Chemicals that can form explosive peroxides can be divided into three classes, depending on the risk they pose and the length of time for which they have been stored. You should be aware that the lists are not exhaustive. There may be substances that can form peroxides but are not listed in any of the tables. The column marked “Labelling” is for guidance purposes; for example, if the substance is supplied in suspension the R-phrases may vary somewhat.

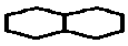
Category 1.

Solvents and chemicals where dangerous levels of explosive peroxides may form during storage without being concentrated, i.e. without evaporation. Peroxides are formed only because the substance has been exposed to air.
Recommended storage time in unopened state: 1 year
Recommended storage time once opened: 3 mnths.
Check for formation of peroxides after opening: every 3 mnths. Recommended to be sent as hazardous waste after: 6 mnths.

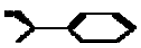
Name	CAS no.	Formula	Labelling
1,3-Butadiene (Butadiene)	106-99-0	$CH_2CHCHCH_2$ liquid	List of substances: F+, T ; R12 Carcinogen 1;
2-Chloro-1,3 butadiene (Chloroprene; Neoprene)	126-99-8	$CH_2CClCHCH_2$	List of substances: F, Xn ; R11 ; R20/22
1,1-Dichloroethylene (Vinylidene chloride)	75-35-4	Cl_2CCH_2	List of substances: F+, Xn ; R12
Diisopropyl ether (Isopropyl ether)	108-20-3	$(CH_3)_2CHOCH(CH_3)_2$	List of substances: F ; R11 ; **R19** ; R66
Divinyl acetylene	31014-03-6	$CH_2CHCCCHCH_2$	
Potassium amide		KNH_2	
Potassium metal	07/09/7440	K	List of substances: F, C ; R14/15
Sodium amide (Sodamide)	7782-92-5	$NaNH_2$	Sigma-Aldrich: F, C ; R14/15 ; **R19** ; R34
Tetrafluoroethylene	116-14-3	F_2CCF_2	

Category 2.

Solvents and chemicals where dangerous levels of explosive peroxides may form when becoming concentrated, e.g. by evaporation or distillation.
Recommended storage time in unopened state: 18 mnths.
Recommended storage time once opened: 6 mnths.
Check for formation of peroxides after opening: every 3 mnths. Recommended to be sent as hazardous waste after: 12 mnths.

Name	CAS no.	Formula	Labelling
Benzyl alcohol	100-51-6	 $(C_6H_5)CH_2OH$	List of substances: Xn ; R20/22
Bis(2-methoxy ethyl)ether (Diethylene glycol dimethyl ether; diglyme	111-96-6	$CH_3OCH_2CH_2OCH_2CH_2OCH_3$	List of substances: T ; R10 ; **R19** Reproductive toxin
1,3-Butadiyne (Diacetylene; Buta-1,3-diyn)	460-12-8	CHCCCH	
Butyl vinyl ether (1-(ethenyloxy)butane; Vinyl n-butyl ether)	111-34-2	$CH_3CH_2CH_2CH_2OCHCH_2$	Sigma-Aldrich: F ; R11 ; **R19**
Cyclohexanol	108-93-0	$C_6H_{11}OH$	List of substances: Xn, ; R20/22
Cyclohexene	110-83-8	C_6H_{10}	Sigma-Aldrich: F, Xn ; R11 ; R21/22
Cyclopentene	142-29-0	 C_5H_8	Sigma-Aldrich: F, Xn ; R11 ; R21/22 ; R36/37/38 ; R52/53
Decahydronaphthalene (cis/trans mixture) (Decalin)	91-17-8	 $C_{10}H_{18}$	Sigma-Aldrich: C, N ; R20 ; R34 ; R51/53
Dicyclopentadiene (1,3-Cyclopentadiene; 3a,4,7,7a-tetrahydro-4,7-methanoindene)	77-73-6	 $C_{10}H_{12}$	List of substances: F, Xn, N ; R11 ; R20/22
1,1-Diethoxyethane (Acetal; Acetaldehyde diethyl acetal	105-57-7	$CH_3CH_2OC(CH_3)OCH_2CH_3$	List of substances: F, Xi ; R11 ; R36/38

Diethyl ether (Ether; Ethyl ether)	60-29-7	$CH_3CH_2OCH_2CH_3$	List of substances: F+, Xn ; R12 ; **R19** ; R22
1,2-Dimethoxyethane (Ethylene glycol dimethyl ether; glyme)	110-71-4	$CH_3OCH_2CH_2OCH_3$	List of substances: Xn ; R10 ; **R19**
1,2-Dioxane (o-Dioxane)	5703-46-8	 $C_4H_8O_2$	
1,3-Dioxane (m-Dioxane)	505-22-6	 $C_4H_8O_2$	Sigma-Aldrich: F, Xn ; R11 ; **R19** ; R20/21/22
1,4-Dioxane (p-Dioxane; Dioxane)	123-91-1	 $C_4H_8O_2$	List of substances: F, Xn ; R11 ; **R19** ; R36/37 Carcinogen 3; R40
Divinyl ether (Vinyl ether)	109-93-3	$CH_2CHOCHCH_2$	
Ethyl vinyl ether (Ethoxyethene; Vinyl ethyl ether)	109-92-2	$CH_3CH_2OCHCH_2$	Sigma-Aldrich: F, Xi ; R12 ; **R19** ; R36/37/38
4-Heptanol	589-55-9	$CH_3(CH_2)_2CH(OH)(CH_2)_2CH_3$	
2-Hexanol	626-93-7	$CH_3CH(OH)CH_2CH_2CH_2CH_3$	Sigma-Aldrich: Xi ; R10 ; R36/37/38
3-Methyl-1-butanol (Isoamyl Alcohol; 3-Methylbutanol)	123-51-3	$(CH_3)_2CHCH_2CH_2OH$	Sigma-Aldrich: Xn ; R10 ; R22 ; R37/38 ; R41
Methylcyclopentane	96-37-7	 C_6H_{12}	Sigma-Aldrich: F, Xn ; R11 ; R22 ; R36/37/38 ; R65
4-Methyl-2-pentanol (Methyl Isobutyl Carbinol; sec-Hexyl Alcohol)	108-11-2	$(CH_3)_2CHCH_2CH(OH)CH_3$	List of substances: Xi ; R10

Methyl isobutyl ketone (2-methyl-4-pentanone)	108-10-1	$CH_3COCH_2CH(CH_3)_2$	List of substances: F, Xn ; R11 ; R20 ; R36/37
Methyl vinyl ether (Methoxyethene; Vinyl methyl ether)	107-25-5	CH_3OCHCH_2	List of substances: F+ ; R12
2-Pentanol (sec-Amyl Alcohol; Pentan-2-ol)	6032-29-7	$CH_3CH_2CH_2CH(OH)CH_3$	Sigma-Aldrich: Xn ; R10 ; R20
4-Penten-1-ol	821-09-0	$CH_2CHCH_2CH_2CH_2OH$	Sigma-Aldrich: ; R10
1-Phenylethanol (alpha-Methylbenzyl alcohol; 1-phenylethan-1-ol)	98-85-1	 $C_8H_{10}O$	Sigma-Aldrich: Xn ; R22 ; R38 ; R41
2-phenylethanol (Phenethyl alcohol; 1-Phenyl-2-ethanol; Hydroxyethylbenzene)	60-12-8	 $C_8H_{10}O$	Sigma-Aldrich: Xn ; R21/22 ; R36/38
2-Phenylpropane (Cumene; Methyl ethyl benzene; Isopropylbenzene;	98-82-8	$CH_3CH(C_6H_5)CH_3$	List of substances: Xn; N ; R10 ; R37 ; R51/53 ; R65
2-Propanol (Isopropanol; Isopropyl alcohol)	67-63-0	$CH_3CH(OH)CH_3$	List of substances: F, Xi ; R11 ; R36 ; R67
1-Propyne (Methyl acetylene	74-99-7	CH_3CCH	
Tetrahydrofuran (1,4-Epoxybutane)	109-99-9	 C_4H_8O	List of substances: F, Xi ; R11 ; **R19** ; R36/37
1,2,3,4-Tetrahydronaphthalene (Tetrahydronaphthalene; Tetralin)	119-64-2	 $C_{10}H_{12}$	List of substances: Xi, N ; **R19** ; R36/38 ; R51/53

Category 3.

Solvents and chemicals where peroxides may be formed by polymerisation.
Recommended storage time in unopened state: 18 mnths.
Recommended storage time once opened: 6 mnths.
Check for formation of peroxides after opening: every 3 mnths. Recommended to be sent as hazardous waste after: 12 mnths.

Name	CAS no.	Formula	Labelling
Acrylic acid (2-Propenoic acid, Vinylformic Acid)	79-10-7	$CH_2CHCOOH$	List of substances: C, N ; R10 ; R20/21/22 ; R35
Acrylonitrile (2-Propenenitrile)	107-13-1	CH_2CHCN	List of substances: F, T, N ; R11 ; R23/24/25 ; R37/38 ; R41 ; R43
Butadiene (1,3-butadiene)	106-99-0	$CH_2CHCHCH_2$ GASS	List of substances: F+, T ; R12 Carcinogen 1; R45
Chloroprene (2-Chloro-1,3-butadiene, Neoprene)	126-99-8	$CH_2CClCHCH_2$	List of substances: F, Xn ; R12 ; R20/22
Chlorotrifluoroethylene (Trifluorochloroethylene, Trifluorovinyl Chloride)	79-38-9	CF_2CFCl GASS	Sigma-Aldrich: F, T ; R11 ; R23
Methyl methacrylate, (Methyl 2-Methyl-2-Propenoate, 2-Methylacrylic acid methyl ester, Methyl 2-methylpropenoate)	80-62-6	$CH_2C(CH_3)COOCH_3$	List of substances: F, Xi ; R11 ; R37/38 ; R43
Styrene (Vinyl benzene, styropol)	100-42-5	 $C_8H_{10}O$	List of substances: Xn ; R10 ; R20

Tetrafluoroethylene (Perfluoroethene, Tetrafluorethene)	116-14-3	CF_2CF_2 GASS	

Vinyl acetate (Acetic acid ethenyl ester, Ethenyl acetate)	108-05-4	$CH_3COOCHC_2$	List of substances: F ; R11
Vinyl acetylene (1-Buten-3-yne)	689-97-4	CH_2CHCCH GAS	
Vinyl chloride (Chloroethene, Chloroethylene)	75-01-4	CH_2CHCl GASS	List of substances: F+, T ; R12
Vinylpyridine	1337-81-1	 C_7H_7N	
Vinylidene Chloride (1,1-Dichloroethene)	75-35-4	CCl_2CH_2	List of substances: F+, Xn ; R12 ; R20