (as Cu)		-	0.1	-	-	-	-	-
Dusts and mists (as Cu)		-	1	-	2	-	-	-
Cotton dust (raw)		See §12-202-32						
Crag herbicide (Sesone) (Sodium 2,4-dichlorophenoxyethyl sulfate)	136-78-7							
Total dust		-	10	-	20	-	-	-
Respirable fraction		-	5	-	-	-	-	-
Cresol, all isomers	1319-77-3	5	22	-	-	-	-	X
Crotonaldehyde	123-73-9	2	6	6	18	-	-	-
	4170-30-3							
Crufomate	299-86-5	-	5	-	20	-	-	-
Cumene	98-82-8	50	245	75	365	-	-	X
Cyanamide	420-04-2	-	2	-	-	-	-	-
Cyanides (as CN)	Varies with compound	-	5	-	-	-	-	X
Cyanogen	460-19-5	10	20	-	-	-	-	-
Cyanogen chloride	506-77-4	-	-	-	-	0.3	0.6	-
Cyclohexane	110-82-7	300	1,050	375	1,300	-	-	-
Cyclohexanol	108-93-0	50	200	-	-	-	-	X
Cyclohexanone	108-94-1	25	100	100	400	-	-	X
Cyclohexene	110-83-8	300	1,015	-	-	-	-	-

TABLE 202-1 Limits for Air Contaminants¹ (Continued)

Substance	CAS No. ^b	Air Contaminant Limits**						Skin Designation
		PEL-TWA*		PEL-STEL ^a		PEL-CEILING		
		ppm ^c	mg/m ^{3d}	ppm ^c	mg/m ^{3d}	ppm ^c	mg/m ^{3d}	
Cyclohexylamine	108-91-8	10	40	-	-	-	-	-
Cyclonite 121-82-4		-	1.5	-	3	-	-	X
Cyclopentadiene	542-92-7	75	200	75	200	-	-	-
Cyclopentane	287-92-3	600	1,720	900	2,580	-	-	-
Cyhexatin13121-70-5		-	5	-	10	-	-	-
2,4-D (Dichloryl-phenoxyacetic acid)	94-75-7	-	10	-	20	-	-	-
DDT (Dichlorodiphenyl-trichloroethane)	50-29-3	-	1	-	3	-	-	X
Decaborane	17702-41-9	0.05	0.3	0.15	0.9	-	-	X
Demeton (SystoxR)	8065-48-3	-	0.1	0.03	0.3	-	-	X
Diacetone alcohol (4-hydroxy-4-methyl-2-pentanone)	123-42-2	50	240	75	360	-	-	-
1,2-Diaminoethane		See Ethylenediamine						
Diazinon	333-41-5	-	0.1	-	0.3	-	-	X
Diazomethane	334-88-3	0.2	0.4	-	-	-	-	-
Diborane	19287-45-7	0.1	0.1	-	-	-	-	-
1,2-Dibromo-3-chloropropane	96-12-8	See §12-202-29						
2-N-Dibutylamino-ethanol	102-81-8	2	14	4	28	-	-	X
Dibutyl phosphate	107-66-4	1	5	2	10	-	-	-
Dibutyl phthalate	84-74-2	-	5	-	10	-	-	-
Dichloroacetylene	7572-29-4	-	-	-	-	0.1	0.4	-
o-Dichlorobenzene	95-50-1	-	-	-	-	50	300	-
p-Dichlorobenzene	106-46-7	75	450	110	675	-	-	-
3,3'-Dichlorobenzidine	91-94-1	See §12-202-14.1						
Dichlorodifluoromethane	75-71-8	1,000	4,950	1,250	6,200	-	-	-
1,3-Dichloro-5,5-dimethyl hydantoin	118-52-5	-	0.2	-	0.4	-	-	-
1,1-Dichloroethane	75-34-3	100	400	250	1,010	-	-	-
1,2-Dichloroethylene	540-59-0	200	790	250	1,000	-	-	-
Dichloroethyl ether	111-44-4	5	30	10	60	-	-	X
Dichloromethane		See Methylene chloride						
Dichloromonofluoromethane	75-43-4	10	40	-	-	-	-	-
1,1-Dichloro-1-nitroethane	594-72-9	2	10	10	60	-	-	-
1,2-Dichloropropane		See Propylene dichloride						
1,3-Dichloropropene	542-75-6	1	5	-	-	-	-	X
2,2-Dichloropropionic acid	75-99-0	1	6	-	-	-	-	-

TABLE 202-1 Limits for Air Contaminants¹ (Continued)

Substance	CAS No. ^b	Air Contaminant Limits**						Skin Desig- nation
		PEL-TWA*		PEL-STEL ^a		PEL-CEILING		
		ppm ^c	mg/m ^{3d}	ppm ^c	mg/m ^{3d}	ppm ^c	mg/m ^{3d}	
Dichlorotetrafluoro-ethane	76-14-2	1,000	7,000	1,250	8,750	-	-	-
Dichlorvos (DDVP)	62-73-7	0.1	1	0.3	3	-	-	X
Dicrotophos	141-66-2	-	0.25	-	-	-	-	X
Dicyclopentadiene	77-73-6	5	30	-	-	-	-	-
Dicyclopentadienyl iron	102-54-5	-	10	-	20	-	-	-
Total dust		-	5	-	-	-	-	-
Respirable fraction		-	0.25	-	0.75	-	-	X
Dieldrin	60-57-1	3	15	-	-	-	-	-
Diethanolamine	111-42-2	10	30	25	75	-	-	-
Diethylamine	109-89-7	10	50	-	-	-	-	X
2-Diethylaminoethanol	100-37-8	1	4	-	-	-	-	-
Diethylene triamine	111-40-0	See Ethyl ether						
Diethyl ether		200	705	-	-	-	-	-
Diethyl ketone	96-22-0	-	5	-	10	-	-	-
Diethyl phthalate	84-66-2	100	860	150	1,290	-	-	-
Difluorodibromomethane	75-61-6	0.1	0.5	-	-	-	-	-
Diglycidyl ether (DGE)	2238-07-5	See Hydroquinone						
Dihydroxybenzene		25	150	-	-	-	-	-
Diisobutyl ketone	108-83-8	5	20	-	-	-	-	X
Diisopropylamine	108-18-9	See §12-202-14.1						
4-Dimethylaminoazo-benzene	60-11-7	See Methylal						
Dimethoxymethane		10	35	15	50	-	-	X
Dimethyl acetamide	127-19-5	10	18	10	50	-	-	-
Dimethylamine	124-40-3	See Xylidine						
Dimethylaminobenzene		5	25	10	50	-	-	X
Dimethylaniline (N-Dimethyl-aniline)	121-69-7	See Xylene						
Dimethylbenzene		-	3	-	-	-	-	X
Dimethyl-1, 2-dibromo-2,2-dichloroethyl phosphate	300-76-5	10	30	20	60	-	-	X
Dimethylformamide	68-12-2	See Diisobutyl ketone						
2,6-Dimethyl-4-heptanone		0.5	1	1	2	-	-	X
1,1-Dimethylhydrazine	57-14-7	-	5	-	10	-	-	-
Dimethylphthalate	131-11-3	0.1	0.5	-	-	-	-	X
Dimethyl sulfate	77-78-1	-	5	-	10	-	-	-
Dinitolmide (3,5-Dinitro-o-toluamide)	148-01-6							

TABLE 202-1 Limits for Air Contaminants¹ (Continued)

Substance	CAS No. ^b	Air Contaminant Limits**						Skin Desig- nation
		PEL-TWA*		PEL-STEL ^a		PEL-CEILING		
		ppm ^c	mg/m ^{3d}	ppm ^c	mg/m ^{3d}	ppm ^c	mg/m ^{3d}	
Dinitrobenzene (all isomers) (alpha-)	528-29-0	0.15	1	0.5	1	-	-	X
(meta-)	99-65-0							
(para-)	100-25-4							
Dinitro-o-cresol	534-52-1	-	0.2	-	0.6	-	-	X
Dinitrotoluene	25321-14-6	-	1.5	-	5	-	-	X
Dioxane (Diethylene dioxide)	123-91-1	25	90	-	-	-	-	X
Dioxathion (Delnav)	78-34-2	-	0.2	-	-	-	-	X
Diphenyl (Biphenyl)	92-52-4	0.2	1.5	0.6	4	-	-	-
Diphenylamine	122-39-4	-	10	-	20	-	-	-
Diphenylmethane diisocyanate		See Methylene bisphenyl isocyanate						
Dipropylene glycol methyl ether	34590-94-8	100	600	150	900	-	-	X
Dipropyl ketone	123-19-3	50	235	-	-	-	-	-
Diquat	85-00-7	-	0.5	-	1	-	-	-
Di-sec-octyl phthalate (Di-2-ethylhexyl-phthalate)	117-81-7	-	5	-	10	-	-	-
Disulfiram	97-77-8	-	2	-	5	-	-	-
Disulfoton	298-04-4	-	0.1	-	0.3	-	-	X
2,6-Di-tert-butyl-p-cresol	128-37-0	-	10	-	20	-	-	-
Diuron	330-54-1	-	10	-	-	-	-	-
Divinyl benzene	1321-74-0	10	50	-	-	-	-	-
Emery	112-62-9							
Total dust		-	10	-	-	-	-	-
Respirable fraction		-	5	-	-	-	-	-
Endosulfan	115-29-7	-	0.1	-	0.3	-	-	X
Endrin	72-20-8	-	0.1	-	0.3	-	-	X
Epichlorohydrin	106-89-8	2	8	-	-	-	-	X
EPN	2104-64-5	-	0.5	-	2	-	-	X
1,2-Epoxypropane		See Propylene oxide						
2,3-Epoxy-1-propanol		See Glycidol						
Ethanethiol		See Ethyl mercaptan						
Ethanolamine	141-43-5	3	8	6	15	-	-	-
Ethion	563-12-2	-	0.4	-	-	-	-	X
2-Ethoxyethanol	110-80-5	5	19	-	-	-	-	X
2-Ethoxyethyl acetate (Cellosolve acetate)	111-15-9	5	27	-	-	-	-	X
Ethyl acetate	141-78-6	400	1,400	-	-	-	-	-
Ethyl acrylate	140-88-5	5	20	25	100	-	-	X
Ethyl alcohol (Ethanol)	64-17-5	1,000	1,900	-	-	-	-	-

TABLE 202-1 Limits for Air Contaminants¹ (Continued)

Substance	CAS No. ^b	Air Contaminant Limits**						Skin Desig- nation
		PEL-TWA*		PEL-STEL ^a		PEL-CEILING		
		ppm ^c	mg/m ^{3d}	ppm ^c	mg/m ^{3d}	ppm ^c	mg/m ^{3d}	
Ethylamine	75-04-7	10	18	-	-	-	-	-
Ethyl amyl ketone (5-Methyl-3-heptanone)	541-85-5	25	130	-	-	-	-	-
Ethyl benzene	100-41-4	100	435	125	545	-	-	-
Ethyl bromide	74-96-4	200	890	250	1,110	-	-	-
Ethyl butyl ketone (3-Heptanone)	106-35-4	50	230	75	345	-	-	-
Ethyl chloride	75-00-3	1,000	2,600	1,250	3,250	-	-	-
Ethyl ether	60-29-7	400	1,200	500	1,500	-	-	-
Ethyl formate	109-94-4	100	300	-	-	-	-	-
Ethyl mercaptan	75-08-1	0.5	1	-	-	-	-	-
Ethyl silicate	78-10-4	10	85	-	-	-	-	-
Ethylene chlorohydrin	107-07-3	-	-	-	-	1	3	X
Ethylenediamine	107-15-3	10	25	-	-	-	-	-
Ethylene dibromide	106-93-4	20	see §12-202-34			30		X
			See Table 202-2	for operations excluded				
Ethylene dichloride	107-06-2	1	4	2	8	-	-	-
Ethylene glycol, vapor	107-21-1	-	-	-	-	50	125	-
Ethylene glycol dinitrate (EGDN) ¹	628-96-6	0.05	0.3	-	0.1	-	-	X
Ethylene glycol methyl acetate		See Methyl cellosolve acetate						
Ethylene imine	151-56-4	See §12-202-14.1						
Ethylene oxide	75-21-8	See §12-202-35						
Ethylidene chloride		See 1,1-Dichloroethane						
Ethylidene norbornene	16219-75-3	-	-	-	-	5	25	-
N-Ethylmorpholine	100-74-3	5	23	-	-	-	-	X
Fenamiphos	22224-92-6	-	0.1	-	-	-	-	X
Fensulfothion (Dasanit)	115-90-2	-	0.1	-	-	-	-	-
Fenthion	55-38-9	-	0.2	-	-	-	-	X
Ferbam ¹	4484-64-1							
Total dust		-	10	-	20	-	-	-
Respirable fraction		-	-	-	-	-	-	-
Ferrovandium dust	12604-58-9	-	1	-	3	-	-	-
Fibrous glass dust	-	-	10 ^h	-	-	-	-	-
Fluorides (as F)	Varies with compound	-	2.5	-	-	-	-	-
Fluorine	7782-41-4	0.1	0.2	-	-	-	-	-
Fluorotrichloromethane (Trichlorofluoromethane)	75-69-4	-	-	-	-	1,000	5,600	-
Fonofos	944-22-9	-	0.1	-	-	-	-	X
Formaldehyde	50-00-0	See §12-202-37						

TABLE 202-1 Limits for Air Contaminants¹ (Continued)

Substance	CAS No. ^b	Air Contaminant Limits**						Skin Desig- nation
		PEL-TWA*		PEL-STEL ^a		PEL-CEILING		
		ppm ^c	mg/m ^{3d}	ppm ^c	mg/m ^{3d}	ppm ^c	mg/m ^{3d}	
Formamide	75-12-7	10	15	-	-	-	-	-
Formic acid	64-18-6	5	9	10	18	-	-	-
Furfural	98-01-1	2	8	-	-	-	-	X
Furfuryl alcohol	98-00-0	10	40	15	60	-	-	X
Gasoline	8006-61-9	300	900	-	-	-	-	-
Germanium tetrahydride	7782-65-2	0.2	0.6	0.6	1.8	-	-	-
Glutaraldehyde	111-30-8	-	-	-	-	0.2	0.7	-
Glycerin (mist)	56-81-5	-	-	-	-	-	-	-
Total dust		-	10	-	-	-	-	-
Respirable fraction		-	5	-	-	-	-	-
Glycidol	556-52-5	25	75	-	-	-	-	-
Glycol monoethyl ether		See 2-Ethoxyethanol		-	-	-	-	-
Grain dust (oat, wheat, barley)	-	-	10	-	-	-	-	-
Graphite, natural respirable dust	7782-42-5	-	2.5	-	-	-	-	-
Graphite, synthetic	-	-	-	-	-	-	-	-
Total dust		-	10	-	-	-	-	-
Respirable fraction		-	5	-	-	-	-	-
GuthionR		See Azinphos methyl		-	-	-	-	-
Gypsum	13397-24-5	-	-	-	-	-	-	-
Total dust		-	10	-	20	-	-	-
Respirable fraction		-	5	-	-	-	-	-
Hafnium 7440-58-6		-	0.5	-	1.5	-	-	-
Heptachlor	76-44-8	-	0.5	-	2	-	-	X
Heptane (n-Heptane)	142-82-5	400	1,600	500	2,000	-	-	-
Hexachlorobutadiene	87-68-3	0.02	0.24	-	-	-	-	-
Hexachlorocyclo- pentadiene	77-47-4	0.01	0.1	0.03	0.3	-	-	-
Hexachloroethane	67-72-1	1	10	-	-	-	-	X
Hexachloronaphthalene	1335-87-1	-	0.2	-	0.6	-	-	X
Hexafluoroacetone	684-16-2	0.1	0.7	0.3	2	-	-	X
n-Hexane	110-54-3	50	180	-	-	-	-	-
Hexane isomers	Varies with compound	500	1,800	-	-	-	-	-
2-Hexanone (Methyl n-butyl ketone)	591-78-6	5	20	-	-	-	-	-
Hexone (Methyl isobutyl ketone)	108-10-1	50	205	75	300	-	-	-
sec-Hexyl acetate	108-84-9	50	300	-	-	-	-	-
Hexylene glycol	107-41-5	-	-	-	-	25	125	-
Hydrazine	302-01-2	0.1	0.1	-	-	-	-	X
Hydrogenated Terphenyls	61788-32-7	0.5	5	-	-	-	-	-
Hydrogen bromide	10035-10-6	-	-	-	-	3	10	-

TABLE 202-1 Limits for Air Contaminants¹ (Continued)

Substance	CAS No. ^b	Air Contaminant Limits**						Skin Desig- nation
		PEL-TWA*		PEL-STEL ^a		PEL-CEILING		
		ppm ^c	mg/m ^{3d}	ppm ^c	mg/m ^{3d}	ppm ^c	mg/m ^{3d}	
Hydrogen chloride	7647-01-0	-	-	-	-	5	7	-
Hydrogen cyanide	74-90-8	-	-	4.7	5	-	-	X
Hydrogen fluoride (as F)	7664-39-3	3	-	6	-	-	-	-
Hydrogen peroxide	7722-84-1	1	1.4	2	3	-	-	-
Hydrogen selenide (as Se)	7783-07-5	0.05	0.2	-	-	-	-	-
Hydrogen sulfide	7783-06-4	10	14	15	21	-	-	-
Hydroquinone	123-31-9	-	2	-	4	-	-	-
2-Hydroxypropyl acrylate	999-61-1	0.5	3	-	-	-	-	X
Indene	95-13-6	10	45	15	70	-	-	-
Indium and compounds (as In)	7440-74-6	-	0.1	-	0.3	-	-	-
Iodine	7553-56-2	-	-	-	-	0.1	1	-
Iodoform	75-47-8	0.6	10	1	20	-	-	-
Iron oxide dust and fume (as Fe)	1309-37-1	-	-	-	-	-	-	-
Total particulate		-	5	-	10	-	-	-
Iron pentacarbonyl (as Fe)13463-40-6		0.1	0.8	0.2	1.6	-	-	-
Iron salts (soluble) (as Fe)Varies with compound		-	1	-	2	-	-	-
Isoamyl acetate	123-92-2	100	525	125	655	-	-	-
Isoamyl alcohol (primary and secondary)	123-51-3	100	360	125	450	-	-	-
Isobutyl acetate	110-19-0	150	700	187	888	-	-	-
Isobutyl alcohol	78-83-1	50	150	75	225	-	-	-
Isooctyl alcohol	26952-21-6	50	270	-	-	-	-	X
Isophorone	78-59-1	4	23	-	-	5	28	-
Isophorone diiso- cyanate	4098-71-9	0.005	0.045	0.02	-	-	-	X
2-Isopropoxyethanol	109-59-1	25	105	75	320	-	-	-
Isopropyl acetate	108-21-4	250	950	310	1,185	-	-	-
Isopropyl alcohol	67-63-0	400	980	500	1,225	-	-	-
Isopropylamine	75-31-0	5	12	10	24	-	-	-
N-Isopropylaniline	768-52-5	2	10	-	-	-	-	X
Isopropyl ether	108-20-3	250	1,050	310	1,320	-	-	-
Isopropyl glycidyl ether (IGE)	4016-14-2	50	240	75	360	-	-	-
Kaolin	-	-	-	-	-	-	-	-
Total dust		-	10	-	20	-	-	-
Respirable fraction		-	5	-	-	-	-	-

TABLE 202-1 Limits for Air Contaminants¹ (Continued)

Substance	CAS No. ^b	Air Contaminant Limits**						Skin Desig- nation
		PEL-TWA*		PEL-STEL ^a		PEL-CEILING		
		ppm ^c	mg/m ^{3d}	ppm ^c	mg/m ^{3d}	ppm ^c	mg/m ^{3d}	
Ketene	463-51-4	0.5	0.9	1.5	3	-	-	-
Lead chromate, as Cr	7758-97-6	-	0.05	-	-	-	-	-
Lead inorganic (as Pb)	7439-92-1	See §12-202-33.1 and 12-148.1						-
Limestone	1317-65-3	-	-	-	-	-	-	-
Total dust		-	10	-	20	-	-	-
Respirable fraction		-	5	-	-	-	-	-
Lindane	58-89-9	-	0.5	-	1.5	-	-	X
Lithium hydride	7580-67-8	-	0.025	-	-	-	-	-
L.P.G. (Liquefied petroleum gas)	68476-85-7	1,000	1,800	1,250	2,250	-	-	-
Magnesite	546-93-0	-	-	-	-	-	-	-
Total dust		-	10	-	20	-	-	-
Respirable fraction		-	5	-	-	-	-	-
Magnesium oxide fume	1309-48-4	-	-	-	-	-	-	-
Total particulate		-	10	-	-	-	-	-
Malathion	121-75-5	-	-	-	-	-	-	-
Total dust		-	10	-	-	-	-	X
Maleic anhydride	108-31-6	0.25	1	-	-	-	-	-
Manganese compounds (as Mn)	7439-96-5	-	-	-	-	-	5	-
Manganese fume (as Mn)	7439-96-5	-	1	-	3	-	-	-
Manganese cyclopenta- dienyl tricarbonyl (as Mn)	12079-65-1	-	0.1	-	0.3	-	-	X
Manganese tetroxide (as Mn)	1317-35-7	-	1	-	-	-	-	-
Marble (Calcium carbonate)	1317-65-3	-	-	-	-	-	-	-
Total dust		-	10	-	20	-	-	-
Respirable fraction		-	5	-	-	-	-	-
Mercury (aryl and inorganic) (as Hg)	7439-97-6	-	-	-	-	-	0.1	X
Mercury (organo) alkyl compounds (as Hg)	7439-97-6	-	0.01	-	0.03	-	-	X
Mercury (vapor) (as Hg)	7439-97-6	-	0.05	-	-	-	-	X
Mesityl oxide	141-79-7	15	60	25	100	-	-	-
Methacrylic acid	79-41-4	20	70	-	-	-	-	X
Methanethiol		See Methyl mercaptan						-
Methomyl (Lannate)	16752-77-5	-	2.5	-	-	-	-	-
Methoxychlor	72-43-5	-	-	-	-	-	-	-
Total dust		-	10	-	-	-	-	-

TABLE 202-1 Limits for Air Contaminants¹ (Continued)

Substance	CAS No. ^b	Air Contaminant Limits**						Skin Desig- nation
		PEL-TWA*		PEL-STEL ^a		PEL-CEILING		
		ppm ^c	mg/m ^{3d}	ppm ^c	mg/m ^{3d}	ppm ^c	mg/m ^{3d}	
2-Methoxyethanol	150-76-5	See Methyl cellosolve						
4-Methoxyphenol								
Methyl acetate	79-20-9	200	610	250	760	-	-	-
Methyl acetylene (Propyne)	74-99-7	1,000	1,650	1,250	2,040	-	-	-
Methyl acetylene- propadiene mixture (MAPP)	-	1,000	1,800	1,250	2,250	-	-	-
Methyl acrylate	96-33-3	10	35	-	-	-	-	X
Methylacrylonitrile	126-98-7	1	3	2	6	-	-	X
Methylal (Dimethoxy- methane)	109-87-5	1,000	3,100	1,250	3,875	-	-	-
Methyl alcohol (methanol)	67-56-1	200	260	250	325	-	-	X
Methylamine	74-89-5	10	12	-	-	-	-	-
Methyl amyl alcohol		See Methyl isobutyl carbinol						
Methyl n-amyl ketone	110-43-0	50	235	-	-	-	-	-
N-Methyl aniline	100-61-8	0.5	2	1	5	-	-	X
Methyl bromide	74-83-9	5	20	15	60	-	-	X
Methyl n-butyl ketone		See 2-Hexanone						
Methyl cellosolve (2-Methoxyethanol)	109-86-4	5	16	-	-	-	-	X
Methyl cellosolve acetate (2-Methoxyethyl acetate)	110-49-6	5	24	-	-	-	-	X
Methyl chloride	74-87-3	50	105	106	205	200	-	-
Methyl chloroform (1,1,1-Trichloro- ethane)	71-55-6	350	1,900	450	2,450	-	-	-
Methyl 2-cyanoacrylate	137-05-3	2	8	4	16	-	-	-
Methylcyclohexane	108-87-2	400	1,600	500	2,000	-	-	-
Methylcyclohexanol	25639-42-3	50	235	75	350	-	-	-
o-Methylcyclohexanone	538-60-8	50	230	75	345	-	-	X
2-Methylcyclo- pentadienyl manganese tricarbonyl (as Mn)	12108-13-3	-	0.2	-	0.6	-	-	X
Methyl demeton	8022-00-2	-	0.5	-	1.5	-	-	X
4,4'-Methylene bis (2-chloroaniline) (MBOCA)	101-14-4	0.02	0.22	-	-	-	-	X
Methylene bis (4- cyclohexyliso- cyanate)	5124-30-1	-	-	-	-	0.01	0.11	-

TABLE 202-1 Limits for Air Contaminants¹ (Continued)

Substance	CAS No. ^b	Air Contaminant Limits**						Skin Desig- nation
		PEL-TWA*		PEL-STEL ^a		PEL-CEILING		
		ppm ^c	mg/m ^{3d}	ppm ^c	mg/m ^{3d}	ppm ^c	mg/m ^{3d}	
Methylene chloride	75-09-2	See §12-202-41						
4,4'-Methylene dianiline;	101-77-9	See §12-202-38 and 12-146						
Methyl ethyl ketone (MEK)		See 2-Butanone						
Methyl ethyl ketone peroxide (MEKP)	1338-23-4	-	-	-	-	0.2	1.5	-
Methyl formate	107-31-3	100	250	150	375	-	-	-
Methyl hydrazine (Mono-methyl hydrazine)	60-34-4	-	-	-	-	0.2	0.35	X
Methyl iodide	74-88-4	2	10	-	-	-	-	X
Methyl isoamyl ketone	110-12-3	50	240	-	-	-	-	-
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 isopropyl Ketone	563-80-4	200	705	-	-	-	-	-
Methyl mercaptan	74-93-1	0.5	1	-	-	-	-	-
Methyl methacrylate	80-62-6	100	410	-	-	-	-	-
Methyl parathion	298-00-0	-	0.2	-	0.6	-	-	X
Methyl propyl ketone		See 2-Pentanone						
Methyl silicate	681-84-5	1	6	-	-	-	-	-
α- Methyl styrene	98-83-9	50	240	100	485	-	-	-
Methylene bisphenyl isocyanate (MDI)	101-68-8	-	-	-	-	0.02	0.2	-
Metribuzin	21087-64-9	-	5	-	-	-	-	-
MevinphosR		See Phosdrin						
Mica		See Silicates						
Molybdenum (as Mo) Soluble compounds	7439-98-7	-	5	-	10	-	-	-
Insoluble compounds Total dust		-	10	-	20	-	-	-
Monocrotophos (AzodrinR)	6923-22-4	-	0.25	-	-	-	-	-
Monomethyl aniline (N-Methylaniline)	100-61-8	0.5	2	-	-	-	-	X
Morpholine	110-91-8	20	70	30	105	-	-	X
Naled 300-76-5		-	3	-	6	-	-	X
Naphtha (Coal tar)	8030-30-6	100	400	-	-	-	-	-
Naphthalene	91-20-3	10	50	15	75	-	-	-
α- Naphthylamine	134-32-7	See §12-202-14.1						

TABLE 202-1 Limits for Air Contaminants¹ (Continued)

Substance	CAS No. ^b	Air Contaminant Limits**						Skin Desig- nation
		PEL-TWA*		PEL-STEL ^a		PEL-CEILING		
		ppm ^c	mg/m ^{3d}	ppm ^c	mg/m ^{3d}	ppm ^c	mg/m ^{3d}	
β-naphthylamine	91-59-8	See §12-202-14.1						
Nickel carbonyl (as Ni)	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	-	0.1	-	0.3	-	-	-
Nickel sulfide roasting, fume & dust, (as Ni)	-	-	1	-	-	-	-	-
Nicotine	54-11-5	-	0.5	-	1.5	-	-	X
Nitrapyrin	1929-82-4	-	10	-	20	-	-	-
Nitric acid	7697-37-2	2	5	4	10	-	-	-
Nitric oxide	10102-43-9	25	30	35	45	-	-	-
p-Nitroaniline	100-01-6	-	3	-	-	-	-	X
Nitrobenzene	98-95-3	1	5	2	10	-	-	X
p-Nitrochlorobenzene	100-00-5	0.1	0.6	-	-	-	-	X
4-Nitrodiphenyl	92-93-3	See §12-202-14.1						
Nitroethane	79-24-3	100	310	150	465	-	-	-
Nitrogen dioxide	10102-44-0	3	6	5	9.4	-	-	-
Nitrogen trifluoride	7783-54-2	10	29	15	45	-	-	-
Nitroglycerin (NG) ¹	55-63-0	-	-	-	0.1	-	-	X
Nitromethane	75-52-5	100	250	150	375	-	-	-
1-Nitropropane	108-03-2	25	90	35	135	-	-	-
2-Nitropropane	79-46-9	10	35	-	-	-	-	-
N-Nitrosodi- methylamine	62-79-9	See §12-202-14.1						
Nitrotoluene o-isomer	88-72-2;	2	11	-	-	-	-	X
m-isomer	99-08-1;	2	11	-	-	-	-	X
p-isomer	99-99-0	2	11	-	-	-	-	X
Nitrotrichloromethane		See Chloropicrin						
Nitrous oxide	10024-97-2	50	91	-	-	-	-	-
Nonane	111-84-2	200	1,050	250	1,300	-	-	-
Octachloronaphthalene	2234-13-1	-	0.1	-	0.3	-	-	X
Octane	111-65-9	300	1,450	375	1,800	-	-	-
Oil mist, mineral	8012-95-1	-	5i	-	10i	-	-	-
Osmium tetroxide (as Os)	20816-12-0	0.0002	0.002	0.0006	0.006	-	-	-
Oxalic acid	144-62-7	-	1	-	2	-	-	-
Oxygen difluoride	7783-41-7	-	-	-	-	0.05	0.11	-
Ozone	10028-15-6	0.1	0.2	0.3	0.6	-	-	-
Paraffin wax fume	8002-74-2	-	2	-	6	-	-	-

TABLE 202-1 Limits for Air Contaminants¹ (Continued)

Substance	CAS No. ^b	Air Contaminant Limits**						Skin Designation
		PEL-TWA*		PEL-STEL ^a		PEL-CEILING		
		ppm ^c	mg/m ^{3d}	ppm ^c	mg/m ^{3d}	ppm ^c	mg/m ^{3d}	
Paraquat, respirable dust	1910-42-5 2074-50-2 4685-14-7	- - -	0.1 0.1 0.1	- - -	- - -	- - -	- - -	X X X
Parathion	56-38-2	-	0.1	-	0.3	-	-	X
Particulates not otherwise regulated	-	-	-	-	-	-	-	-
Total dust	-	-	10	-	-	-	-	-
Respirable fraction	-	-	5	-	-	-	-	-
Pentaborane	19624-22-7	0.005	0.01	0.015	0.03	-	-	-
Pentachloronaphthalene	1321-64-8	-	0.5	-	2	-	-	X
Pentachlorophenol	87-86-5	-	0.5	-	1.5	-	-	X
Pentaerythritol	115-77-5	-	-	-	-	-	-	-
Total dust	-	-	10	-	20	-	-	-
Respirable fraction	-	-	5	-	-	-	-	-
Pentane	109-66-0	600	1,800	750	2,250	-	-	-
2-Pentanone (Methyl propyl ketone)	107-87-9	200	700	250	875	-	-	-
Perchloroethylene (Tetrachloroethylene)	127-18-4	25	170	200	1,340	-	-	-
Perchloromethyl mercaptan	594-42-3	0.1	0.8	-	-	-	-	-
Perchloryl fluoride	7616-94-6	3	14	6	28	-	-	-
Perlite	-	-	-	-	-	-	-	-
Total dust	-	-	10	-	-	-	-	-
Respirable fraction	-	-	5	-	-	-	-	-
Petroleum distillates (Naphtha)	8002-05-9	400	1,600	-	-	-	-	-
Phenol	108-95-2	5	19	10	38	-	-	X
Phenothiazine	92-84-2	-	5	-	10	-	-	X
p-Phenylene diamine	106-50-3	-	0.1	-	-	-	-	X
Phenyl ether, vapor	101-84-8	1	7	2	14	-	-	-
Phenyl ether-biphenyl mixture, vapor	-	1	7	-	-	-	-	-
Phenylethylene	-	See Styrene		-	-	-	-	-
Phenyl glycidyl ether (PGE)	122-60-1	1	6	-	-	-	-	-
Phenylhydrazine	100-63-0	5	20	10	45	-	-	X
Phenyl mercaptan	108-98-5	0.5	2	-	-	-	-	-
Phenylphosphine	638-21-1	-	-	-	-	0.05	0.25	-
Phorate	298-02-2	-	0.05	-	0.2	-	-	X
Phosdrin (Mevinphos ^R)	7786-34-7	0.01	0.1	0.03	0.3	-	-	X

TABLE 202-1 Limits for Air Contaminants¹ (Continued)

Substance	CAS No. ^b	Air Contaminant Limits**						Skin Desig- nation
		PEL-TWA*		PEL-STEL ^a		PEL-CEILING		
		ppm ^c	mg/m ^{3d}	ppm ^c	mg/m ^{3d}	ppm ^c	mg/m ^{3d}	
Phosgene (Carbonyl chloride)	75-44-5	0.1	0.4	-	-	-	-	-
Phosphine	7803-51-2	0.3	0.4	1	1.4	-	-	-
Phosphoric acid	7664-38-2	-	1	-	3	-	-	-
Phosphorus (yellow)	7723-14-0	-	0.1	-	0.3	-	-	-
Phosphorus oxychloride	10025-87-3	0.1	0.6	0.5	3	-	-	-
Phosphorus penta-Chloride	10026-13-8	-	1	-	3	-	-	-
Phosphorus penta-sulfide 1314-80-3	-	1	-	3	-	-	-	-
Phosphorus trichloride	7719-12-2	0.2	1.5	0.5	3	-	-	-
Phthalic anhydride	85-44-9	1	6	-	-	-	-	-
m-Phthalodinitrile	626-17-5	-	5	-	-	-	-	-
Picloram	1918-02-1	-	-	-	-	-	-	-
Total dust		-	10	-	20	-	-	-
Respirable fraction		-	5	-	-	-	-	-
Picric acid	88-89-1	-	0.1	-	0.3	-	-	X
Pindone (2-Pivalyl-1,3-indandione)	83-26-1	-	0.1	-	0.3	-	-	-
Piperazine dihydrochloride	142-64-3	-	5	-	-	-	-	-
Plaster of Paris	26499-65-0							
Total dust		-	10	-	-	-	-	-
Respirable fraction		-	5	-	-	-	-	-
Platinum (as Pt)	7440-06-4							
Metal		-	1	-	-	-	-	-
Soluble salts		-	0.002	-	-	-	-	-
Portland cement	65997-15-1							
Total dust		-	10	-	-	-	-	-
Respirable fraction		-	5	-	-	-	-	-
Potassium hydroxide	1310-58-3	-	-	-	-	-	2	-
Propane	74-98-6	1,000	1,800	-	-	-	-	-
Propargyl alcohol	107-19-7	1	2	3	6	-	-	X
β-Propriolactone	57-57-8	See §12-202-14.1						
Propionic acid	79-09-4	10	30	15	45	-	-	-
Propoxur (Baygon)	114-26-1	-	0.5	-	2	-	-	-
n-Propyl acetate	109-60-4	200	840	250	1,050	-	-	-
n-Propyl alcohol	71-23-8	200	500	250	625	-	-	X
n-Propyl Nitrate	627-13-4	25	105	40	170	-	-	-
Propylene dichloride	78-87-5	75	350	110	510	-	-	-
Propylene glycol dinitrate (PGDN)	6423-43-4	0.05	0.3	0.1	0.6	-	-	X
Propylene glycol mono-methyl ether	107-98-2	100	360	150	540	-	-	-
Propylene imine	75-55-8	2	5	-	-	-	-	X

TABLE 202-1 Limits for Air Contaminants¹ (Continued)

Substance	CAS No. ^b	Air Contaminant Limits**						Skin Desig- nation
		PEL-TWA*		PEL-STEL ^a		PEL-CEILING		
		ppm ^c	mg/m ^{3d}	ppm ^c	mg/m ^{3d}	ppm ^c	mg/m ^{3d}	
Propylene oxide	75-56-9	20	50	-	-	-	-	-
n-Propyl nitrate	627-13-4	25	105	40	170	-	-	-
Propyne		See Methyl acetylene						
Pyrethrum	8003-34-7	-	5	-	10	-	-	-
Pyridine	110-86-1	5	15	10	30	-	-	-
Quinone	106-51-4	0.1	0.4	0.3	1	-	-	-
Resorcinol	108-46-3	10	45	20	90	-	-	-
Rhodium (as Rh), metal fume and insoluble compounds	7440-16-6	-	0.1	-	-	-	-	-
Rhodium (as Rh), soluble compounds	7440-16-6	-	0.001	-	-	-	-	-
Ronnell	299-84-3	-	10	-	-	-	-	-
Rosin core solder pyrolysis products, as formaldehyde	-	-	0.1	-	0.3	-	-	-
Rotenone (commercial)	83-79-4	-	5	-	10	-	-	-
Rouge	-	-	-	-	-	-	-	-
Total dust		-	10	-	20	-	-	-
Respirable fraction		-	5	-	-	-	-	-
Rubber solvent (Naphtha)	-	400	1,600	-	-	-	-	-
Selenium compounds (as Se) 7782-49-2	-	0.2	-	-	-	-	-	-
Selenium hexafluoride (as Se)	7783-79-1	0.05	0.2	-	-	-	-	-
Sesone (Sodium 2,4- dichloro-phenoxy- ethyl sulfate)		See Crag herbicide						
Silane		See Silicone tetrahydride						
Silica, amorphous, precipitated and gel	-	-	6	-	-	-	-	-
Silica, amorphous, diatomaceous earth containing less than 1% crystalline silica ⁶ 1790-53-2	-	6	-	-	-	-	-	-
Silica, crystalline cristobalite (as quartz), respirable dust	14464-46-1	-	0.05	-	-	-	-	-
Silica, crystalline quartz (as quartz), respirable dust	14808-60-7	-	0.1	-	-	-	-	-

TABLE 202-1 Limits for Air Contaminants¹ (Continued)

Substance	CAS No. ^b	Air Contaminant Limits**						Skin Designation
		PEL-TWA*		PEL-STEL ^a		PEL-CEILING		
		ppm ^c	mg/m ^{3d}	ppm ^c	mg/m ^{3d}	ppm ^c	mg/m ^{3d}	
Silica, crystalline tripoli (as quartz), respirable dust	1317-95-9	-	0.1	-	-	-	-	-
Silica, crystalline tridymite (as quartz), respirable dust	15468-32-3	-	0.05	-	-	-	-	-
Silica, fused, respirable dust	60676-86-0	-	0.1	-	-	-	-	-
Silicates (less than 1% crystalline silica)								
Mica (respirable dust)	12001-26-2	-	3	-	-	-	-	-
Soapstone, total dust	-	-	6	-	-	-	-	-
Soapstone, respirable dust	-	-	3	-	-	-	-	-
Talc (containing asbestos): use asbestos limit	-	See §12-202-13						
Talc (containing no asbestos), respirable dust	14807-96-6	-	2	-	-	-	-	-
Tremolite		See §12-202-13						
Silicon	7440-21-3							
Total dust		-	10	-	20	-	-	-
Respirable fraction		-	5	-	-	-	-	-
Silicon carbide	409-21-2							
Total dust		-	10	-	20	-	-	-
Respirable fraction		-	5	-	-	-	-	-
Silicon tetrahydride (Silane)	7803-62-5	5	7	-	-	-	-	-
Silver, metal and soluble compounds (as Ag)	7440-22-4	-	0.01	-	-	-	-	-
Soapstone		See Silicates						
Sodium azide (as HN ₃)	26628-22-8	-	-	-	-	0.1	-	X
(as NaN ₃)		-	-	-	-	-	0.3	X
Sodium bisulfite	7631-90-5	-	5	-	-	-	-	-
Sodium 2,4-dichlorophenoxyethyl sulfate		See Crag herbicide (see sessone)						
Sodium fluoroacetate	62-74-8	-	0.05	-	0.15	-	-	X

TABLE 202-1 Limits for Air Contaminants¹ (Continued)

Substance	CAS No. ^b	Air Contaminant Limits**						Skin Desig- nation
		PEL-TWA*		PEL-STEL ^a		PEL-CEILING		
		ppm ^c	mg/m ^{3d}	ppm ^c	mg/m ^{3d}	ppm ^c	mg/m ^{3d}	
Sodium hydroxide	1310-73-2	-	-	-	-	-	2	-
Sodium metabisulfite	7681-57-4	-	5	-	-	-	-	-
Starch	9005-25-8	-	-	-	-	-	-	-
Total dust		-	10	-	20	-	-	-
Respirable fraction		-	5	-	-	-	-	-
Stibine	7803-52-3	0.1	0.5	0.3	1.5	-	-	-
Stoddard solvent	8052-41-3	100	525	-	-	-	-	-
Strychnine	57-24-9	-	0.15	-	0.45	-	-	-
Styrene, monomer	100-42-5	50	215	100	425	-	-	-
Subtilisins (Proteolytic enzymes)	9014-01-1	-	-	-	0.00006 (60 min) ^j	-	-	-
Sucrose	57-50-1	-	-	-	-	-	-	-
Total dust		-	10	-	20	-	-	-
Respirable fraction		-	5	-	-	-	-	-
Sulfotep;		See TEDP						
Sulfur dioxide	7446-09-5	2	5	5	10	-	-	-
Sulfur hexafluoride	2551-62-4	1,000	6,000	1,250	7,500	-	-	-
Sulfuric acid	7664-93-9	-	1	-	3	-	-	-
Sulfur monochloride	10025-67-9	-	-	3	18	1	6	-
Sulfur pentafluoride	5714-22-7	-	-	0.075	0.75	0.01	0.1	-
Sulfur tetrafluoride	7783-60-0	-	-	0.3	1	0.1	0.4	-
Sulfuryl fluoride	2699-79-8	5	20	10	40	-	-	-
Sulprofos	35400-43-2	-	1	-	-	-	-	-
SystoxR		See Demeton 2,4,5-T						
Talc		See Silicates						
Tantalum, metal and oxide dust	7440-25-7	-	5	-	10	-	-	-
TEDP (Sulfotep)	3689-24-5	-	0.2	-	0.6	-	-	X
Tellurium and compounds (as Te)	13494-80-9	-	0.1	-	-	-	-	-
Tellurium hexafluoride (as Te)	7783-80-4	0.02	0.2	-	-	-	-	-
Temephos	3383-96-8	-	-	-	-	-	-	-
Total dust		-	10	-	20	-	-	-
Respirable fraction		-	5	-	-	-	-	-
TEPP	107-49-3	0.004	0.05	0.01	0.2	-	-	X
Terphenyls	26140-60-3	-	-	-	-	0.5	5	-
1,1,1,2-Tetrachloro- 2,2-difluoroethane	76-11-9	500	4,170	625	5,210	-	-	-
1,1,2,2-Tetrachloro- 1,2-difluoroethane	76-12-0	500	4,170	625	5,210	-	-	-
1,1,2,2-Tetrachloro- ethane	79-34-5	1	7	-	-	-	-	X
Tetrachoroethylene		See Perchloroethylene						

TABLE 202-1 Limits for Air Contaminants¹ (Continued)

Substance	CAS No. ^b	Air Contaminant Limits**						Skin Desig- nation
		PEL-TWA*		PEL-STEL ^a		PEL-CEILING		
		ppm ^c	mg/m ^{3d}	ppm ^c	mg/m ^{3d}	ppm ^c	mg/m ^{3d}	
Tetrachloromethane		See Carbon tetrachloride						
Tetrachloronaphthalene	1335-88-2	-	2	-	4	-	-	X
Tetraethyl lead (as Pb)	78-00-2	-	0.075k	-	0.3k	-	-	X
Tetrahydrofuran	109-99-9	200	590	250	735	-	-	-
Tetramethyl lead, (as Pb)	75-74-1	-	0.075k	-	0.5k	-	-	X
Tetramethyl succino- nitrile	3333-52-6	0.5	3	2	9	-	-	X
Tetranitromethane	509-14-8	1	8	-	-	-	-	-
Tetrasodium pyro- phosphate	7722-88-5	-	5	-	-	-	-	-
Tetryl (2,4,6- Trinitrophenyl- methyl-nitramine)	479-45-8	-	1.5	-	-	-	-	X
Thallium, soluble compounds (as Tl)	7440-28-0	-	0.1	-	-	-	-	X
4,4'-Thiobis (6-tert, butyl-m-cresol)	96-69-5							
Total dust		-	10	-	20	-	-	-
Respirable fraction		-	5	-	-	-	-	-
Thioglycolic acid	68-11-1	1	4	-	-	-	-	X
Thionyl chloride	7719-09-7	-	-	-	-	1	5	-
Thiram	137-26-8	-	1	-	-	-	-	-
Tin, inorganic compounds (except oxides) (as Sn)	7440-31-5	-	2	-	4	-	-	-
Tin, organic compounds (as Sn)	7440-31-5	-	0.1	-	0.2	-	-	X
Tin oxide (as Sn)	21651-19-4	-	2	-	4	-	-	-
Titanium dioxide	13463-67-7							
Total dust		-	10	-	20	-	-	-
Toluene (Toluol)	108-88-3	100	375	150	560	-	-	X
Toluene di- isocyanate (TDI)	584-84-9	0.005	0.04	0.02	0.15	-	-	-
m-Toluidine	108-44-1	2	9	-	-	-	-	X
o-Toluidine	95-53-4	5	22	-	-	-	-	X
p-Toluidine	106-49-0	2	9	-	-	-	-	X
Toxaphene		See Chlorinated camphene						
Tremolite		See Silicates						
Tributyl phosphate	126-73-8	0.2	2.5	0.4	5	-	-	-
Trichloroacetic acid	76-03-9	1	5	-	-	-	-	-
1,2,4-Trichlorobenzene	120-82-1	-	-	-	-	5	40	-
1,1,1-Trichloroethane		See Methyl chloroform						

TABLE 202-1 Limits for Air Contaminants¹ (Continued)

Substance	CAS No. ^b	Air Contaminant Limits**						Skin Desig- nation
		PEL-TWA*		PEL-STEL ^a		PEL-CEILING		
		ppm ^c	mg/m ^{3d}	ppm ^c	mg/m ^{3d}	ppm ^c	mg/m ^{3d}	
1,1,2-Trichloroethane	79-00-5	10	45	20	90	-	-	X
Trichloroethylene	79-01-6	50	270	200	1,080	-	-	-
Trichloromethane		See Chloroform						
Trichloronaphthalene	1321-65-9	-	5	-	10	-	-	X
1,2,3-Trichloropropane	96-18-4	10	60	75	450	-	-	X
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	1,000	7,600	1,250	9,500	-	-	-
Triethylamine	121-44-8	10	40	15	60	-	-	-
Trifluorobromomethane	75-63-8	1,000	6,100	1,200	7,300	-	-	-
Trimellitic anhydride	552-30-7	0.005	0.04	-	-	-	-	-
Trimethylamine	75-50-3	10	24	15	36	-	-	-
Trimethyl benzene	25551-13-7	25	125	35	170	-	-	-
Trimethyl phosphite	121-45-9	2	10	5	25	-	-	-
2,4,6-Trinitrophenyl		See Picric acid						
2,4,6-Trinitrophenyl-methyl nitramine		See Tetryl						
2,4,6-Trinitrotoluene (TNT)	118-96-7	-	0.5	-	-	-	-	X
Triorthocresyl phosphate	78-30-8	-	0.1	-	-	-	-	X
Triphenyl amine	603-34-9	-	5	-	-	-	-	-
Triphenyl phosphate	115-86-6	-	3	-	6	-	-	X
Tungsten (as W)	7440-33-7							
Insoluble compounds		-	5	-	10	-	-	-
Soluble compounds		-	1	-	3	-	-	-
Turpentine	8006-64-2	100	560	150	840	-	-	-
Uranium (as U)	7440-61-1							
Soluble compounds		-	0.05	-	-	-	-	-
Insoluble compounds		-	0.2	-	0.6	-	-	-
n-Valeraldehyde	110-62-3	50	175	-	-	-	-	-
Vanadium	1314-62-1							
Respirable dust (as V2O5)		-	0.05	-	-	-	-	-
Fume (as V2O5)		-	0.05	-	-	-	-	-
Vegetable oil mist	-							
Total dust		-	10	-	-	-	-	-
Respirable fraction		-	5	-	-	-	-	-
Vinyl acetate	108-05-4	10	30	20	60	-	-	-
Vinyl benzene		See Styrene						
Vinyl bromide	593-60-2	5	20	-	-	-	-	-
Vinyl chloride	75-01-4	See §12-202-28						
Vinylcyanide		See Acrylonitrile						
Vinyl cyclohexene dioxide	106-87-6	10	60	-	-	-	-	X

TABLE 202-1 Limits for Air Contaminants¹ (Continued)

Substance	CAS No. ^b	Air Contaminant Limits**						Skin Desig- nation
		PEL-TWA*		PEL-STEL ^a		PEL-CEILING		
		ppm ^c	mg/m ^{3d}	ppm ^c	mg/m ^{3d}	ppm ^c	mg/m ^{3d}	
Vinylidene chloride (1,1-Dichloro- ethylene)	75-35-4	1	4	-	-	-	-	-
Vinyl toluene	25013-15-4	50	240	100	485	-	-	-
VM & P Naphtha	8032-32-4	300	1,350	400	1,800	-	-	-
Warfarin	81-81-2	-	0.1	-	0.3	-	-	-
Welding fumes (total particulate)	-	-	5	-	-	-	-	-
Wood dust:								
Certain hardwoods as beech & oak	-	-	1	-	-	-	-	-
All soft woods, (except Western red cedar)	-	-	5	-	10	-	-	-
Wood dust, Western red cedar	-	-	2.5	-	-	-	-	-
Xylenes (o-, m-, p- isomers)	1330-20-7	100	435	150	655	-	-	X
m-Xylene •, •'- diamine	1477-55-0	-	-	-	-	-	0.1	X
Xylidine	1300-73-8	0.5	2.5	-	-	-	-	X
Yttrium	7440-65-5	-	1	-	3	-	-	-
Zinc chloride fume	7646-85-7	-	1	-	2	-	-	-
Zinc chromate (as CrO ₃)	Varies with Compound	-	0.01	-	-	-	0.1	-
Zinc oxide fume	1314-13-2	-	5	-	10	-	-	-
Zinc oxide	1314-13-2							
Total dust		-	10	-	-	-	-	-
Respirable fraction		-	5	-	-	-	-	-
Zinc stearate	557-05-1							
Total dust		-	10	-	20	-	-	-
Respirable fraction		-	5	-	-	-	-	-
Zirconium compounds (as Zr)	7440-67-2	-	5	-	10	-	-	-

Footnotes to Table 202-1:

Air Contaminant Rule Limits are the most restrictive of the federal limits, ACGIH limits and existing DOSH limits.

* The PEL-TWA's are 7- to 8-hour TWA's, unless otherwise noted.

** Unless otherwise noted, employers in General Industry (i.e., those covered by Part 2 of the DOSH standards) may use any combination of controls to achieve these limits, until December 31, 1992.

a. STEL duration is for 15 minutes, unless otherwise noted.

b. 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 the CAS numbers for the individual compounds.

- c. Ppm are in parts of vapor or gas per million parts of contaminated air by volume at 25°C and 760 torr.
- d. Mg/m³ are approximate milligrams of substance per cubic meter of air.
- e. The final benzene standard in section 12-202-36 applies to all occupational exposures to benzene except some sub segments of industry where exposures are consistently under the action level (e.g., 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 sub segments, the benzene limits in Table 202-2 apply.
- f. Coal tar pitch volatiles mean the fused polycyclic hydrocarbons that volatilize from the distillation residues of coal, petroleum, (excluding asphalt, CAS 8052-42-4 and CAS 64742-93-4), wood, and other organic matter.
- g. Cotton dust refers to lint-free dust as measured by the vertical elutriator, cotton-dust sampler described in the Transactions of the National Conference on Dust, p. 33 by J.R. Lynch, (May 2, 1970). The PEL-TWA in the table applies to respirable dust as measured by a vertical elutriator cotton dust sampler or equivalent instrument. The time-weighted average applies to the cotton waste processing operations of waste cycling (sorting, blending, cleaning, and willowing) and garreting. See also section 12-202-32.
- h. Fibrous glass dust means particles <7µm in diameter.
- i. Oil mist as sampled by a method that does not collect vapor.
- j. Compliance with the Subtilisins PEL-TWA is assessed by sampling with a high volume sampler (600-800 liters per minute) for at least 60 minutes.
- k. For control of tetraethyl lead and tetramethyl lead in general room air, biologic monitoring is essential for personnel monitoring.
- l. Most Occupational exposures to EGDN actually involve mixtures of EGDN and nitroglycerin (NG). This EGDN:NG mixture has a PEL-STEL of 0.1 mg/m³.
- m. See Table Z-2 from the exposure limit for any operations or sectors where the exposure limit in §1910.1026 is stayed or is otherwise not in effect.
- n. If the exposure limit in §1910.1026 is stayed or is otherwise not in effect, the exposure limit is a ceiling of 0.1 mg/m³.

TABLE 202-2

Material	Industry Segments	Skin Designation	8-hour time-weighted average	Ceiling concentration
Benzene	(Z37.40-1969) ¹	-	10 ppm	25 ppm
Beryllium and Beryllium Compounds	(Z37.29-1970)	-	2 µg/m ³	5 µg/m ³
Chromic acid and Chromates (as CrO ₃) ²	(Z37.7-1971)			1mg/10m ³
Ethylene Dibromide	(Z37.31-1970)	X	20 ppm	30 ppm
Methyl chloride	(Z37.18-1969)	-	100 ppm	200 ppm

¹This standard applies to the industry segments exempt from the 1 ppm 8-hour TWA and 5 ppm STEL of the benzene standard at section 12-202-36. This standard also applies to any industry for which section 12-202-36 is stayed or otherwise not in effect.

²This standard applies to any operations or sectors for which the exposure limit in the Chromium (VI) standard, §1910.1026 is stayed or is otherwise not in effect. [Eff 3/22/91; am 6/8/92; am 5/2/97; am 4/11/98; am 12/21/06] (Auth: HRS §396-4) (Imp: HRS §396-4)

§12-202-5 Exposure for less than 7-8 hours. REPEALED. [Eff 7/12/82; am 6/16/84; am 8/5/88; R 3/22/91] (Auth: HRS §396-4) (Imp: HRS §396-4)