

Safe Methods of Use 13: HSNO Class 5.2 Organic Peroxides

Purpose: This applies to **principal investigators (PIs), sector managers, designated laboratory person (DLPs)**, technical staff and students who use laboratories within the University of Auckland.

Organic peroxides are as a general rule extremely unstable. Many of them are highly reactive and need to be stored in temperature controlled areas. In their pure form they can be shock-sensitive explosives!

Note: 'Shall' denotes a mandatory requirement and 'should' denotes a recommendation.

A. Incompatibilities

Organic peroxides are as a general rule extremely unstable. Many of them are highly reactive and flammable. They shall be stored well away from any other chemical, flammable or combustible material. Some organic peroxides shall be stored below set temperatures.

B. Storage

1. Storage and use of organic peroxides in the University of Auckland **should** be restricted to the Department of Chemistry and the ACSRC.
2. They **shall** be stored separately from any other compound in cool well-ventilated stores.
3. Single containers **should** be stored in refrigerators inside a segregation device (such as a sealable plastic box).
4. Small quantities of catalyst containing organic peroxide **shall** be stored enclosed in a separate container.

C. Disposal

1. Disposal of UN Class 5.2 compounds **shall** be undertaken by a licensed chemical waste contractor.

2. Please contact Hazards and Containment Manager to arrange for disposal.
3. UN Class 5.2 compounds **shall** be packed separately for disposal.

D. Spill

1. Consult MSDS for correct clean up procedure
2. Use correct gloves
3. If liquid, use absorbent material in spill kits to wipe up – wiping from outside of spill toward centre.
4. Place used absorbent material in impermeable/airtight container
5. Solids can be placed directly impermeable/airtight container
6. Inform Laboratory Manager and arrange for immediate disposal

Appendix 1: UN Class 5.2 - Peroxides

	Type of peroxide (HSNO Category)
Acetyl acetone peroxide	Type D, Liquid
Acetyl benzoyl peroxide	Type D, Liquid
tert-Butyl hydroperoxide 70-90%	Type C, Liquid
tert-Butyl hydroperoxide <80%	Type D, Liquid
tert-Butyl peroxyacetate 52-77%	Type B, Liquid
tert-Butyl peroxyacetate 32-52%	Type C, Liquid
tert-Butyl peroxybenzoate 77-100%	Type C, Liquid
tert-Butyl peroxybenzoate 52-77%	Type D, Liquid
tert-Butyl peroxy-2-ethylhexanoate 52-100%	Type C, Liquid, Temperature controlled
tert-Butyl peroxy-2-ethylhexanoate 32-52%	Type E, Liquid, Temperature controlled
tert-Butyl peroxy-2-methylbenzoate	Type C, Liquid
tert-Butyl peroxy-pivalate	Type C, Liquid, Temperature controlled
tert-Butyl peroxy-3,5,5-trimethylhexanoate	Type D, Liquid
3-chloroperoxybenzoic acid	Type B, Solid
Cumyl hydroperoxide	Type E, Liquid
Cyclohexanone peroxide	Type C, Solid
1,1-Di-(tert-butylperoxy)-3,5,5-trimethylcyclohexane	Type B, Liquid
Di-2,4-Dichlorobenzoyl peroxide	Type B, Solid
Diacetyl peroxide	Type D Liquid, Temperature controlled
Dibenzoyl peroxide (Benzoyl peroxide), 77-100%	Type B, Solid
Dibenzoyl peroxide (Benzoyl peroxide), <77%	Type C, Solid
Di-tert-butyl peroxide	Type E, Liquid
Di-4-chlorobenzoyl peroxide	Type B, Solid
Dicumyl peroxide	Type F, Solid
Di(2-ethylhexyl) peroxydicarbonate	Type C Liquid, Temperature controlled
2,5-Dimethyl-2,5-Di-(tert-butylperoxy)hexane	Type D, Liquid
Diisobutyl peroxide	Type B, Liquid, Temperature controlled
2,5 Dimethyl-2,5-Di-(Benzoylperoxy) hexane	Type D, Liquid
Di-(3,5,5-Trimethylhexanoyl) peroxide	Type D, Liquid, Temperature controlled
ethyl 3,3-Di(tert-Butylperoxy)Butyrate	Type C, Liquid
Methyl ethyl ketone peroxide	Type D, Liquid
Methyl isobutyl ketone peroxide	Type D, Liquid
Peroxyacetic acid	Type D, Liquid