

OARS WEEL TABLE

Occupational exposure limits (OELs) are developed for protection of healthy workers; they are not intended for the general public, which includes sensitive populations such as infants, the elderly, or the infirm. OELs are based on repeated daily exposures over a working lifetime. They are normally averaged over an 8-hour workday and serve to protect against acute and chronic health effects.

Substance	CAS	Source	8-Hour TWA	Ceiling or Short-Term TWA	Last Revised
Acetone Cyanohydrin	75-86-5	AIHA	2 ppm (skin)	5 ppm (15 min, skin)	1992
Acetophenone	98-86-2	AIHA	10 ppm		2007
Aldicarb	116-06-3	AIHA	0.01 mg/m ³ (skin)	—	2009
Allyl Isothiocyanate	57-06-7	AIHA	—	1 ppm (15-min, skin, DSEN)	1993
Aminobenzoic Acid, para-	150-13-0	AIHA	5 mg/m ³		2001
Aminotri (Methylenephosphonic Acid)	6419-19-8	AIHA	10 mg/m ³		2004
Amyl Alcohol, n-	71-41-0	AIHA	100 ppm		2001
Benzaldehyde	100-52-7	AIHA	2 ppm	4 ppm (15-min, DSEN)	1998
Benzenesulfonicacid, 5-chloro-2((2-Hydroxy-1 naphthalenyl)-azo)-4-methyl, barium salt (2:1)	5160-02-1	AIHA	1 mg/m ³		2008
Benzophenone	119-61-9	AIHA	0.5 mg/m ³		2003
Benzoyl Chloride	98-88-4	AIHA	—	5 ppm (ceiling, skin, DSEN)	2008
Benzyl Alcohol	100-51-6	AIHA	10 ppm		2008
Butylcatechol, 4-tert-	98-29-3	AIHA	—	2 mg/m ³ (ceiling, skin, DSEN)	2001
Butyraldehyde	123-72-8	OARS	25 ppm (75 mg/m ³)	—	2016
Chloramphenicol	56-75-7	AIHA	0.5 mg/m ³		2008
Chloroisopropyl Ether, bis-(2-	39638-92-9	AIHA	3 ppm		2009
Chloropropane, 2-	75-29-6	OARS	50 ppm (161 mg/m ³)	—	2016
Chlorosulfonic Acid	7790-94-5	OARS			2016*
Chlorotrifluoroethylene	79-38-9	AIHA	5 ppm		2010
Cumene Hydroperoxide	80-15-9	AIHA	1 ppm (skin)	—	2009
Decabromodiphenyl Oxide	1163-19-5	AIHA	5 mg/m ³		2009
Decafluoropentane, 1,1,1,2,3,4,4,5,5,5- (HFC- 4310mee)	138495-42-8	OARS	225 ppm (2320 mg/m ³)	700 ppm (7217 mg/m ³)	2020
Decamethylcyclopentasiloxane (D5)	541-02-6	OARS	10 ppm		2015
Decene, 1-	872-05-9	AIHA	100 ppm	—	2000
Dehydrolinalool	29171-20-8	AIHA	2 ppm	—	2007
Diallylamine	124-02-7	AIHA	1 ppm (skin)		2009
Dibromoneopentyl Glycol	3296-90-0	AIHA	0.2 mg/m ³		2010
Dibutylamine	111-92-2	AIHA		5 ppm (ceiling, skin)	2003
Dichlorophenol, 2,4-	120-83-2	AIHA	1 ppm (skin*)	—	2004
Diethylbenzenes, mixed isomers	25340-17-4	AIHA	5 ppm		2005
Diethylene Glycol	111-46-6	OARS	10 mg/m ³		2016
Diethylene Glycol Monoethyl Ether	111-90-0	AIHA	25 ppm		1991
Difluoroethane, 1,1-	75-37-6	AIHA	1000 ppm		2005
Difluoroethane, 1-Chloro-1,1-	75-68-3	AIHA	1000 ppm	—	1994
Difluoroethylene, (E)-1,2 (HFO-1132 E)	1630-78-0	OARS	350 ppm		2022
Difluoromethane	75-10-5	AIHA	1000 ppm		1997
Diisobutylene	25167-70-8	OARS	75 ppm (344 mg/m ³)		2016
Dimethyl Ether	115-10-6	AIHA	1000 ppm		2010
Dimethyl Sulfoxide	67-68-5	AIHA	250 ppm	—	2003
Dimethyl Terephthalate	120-61-6	AIHA	5 mg/m ³ (total)	—	2000
Dimethyldichlorosilane	75-78-5	AIHA		2 ppm (ceiling)	2001
Dimethylethylamine	598-56-1	AIHA	1 ppm	3 ppm	2011
Dimethyl-para-toluidine, n,n-	99-97-8	AIHA	0.5 ppm		2009
Dinitroanisole, 2,4- (DNAN)	119-27-7	OARS	0.1 mg/m ³ (0.01 ppm)		2014
Dowtherm Q	612-00-0, 68987-42-8	AIHA	7.8 mg/m ³		2002
Epoxybutane, 1,2-	106-88-7	AIHA	2 ppm		2003
Erythromycin	114-07-8	AIHA	3 mg/m ³		2007
Fluoroethane, 1,1-dichloro-1-	1717-00-6	AIHA	500 ppm	3000 ppm (5-min STEL)	2008
Furan	110-00-9	AIHA	Worker exposure by all routes should be minimized to the fullest extent possible.		1993
GlycidylMethacrylate	106-91-2	AIHA	0.5 ppm (skin, DSEN)	—	2000

Glyoxal	107-22-2	AIHA	0.1 mg/m3 (DSEN)		2000
Hexadiene, 1,4- (mixed cis and trans)	592-45-0	AIHA	10 ppm	—	2009
Hexafluoro-2-butene, cis-1,1,1,4,4,4- (HFO 1336mzz-Z)	692-49-9	OARS	500 ppm (3350 mg/m3)	—	2014
Hexafluoro-2-butene, trans-1,1,1,4,4,4- (HFO 1336mzz-E)	66711-86-2	OARS	400 ppm (2680 mg/m3)	—	2018
Hexafluoropropane, 1,1,1,3,3,3-	690-39-1	AIHA	1000 ppm		1998
Hexamethyldisilazane (HMDZ)	999-97-3	OARS	10 ppm	50 ppm	2018
Hexamethylene Glycol	629-11-8	AIHA	10 mg/m3		2011
Hexanediamine, 1,6-	124-09-4	AIHA	1 ppm		2004
Hexanediol Diacrylate	13048-33-4	AIHA	1 mg/m3 (DSEN)		1998
Hexyl Alcohol, n-	111-27-3	AIHA	40 ppm (eye irritation)		2011
HFE-7100	163702-07-6, 163702-08-7	AIHA	750 ppm		1999
Hydroxybenzoic Acid, 4-	99-96-7	OARS	5 mg/m3		2016
Isobutyraldehyde	78-84-2	AIHA	25 ppm	—	2002
Isocyanuric Acid	108-80-5	AIHA	10 mg/m3 (total); 5 mg/m3 (respirable)		2005
Isophthalic Acid	121-91-5	AIHA	10 mg/m3 (total); 5 mg/m3 (respirable)		1991
Isoprene	78-79-5	AIHA	2 ppm		2004
Limonene, d-	5989-27-5	AIHA	30 ppm		1993
Lithium Hydroxide	1310-65-2	AIHA		1 mg/m3 (ceiling)	1999
Lithium Oxide	12057-24-8	AIHA		1 mg/m3 (ceiling)	1999
Mancozeb	8018-01-7	AIHA	1 mg/m3 (total, DSEN)		2008
Melamine	108-78-1	OARS	3 mg/m3		2016
Menthol	1490-04-6	OARS	1 ppm	3 ppm (15 min)	2014
Mercaptobenzothiazole, 2-	149-30-4	AIHA	5 mg/m3 (skin, DSEN)		2010
Mercaptoethanol	60-24-2	AIHA	0.2 ppm (skin)		2002
Methoxypropylamine, 3-	5332-73-0	AIHA	5 ppm	15 ppm (15 min)	2009
Methoxytridecafluoroheptene isomers (MPHE)	Variable	OARS	200 ppm	—	2020
Methyl Ethyl Ketoxime	96-29-7	AIHA	10 ppm (DSEN)		1990
Methyl-2-Pyrrolidone, n- (NMP)	872-50-4	OARS	15 ppm (60 mg/m3) Skin	30 ppm (120 mg/m3)	2021
Methyltrichlorosilane	75-79-6	AIHA		1 ppm (ceiling)	2001
Monochloroacetic Acid	79-11-8	AIHA	0.5 ppm (skin)		2004
Nitro-1,2,4-Triazol-5-One, 3- (NTO)	932-64-9	OARS	2 mg/m3		2014
Nitroguanidine, 1- (NQ)	556-88-7	OARS	7 mg/m3	—	2016
Octamethylcyclotetrasiloxane (D4)	556-67-2	OARS	10 ppm		2014
Octanol, 1-	111-87-5	AIHA	50 ppm		2005
Octene, 1-	111-66-0	AIHA	75 ppm		2000
Pentaerythritol Triacrylate	3524-68-3	AIHA	1 mg/m3 (DSEN)	—	1999
Pentafluoroethane, 1,1,1,2,2-	354-33-6	AIHA	1000 ppm		2009
Pentafluoropropane, 1,1,1,3,3-	460-73-1	AIHA	300 ppm		2001
Phosphono-1,2,4 butanetricarboxylic, 2-acid	37971-36-1	AIHA	10 mg/m3		2006
Picolines	109-06-8, 108-99-6, 108-89-4	AIHA	2 ppm (skin)	5 ppm (15-min, skin)	1988
Piperidine	110-89-4	AIHA	1 ppm (skin)	—	1996
Polyethylene Glycols (MW > 200)	25322-68-3	AIHA	10 mg/m3	—	2009
Polypropylene Glycols	25322-69-4	AIHA	10 mg/m3		1997
Potassium Bromate	7758-01-2	AIHA	0.1 mg/m3		2004
Propargyl Bromide	106-96-7	AIHA	0.1 ppm (skin)	—	1997
Propenoic Acid, isoctyl ester, 2-	29590-42-9	AIHA	5 ppm		2010
Propionaldehyde	123-38-6	AIHA	20 ppm		2002
Propylene Glycol	57-55-6	AIHA	10 mg/m3		2004
Propylene Glycol Monomethyl Ether Acetate	108-65-6	AIHA	50 ppm	—	2005
Quinoline	91-22-5	AIHA	0.001 ppm (skin)		2006
Sodium Chloroacetate	3926-62-3	OARS	0.5 ppm (2.5 mg/m3)		2016
Sodium Hypochlorite	7681-52-9	AIHA		2 mg/m3 (15 min)	2010
Tetrachloropyridine, 2,3,5,6-	2402-79-1	OARS	5 mg/m3		2016
Tetrachlorosilane	10026-04-7	AIHA		1 ppm (ceiling)	1999
Tetraethylene Glycol Diacrylate	17831-71-9	AIHA	1 mg/m3 (skin, DSEN)		1981
TetraethylenePentamine	112-57-2	AIHA	5 mg/m3 (skin, DSEN)	—	2004
Tetrafluoroethane, 1,1,1,2- (HFC-134a)	811-97-2	AIHA	1000 ppm		2003
Tetrafluoroethane, 1,1,2,2- (HFC-134)	359-35-3	OARS	1000 ppm		2018
Tetrafluoroethane, 2-Chloro-1,1,1,2-	2837-89-0	AIHA	1000 ppm	—	2005
Tetrafluoropropene, (Z)-1-Chloro-2,3,3,3- (HCFO-1224yd(Z))	111512-60-8	OARS	1000 ppm	—	2017
Tetrafluoropropene, 2,3,3,3,- (HFO-1234yf)	754-12-1	AIHA	500 ppm		2009
Tetrafluoropropylene, 1,3,3,3-	1645-83-6	AIHA	800 ppm	—	2011
Tetrahydrofurfuryl Alcohol	97-99-4	AIHA	0.5 ppm (skin)		1993

Titanium Tetrachloride	7550-45-0	AIHA	0.5 mg/m3		2009
Toluene Diamine, 2,4- and mixed isomers	95-80-7; 25376-45-8	AIHA	0.005 ppm (skin)		2010
Toluenesulfonyl Chloride, para-	98-59-9	AIHA		5 mg/m3 (ceiling)	2009
trans-1-Chloro-3,3,3-trifluoropropylene (HCFO 1233zd(E))	102687-65-0	OARS	800 ppm		2013
Trichlorosilane	10025-78-2	AIHA		0.5 ppm (ceiling)	1998
Triethoxysilane	998-30-1	AIHA	0.05 ppm		2000
Triethylene Glycol Diacrylate	1680-21-3	AIHA	1 mg/m3 (skin)		1981
Triethylenetetramine	112-24-3	AIHA	1 ppm (skin)		2009
Triethylphosphate	78-40-0	AIHA	7.45 mg/m3		2010
Trifluoro-2,2-Dichloroethane, 1,1,1-	306-83-2	AIHA	50 ppm		2001
Trifluoroethane, 1,1,1-	420-46-2	AIHA	1000 ppm		1996
Trifluoroethanol, 2,2,2-	75-89-8	OARS	0.3 ppm		2016
Trifluoroiodomethane (CF3I)	2314-97-8	OARS	500 ppm	1500 ppm	2018
Trimethoxysilane	2487-90-3	AIHA	0.05 ppm		2010
Trimethylamine	75-50-3	AIHA	1 ppm		2005
Trimethylchlorosilane	75-77-4	AIHA		5 ppm (ceiling)	2001
Trimethylolpropane Triacrylate	15625-89-5	AIHA	1 mg/m3 (skin)		1981
Trimethylolpropane Trimethacrylate	3290-92-4	AIHA	1 mg/m3 (skin)		1981
Trisodium Phosphate	7601-54-9	AIHA		5 mg/m3 (15 min)	2009
Urea	57-13-6	AIHA	10 mg/m3		2007
Vanillin	121-33-5	AIHA	10 mg/m3		2009
Vinylcyclohexene	100-40-3	AIHA	1 ppm		2009
Vinyltrichlorosilane	75-94-5	AIHA	—	1 ppm (ceiling)	2002

*Value withdrawn

Substances Considered But Determined to Have an Inadequate Minimum Data Set:

Chlorine Monoxide

Methylene Butanedioic Acid

1,3-Pentadiene