

Table 2. List of Chemicals with Threshold Limit Values¹ (TLV) Primarily Based on Sensory Irritation. No RD₅₀ values are available for these chemicals. This table includes only volatile organic chemicals (VOCs).

#	Chemicals	CAS #	Documentation Date ¹	TLV-TWA or STEL ² (ppm)	TLV Basis ³
1	Acetic anhydride	108-24-7	2010	10	URT & eye irr; pulm func
2	Acetophenone	98-86-2	2008	10	URT irr; CNS impair, Pregnancy lost
3	Acrylic acid	79-10-7	1986	2	URT irr
4	Adiponitrile	111-69-3	1990	2	URT & LRT irr
5	Allyl bromide	106-95-6	2011	0.1	Eye & URT irr
6	Allyl propyl disulfide	2179-59-1	2001	0.5	URT & eye irr
7	Benzotrichloride	98-07-7	1994	0.1	Eye, skin & URT irr
8	Benzoyl chloride	98-88-4	1992	0.5	URT & eye irr
9	Benzyl acetate	140-11-4	1990	10	URT irr
10	sec-Butanol	78-92-2	2001	100	URT irr; CNS impair
11	iso-Butene	115-11-7	2007	250	URT irr; body weight eff
12	sec-Butyl acetate	105-46-4	1965	200	Eye & URT irr
13	n-Butyl acrylate	141-32-2	1996	2	Irr
14	n-Butyl mercaptan	109-79-5	1968	0.5	URT irr
15	o-sec-Butylphenol	89-72-5	1977	5	URT, eye & skin irr
16	Camphor (synthetic)	76-22-2	1990	2	Eye & URT irr; anosmia
17	Carbon tetrabromide	558-13-4	1972	0.1	Liver dam; eye, URT & skin irr.
18	Catechol	120-80-9	1985	5	Eye & URT irr; dermatitis
19	Chloroacetaldehyde	107-20-0	1990	C 1	URT & eye irr
20	Chloroacetone	78-95-5	1986	C 1	Eye & URT irr
21	Chloroacetyl chloride	79-04-9	1988	0.05	Eye, URT, & skin irr
22	1-Chloro-1-nitropropane	600-25-9	1971	2	Eye irr; pulm edema
23	β-Chloroprene	126-99-8	1990	10	URT & eye irr
24	Cumene	98-82-8	1997	50	Eye, skin & URT irr; CNS impair
25	Cyanogen	460-19-5	1966	10	LRT & eye irr
26	Cyanogen bromide (inorganic ?)	506-68-3	2014	C 0.3	Eye & resp tract irr; pulmonary edema
27	Cyanogen chloride (inorganic ?)	506-77-4	2013	C 0.3	Pulm edema; eye, skin, & URT irr
28	Cyclohexanol	108-93-0	1979	50	Eye irr; CNS impair
29	Cyclohexene	110-83-8	1964	300	URT & eye irr
30	Cyclopentadiene	542-92-7	1963	75	URT & eye irr
31	Cyclopentane	287-92-3	1978	600	URT, eye, & skin; CNS impair

32	Diacetone alcohol	123-42-2	1979	50	URT & eye irr
33	Diazomethane	334-88-3	1970	0.2	URT & Eye irr
34	2-N-Dibutylaminoethanol	102-81-8	1980	0.5	Eye & URT irr
35	Dichloroacetic acid	79-43-6	2002	0.5	URT & eye irr; testicular dam
36	1,4-Dichloro-2-butene	764-41-0	1990	0.005	URT & eye irr
37	1,1-Dichloroethane	75-34-3	1990	100	URT & eye irr; liver & kidney dam
38	Dichloroethyl ether	111-44-4	1985	5	URT & eye irr, nausea
39	1,1 Dichloro-1-nitroethane	594-72-9	1978	2	URT irr
40	Dicyclopentadiene	77-73-6	1973	5	URT, LRT, & eye irr
41	Diethylene triamine	111-40-0	1985	1	URT & eye irr
42	N,N-Diethylhydroxylamine	3710-84-7	2012	2	URT irr
43	Diethyl ketone	96-22-0	1995	200	URT irr, CNS impair
44	Difluorodibromomethane	75-61-6	1962	100	URT irr, CNS impair, liver dam
45	Diglycidyl ether	108-83-8	1979	25	URT & eye irr
46	bis(2-Dimethylaminoethyl)ether	3033-62-3	1997	0.05	URT, eye, & skin irr
47	Dimethyl carbamoyl chloride	79-44-7	2006	0.005	Nasal cancer, URT irr
48	Dimethyl disulfide	624-92-0	2006	0.5	URT irr, CNS impair
49	Dimethylethoxysilane	14857-34-2	1991	0.5	URT & eye irr; headache
50	1,1 Dimethylhydrazine	57-14-7	1993	0.01	URT irr; nasal cancer
51	Dimethyl sulfate	77-78-1	1985	0.1	Eye & URT irr
52	Dimethyl sulfide	75-18-3	2001	10	URT irr
53	Dodecyl mercaptan	112-55-0	2001	0.1	URT irr
54	Ethanolamine	141-43-5	1985	3	Eye & skin irr
55	Ethyl tert-butyl ether	637-92-3	2012	25	URT irr; kidney dam (nephropathy); cochlear impair
56	Ethyleneimine	151-56-4	2008	0.05	URT irr, liver & kidney dam
57	Ethyl formate	109-94-4	2011	100	URT irr
58	Ethyl isocyanate	109-90-0	2013	0.02	URT & eye irr
59	Ethyl mercaptan	75-08-1	2003	0.5	URT irr; CNS impair
60	N-ethylmorpholine	100-74-3	1985	5	URT irr; eye dam
61	Ethyl silicate	78-10-4	1979	10	URT & eye irr, kidney dam
62	Formamide	75-12-7	1985	10	Eye & skin irr; kidney & liver dam
63	Furfuryl alcohol	98-00-0	1979	10	URT & eye irr
64	Glycidol	556-52-5	1993	2	URT, eye, & skin irr
65	Hexachlorocyclopentadiene	77-47-4	1979	0.01	URT irr
66	Hexanediamine	124-09-4	1990	0.5	URT & skin irr
67	sec-Hexyl acetate	108-84-9	1963	50	Eye & URT irr
68	Hexylene glycol	107-41-5	1974	C 25	Eye & URT irr

69	2-Hydroxypropyl acrylate	999-61-1	1997	0.5	Eye irr; eye dam
70	Isooctyl alcohol	26952-21-6	1990	50	URT irr
71	Isopropyl ether	108-20-3	1979	250	Eye & URT irr
72	Isopropyl glycidyl ether	4016-14-2	1979	50	URT & eye; dermatitis
73	Ketene	463-51-4	1962	0.5	URT irr; pulm edema
74	Methacrylic acid	79-41-4	1992	20	Skin & eye irr
75	2-(Methoxymethylethoxy)propanol	34590-94-8	1979	100	Eye & URT irr; CNS impair
76	Methyl acrylate	96-33-3	1997	2	Eye, skin
77	Methylal	109-87-5	1970	1000	Eye irr; CNS impair
78	Methyl cyclohexane	108-87-2	1962	400	URT irr; CNS impair; liver & kidney dam
79	Methylcyclohexanol	25639-42-3	2005	50	URT & eye irr
80	o-Methylcyclohexanone	583-60-8	1970	50	URT & eye irr; CNS impair
81	Methyl ethyl ketone peroxide	1338-23-4	1992	C 0.2	Eye & skin irr; liver & kidney damage
82	Methyl formate	107-31-3	2014	50	CNS impair; URT irr
83	Methyl hydrazine	60-34-4	1991	50	URT & eye irr; lung cancer; liver dam
84	Methyl isobutyl carbinol	108-11-2	1966	25	URT & eye irr; CNS impair
85	Methyl methacrylate	80-62-6	1992	50	URT & eye irr; body weight eff; pulm edema
86	Methyl silicate	681-84-5	1978	1	URT irr; eye dam
87	Methyl vinyl ketone	78-94-4	2009	C 0.2	URT & eye irr; CNS impair
88	Monochloroacetic acid	79-11-8	2005	0.5	URT irr
89	Morpholine	110-91-8	2005	20	Eye dam; URT irr
90	Naphtalene	91-20-3	2013	10	URT irr; cataracts; hemolytic anemia
91	Nitroethane	79-24-3	1979	100	URT irr; CNS impair; liver dam
92	1-Nitropropane	108-03-2	1992	25	URT & eye irr; liver dam
93	Perchloromethyl mercaptan	594-42-3	1988	0.1	Eye & URT irr
94	Perfluoroisobutylene	382-21-8	1989	C 0.01	URT irr; hematologic eff
95	Phenyl ether	101-84-8	1979	1	URT & eye irr; nausea
96	Phenyl isocyanate	103-71-9	2014	0.005	URT irr
97	Phosgene	75-44-5	1992	0.1	URT irr; pulm edema; pulm emphysema
98	Phtalic anhydride	85-44-9	1992	1	URT, eye & skin irr
99	2-Propanol	67-63-0	2001	200	Eye & URT irr; CNS impair
100	Propargyl alcohol	107-19-7	1992	1	Eye irr; liver & kidney

					dam
101	Propionaldehyde	123-38-6	1998	20	URT irr
102	Propionic acid	79-09-4	1977	10	Eye, skin & URT irr
103	Propylene	115-07-1	2005	500	Asphyxia; URT irr
104	Propylene dichloride	78-8-5	2005	10	URT irr; body weight eff
105	Propylene oxide	75-56-9	2000	2	Eye & URT irr
106	Propyleneimine	75-55-8	2008	0.2	URT; kidney damage
107	Quinone	106-51-4	1970	0.1	Eye irr; skin dam
108	Resorcinol	108-46-3	1992	10	Eye & skin irr
109	1,1,2,2,-Tetrabromoethane	79-27-6	2005	0.1	Eye & URT irr; pulm edema; liver dam
110	Tetrahydrofuran	109-99-9	2002	50	URT irr; CNS impair; kidney dam
111	Tetranitromethane	509-14-8	1992	0.005	Eye & URT irr; URT cancer
112	Trichloroacetic acid	76-03-9	2013	0.5	Eye & URT irr
113	1,2,4-Trichlorobenzene	120-82-1	1975	C 5	Eye & URT irr
114	Vinyl acetate	108-05-4	1992	10	URT, eye & skin irr, CNS impair

Notes: Prepared by Yves Alarie, Ph.D. University of Pittsburgh, 2015.

1. From: Booklet of The American Conference of Governmental Industrial Hygienists (ACGIH) (2015). TLVs and BEIs Based on the Documentation of the Threshold Limit Values for Chemical Substances and Physical Agents & Biological Exposure Indices. For each chemical listed the last Documentation Date is listed as given in the 2015 Booklet.
2. The number listed is for TLV-TWA or STEL and the notation Ceiling (C) if applicable. When both a TLV-TWA and TLV-Ceiling are given, the lowest value is entered. Note that for some chemicals a revision is contemplated, so check the last publication year of the Booklet.
3. The abbreviation, as written in the Booklet: URT: Upper respiratory tract; irr: irritation; CNS: Central Nervous System; impair: impairment; LRT: Lower respiratory tract; eff: effects; pulm: pulmonary; func: function.