

APPENDIX A. — SUMMARY OF COMBUSTION PROPERTIES OF LIQUID AND GASEOUS COMPOUNDS¹ (GASEOUS COMBUSTION IN AIR AT ATMOSPHERIC PRESSURE) — Continued

Combustible	Formula	Mol wt	Sp gr (air = 1)	BP, °C	C _{st} (in air), vol pct	ΔH _f (25 °C), kcal/mol	ΔH _c (net, 25 °C), kcal/mol	Flash-point, °C	Minimum AIT, °C	Flammable limits	
										L _{FL} , vol pct	U _{FL} , vol pct
CHLORINATED COMPOUNDS (ALKYLS)											
Methyl chloride (chloromethane)	CH ₃ Cl	50.49	1.8	-24	12.25	-20.6	153	NA	632	10.7	17.4
Methylene chloride (dichloromethane)	CH ₂ Cl ₂	84.94	2.9	40	17.32	22.8	115	NA	615	15.9	19.1
Ethyl chloride	C ₂ H ₅ Cl	64.52	2.2	12	6.52	-26.7	299	50	519	3.8	15.4
Ethylene chloride (1,2-dichloroethane)	C ₂ H ₄ Cl ₂	98.96	3.4	83	7.72	-31.0	259	13	440	4.5	17.3
Methyl chloroform (trichloroethane)	C ₂ H ₃ Cl ₃	133.41	4.6	74	9.48	-24.2	230	NA	485	6.8	NA
n-Propyl chloride	C ₃ H ₇ Cl	78.54	2.7	47	4.44	-31.1	447	NA	520	2.6	11
Propylene chloride	C ₃ H ₅ Cl ₂	112.99	3.9	96	4.97	-39.6	402	16	557	3.4	14.5
n-Butyl chloride	C ₄ H ₉ Cl	92.57	3.2	78	3.37	-35.2	594	9	250	1.8	10
Isobutyl chloride	C ₄ H ₉ Cl	92.57	3.2	69	3.37	-38.1	591	NA	NA	2.0	8.8
n-Amyl chloride (chloropentane)	C ₅ H ₁₁ Cl	106.60	3.7	108	2.72	41.8	740	13 oc	260	1.6	8.6
tert-Amyl chloride	C ₅ H ₁₁ Cl	106.60	3.7	86	2.72	43.1	738	12	345	1.5	7.4
CHLORINATED COMPOUNDS (UNSATURATES)											
Chloroacetylene	C ₂ HCl	60.48	NA	-30	9.48	51.1	261	NA	NA	NA	100
Vinyl chloride (chloroethene)	C ₂ H ₃ Cl	62.50	2.2	-13	7.72	8.4	276	NA	472	3.6	33
Dichloroethylene (1,2-dichloroethene)	C ₂ H ₂ Cl ₂	96.94	3.4	60	9.47	5	232	6	460	9.7	12.8
Trichloroethylene	C ₂ HCl ₃	131.39	4.5	87	12.25	1.4	210	32	420	12.0	40
Tetrachloroethylene	C ₂ Cl ₄	165.83	5.72	121	17.32	-3.4	185	NA	NA	NA	NA
Propargyl chloride (3-chloropropyne)	C ₃ H ₃ Cl	74.51	NA	65	7.73	NA	NA	NA	NA	NA	100
Allyl chloride (3-chloropropene)	C ₃ H ₅ Cl	76.53	2.6	45	4.97	-2	420	32	485	2.9	11
Isopropenyl chloride	C ₃ H ₅ Cl	76.53	2.63	23	4.97	NA	NA	NA	NA	4.5	16
Isocrotyl chloride	C ₃ H ₅ Cl	90.55	NA	68	3.67	NA	NA	NA	NA	4.2	19
2-Chloro-2-butene	C ₄ H ₇ Cl	90.55	3.1	71	3.67	NA	NA	19	NA	2.9	9.3
CHLORINATED COMPOUNDS (ACETYL AND ALCOHOL DERIVATIVES)											
Acetyl chloride	C ₂ H ₃ OCl	78.50	2.7	51	9.48	-58.3	210	4	390	25.0	NA
Ethylene chlorohydrin (2-chloroethanol)	C ₂ H ₄ ClOH	80.52	2.78	128	7.73	-70.3(l)	256	60 oc	425	4.9	15.9
CHLORINATED COMPOUNDS (BENZENES)											
Chlorobenzene	C ₆ H ₅ Cl	112.56	3.9	132	2.90	12.4	714	29	640	1.4	7.1
Benzyl chloride (chlorotoluene)	C ₇ H ₇ Cl	126.59	4.4	179	2.40	-16.8(l)	837	67	585	1.1	NA
o-Dichlorobenzene	C ₆ H ₄ Cl ₂	147.01	5.1	181	3.12	7.2	673	66	648	2.2	9.2
BROMINATED COMPOUNDS (ALKYLS)											
Methyl bromide (bromomethane)	CH ₃ Br	94.94	3.3	3.6	12.24	-9.0	152	NA	537	10	15
Ethyl bromide	C ₂ H ₅ Br	108.97	3.8	38	6.52	-15.3	297	NA	511	6.7	11.3
n-Propyl bromide	C ₃ H ₇ Br	123.00	4.3	71	4.45	-21.0	443	NA	490	NA	NA
n-Butyl bromide	C ₄ H ₉ Br	137.03	4.7	102	3.37	-25.7	590	18	265	2.5	6.6
n-Amyl bromide (bromopentane)	C ₅ H ₁₁ Br	151.05	NA	130	2.72	-30.9	737	32	NA	NA	NA
BROMINATED COMPOUNDS (UNSATURATES AND BENZENES)											
Propargyl bromide (3-bromopropyne)	C ₃ H ₃ Br	118.97	4.1	88	5.65	40	389	10	324	3.0	100
Allyl bromide (3-bromopropene)	C ₃ H ₅ Br	120.98	4.2	70	4.97	11.8	418	1	295	4.4	7.3
Isocrotyl bromide	C ₃ H ₅ Br	135.00	NA	NA	3.67	NA	NA	NA	NA	6.4	12
Bromobenzene	C ₆ H ₅ Br	157.02	5.4	156	2.90	25.1	713	51	565	2.6	NA
SULFUR COMPOUNDS											
Hydrogen sulfide	H ₂ S	34.08	1.18	-61	12.25	-4.8	124	NA	260	4.0	44
Carbon disulfide	CS ₂	76.14	2.63	46	6.53	28.0	252	30	100	1.3	50
Methyl mercaptan (methanethiol)	CH ₃ SH	48.11	1.66	6	6.53	-5.5	276	NA	NA	3.9	22
Ethyl mercaptan	C ₂ H ₅ SH	62.13	2.15	35	4.45	-11.0	421	NA	300	2.8	18
Butyl mercaptan	C ₄ H ₉ SH	90.19	3.10	97	2.72	-21.1	715	2	NA	NA	NA
Dimethyl sulfide	(CH ₃) ₂ S	62.13	2.15	37	4.45	-9.0	423	NA	205	2.2	20
Dimethyl sulfoxide	(CH ₃) ₂ SO	78.13	NA	189	4.98	-34.6	398	95	NA	2.6	28.5

Kuchta, J. M. (1985). Investigation of fire and explosion accidents in the chemical, mining, and fuel-related industries-a manual. Bulletin 680, U.S. Bureau of Mines.