

## 2.6 Flammable gases and vapors

Flammable gases become more dangerous when they have a relatively low LEL (lower explosion limit) or flash point. The flash point is defined by the liquid's temperature-dependent vapor pressure and its LEL.\*

Vapor	LEL Vol.-%	LEL g/m <sup>3</sup>	Flash point in °C/°F	Vapor pressure at 20°C (68° F) in mbar	Ignition temp. in °C/°F
acetone	2.5	60.5	< -20/-4	246	535/995
acrylonitrile	2.8	61.9	-5/23	117	480/896
benzene	1.2	39.1	-11/12	100	555/1031
n-butanol	1.4	52.5	35/95	7	325/617
n-butyl acetate	1.2	58.1	27/81	11	390/734
n-butyl acrylate	1.2	64.1	37/99	5	275/527
chlorobenzene	1.3	61.0	28/82	12	590/1094
cyclohexane	1.0	35.1	-18/-0,4	104	260/500
cyclopentane	1.4	40.9	-37/-60	346	320/608
1,2-dichloroethane (EDC)	4.2	255.7	13/55	87	440/824
diethyl ether	1.7	52.5	-45/-40	586	175/374
1,4-dioxane	1.4	69.7	11/52	38	375/707
epichlorhydrin	2.3	88.6	28/82	16	385/725
ethanol	3.1	59.5	12/54	58	400/752
ethyl acetate	2.0	73.4	-4/25	98	470/878
ethylbenzene	1.0	44.3	23/73	10	430/806
n-hexane	1.0	35.9	-22/-8	160	230/464
methanol	6.0	80.0	9/48	129	440/824
1-methoxy-2-propanol	1.8	67.6	32/90	13	270/518
methyl ethyl ketone (MEK)	1.5	45.1	-10/14	105	475/887
methyl methacrylate	1.7	70.9	10/50	40	430/806
n-nonane	0.7	37.4	31/88	5	205/401
n-octane	0.8	38.1	12/54	14	205/401
n-pentane	1.1	42.1	-40/-40	562	260/500

\* LEL values may differ regionally. The operator has to ensure to use the relevant value.

Vapor	LEL Vol.-%	LEL g/m <sup>3</sup>	Flash point in °C/°F	Vapor pressure at 20°C in mbar	Ignition temperature in °C/°F
i-propanol (IPA)	2.0	50.1	12/54	43	425/797
propylene oxide	1.9	46.0	-37/-35	588	430/806
styrol	1.0	43.4	32/90	7	490/914
tetrahydrofuran (THF)	1.5	45.1	-20/-4	173	230/446
toluene	1.0	38.3	6/43	29	535/995
xylene (isomer mixture)	1.0	44.3	30/77	7	465/869

Gas	LEL Vol.-%	LEL g/m <sup>3</sup>	Ignition temperature in °C/°F
acetylene	2.3	24.9	305/581
ammonia	15.4	109.1	630/1166
1,3-butadiene	1.4	31.6	415/779
i-butane	1.5	36.3	460/860
n-butane	1.4	33.9	365/689
n-butene (butylene)	1.5	28,1	360/680
dimethyl ether	2.7	51.9	240/464
ethene (ethylene)	2.4	28.1	440/824
ethylene oxide	2.6	47.8	435/815
hydrogen	4.0	3.3	560/1040
methane	4.4	29.3	595/1103
methyl chloride	7.6	159.9	625/1157
propane	1.7	31.2	470/878
propene (propylene)	2.0	35.0	485/905

Source: PTB list from the Physikalisch-Technische Bundesanstalt (PTB is the national metrology institute providing scientific and technical services). Values from NIOSH, IEC and others may differ. Please consider regional regulations.

**Only flammable liquids have a flash point.**

**By definition, flammable gases do not have a flash point.**