



BUTANOX® Methyl Ethyl Ketone Peroxide (MEKP) Catalyst Safety Survey

Questions and Answers

Introduction

The information given in this document relates specifically to the safe handling and storage of the BUTANOX MEKP Catalysts listed in the following table:

Catalyst	Organic Peroxide	Type	UN No.	Recommended Maximum Storage Temperature for Quality (°C)	Self-accelerating Decomposition Temperature (SADT °C) (Note)
Butanox M-50	MEKP	D LIQUID	3105	25	60
Butanox HBO50	MEKP	D LIQUID	3105	25	60
Butanox LA	MEKP	D LIQUID	3105	25	60
Butanox LPT	MEKP	D LIQUID	3105	25	60
Butanox M60	MEKP	D LIQUID	3105	25	60
Butanox M-50 RED YM 1:6	MEKP	D LIQUID	3105	25	60

Note: The temperature of BUTANOX MEKP Catalyst packages should never be allowed to exceed the SADT, the temperature at which hazardous decomposition can occur. Emergency procedures should be implemented immediately should the temperature of BUTANOX MEKP Catalyst packages exceed 50°C.

BUTANOX MEKP Catalysts are regulated as Dangerous Goods (Class 5.2 Organic Peroxides, UN Number 3105, Packing Group II) under State and Territory Dangerous Goods Transport and Storage and Handling regulations. The regulations governing storage and handling of organic peroxides are currently different in each jurisdiction. All States and Territories are expected to adopt Dangerous Goods Storage and Handling regulations based on the National Occupational Health Safety Commissions (NOHSC) National Model Regulations for the Storage and Handling of Dangerous Goods. At present, Victoria is the only State with regulations in line with the NOHSC model regulations.

Compliance with Australian Standard AS2714 -1993 - The storage and handling of hazardous materials-Class 5.2 substances (organic peroxides) - is specifically referenced in the Queensland, Tasmanian and New South Wales regulations. In the other States and Territories, AS2714 can be used for guidance on the safe storage and handling of organic peroxides.

BUTANOX MEKP Catalysts are also regulated as Hazardous Substances under State and Territory Occupational Health and Safety regulations.

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Questions and Answers

For safety information on a specific grade of BUTANOX MEKP Catalyst, refer to the Material Safety Data Sheet and Technical Data Sheets for that grade.

Companies handling organic peroxides are required to conduct risk assessments under both Dangerous Goods storage and handling and hazardous substances regulations.

Merely reading the summary information contained in this document should not be taken as sufficient for compliance with standards, codes of practice and regulations. Relevant documents including, AS2714-1993, any other relevant standards, State and Territory Dangerous Goods and Hazardous Substance Regulations and Material Safety Data Sheet(s) and Technical Data Sheet(s) should also be read and appropriate professional advice on implementation of compliance measures should be sought.

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Questions and Answers

Question 1. How much MEKP can you legally store on your site?

The following Table 3.1 from AS2714 gives maximum storage quantities of different Types of Organic Peroxides:

Type of organic peroxide	Indoor cabinet (kg or L)	Storage rooms and compartments (kg or L)	Isolated Storage (kg or L)
B	50	500	5 000
C, D or E	100	1 000	10 000
F	100	1 000	20 000

NOTE: Where organic peroxides of type B are stored in the same storage as those of Type C, D, E or F, for the purposes of this Table all of the organic peroxides in the storage shall be regarded as being of Type B.

The following table summarises the State and Territory regulations as to the maximum storage quantity before a premise requires a licence to store Class 5.2 Packing Group II Dangerous Goods:

State	Regulation reference	Licence limit threshold
NSW	Dangerous Goods (General) Regulations 1999. Clause 157 (h) Goods that may be kept in or on unlicensed premises	20 kg or L
Vic	Dangerous Goods (Storage and Handling) Regulations 2000. Regulation 506(1) Presence of dangerous Goods in large quantities	2500 kg or L
Qld	Workplace Health & Safety (Miscellaneous) Regulations 1998 Part 17 Reg 124(2)	500 kg or L
WA	WA Dangerous Goods Regulations 1992 Part 4 Reg 4.2	Pack cannot exceed 5 kg or litres & Not more than 250 kg
SA	Not Regulated	No threshold
TAS	Dangerous Goods (General) Regulations 1998. Schedule 3 'Licensing exemption limits'	250 kg or L
NT	Not Regulated	No threshold

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Questions and Answers

Question 2 How do I store MEKP safely on my site?

- In designated locations
- At a temperature that is safe for each specific substance, i.e. below the recommended maximum storage temperature given in the MSDS. Note: some organic peroxides require refrigeration.
- Segregated from all other materials. This includes contaminants such as strong acids & bases, resins, promoters, accelerators, combustible materials, oxidizing and reducing agents and metals (including iron, copper, lead, zinc, cobalt, silver and mercury and alloys, salts and oxides of these metals). The following materials may be used with organic peroxides: polyethylene, polypropylene, ceramic, glass, 316 stainless steel.
- Away from sunlight
- On surfaces that are not liable to attack or damage by the contents if spilt
- Away from direct heat and ignition sources
- An eyewash facility with adequate, permanent water supply available
- A water supply available
- In original packages with original markings
- Containers closed when not in use.
- Have suitable fire fighting equipment available determined by quantity of material stored.

Forms of storage – options

- Indoor storage cabinet within a room or building
- Room or compartment within or attached to a building
- Isolated storage not within, attached to or abutting on to any other building

Specific, detailed requirements exist for the construction of these installations and are given in AS2714.

Restrictions

- The opening, dispensing & weighing of peroxides shall not occur in the storage room, compartment or isolated unit or within 3m of a storage cabinet.
- Provided partially-used packages or preweighed packages are properly labelled and resealed they may be returned to the storage facility.
- No pipeline for dangerous goods shall pass through, over, under or within 3m of a storage installation.
- Minimum separation distances of storage installations from other occupancies exist and are given in AS2714.

Original containers which are resealed after use, venting arrangements maintained and are clean may be stored in the dispensing area provided appropriate temperature requirements are observed.

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Questions and Answers

Question 3. What are the safe handling requirements of BUTANOX MEKP Catalyst?

When decanting the contents of packages the following protective clothing shall be worn:

- Protective gloves
- Apron
- Face shield or goggles

There are also additional state regulatory requirements to conduct risk assessments for Hazardous Substances and Dangerous Goods.

Good housekeeping:

- Substances should be stored in their original packages, with their original markings
- Containers should be kept closed when not in use
- Any spill or leak shall be dealt with immediately
- Do not use combustible materials such as sawdust to contain spill.

Dispensing:

- Opening, weighing and transfer of organic peroxides shall be carried out in an area or room that is specially for dispensing. Requirements for the design, construction and location of this room or area exist and can be found in AS2714.
- Care shall be taken to prevent & control spills & leaks
- Goggles or full-face shield and protective gloves shall be worn.
- Protective boots, apron and overalls may also be worn.
- Respiratory protection may be required for volatiles or dusts or, where applicable, to maintain exposure levels below specified levels (Respiratory protection is not normally required when dispensing the BUTANOX MEKP grades listed).
- Additional protective clothing is required for clean up of spills.
- Containers, tools and equipment shall be clean and compatible with and resistant to organic peroxides. Eg. Use polyethylene but not metal containers.
- Powders shall be dispensed with a hand scoop. Damped materials shall not be allowed to dry out & no residues shall remain on the scoop.
- Pastes shall be dispensed with a spatula or spoon.
- When decanting liquids, proper drum taps pumps or other devices shall be used. Mechanical means shall be used for syphoning and pipetting. Precautions on electrical bonding and earthing shall be taken.
- Organic peroxides that have been removed from an original container shall not be returned to that container.
- AS2714 contains useful information on emergency management including: planning for emergencies, design of premises, maintenance of manifests, placarding and management of spills and leaks and fire protection information.

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Questions 4 to 8 are site specific and are presented below as a table for you to check of your procedures.

Table 1: Safety Survey Checklist

		YES	NO
Question 4.	Does your fabricator wear safety goggles, gloves and coveralls when handling MEKP?		
Question 5.	Does your company use Depositor systems for Gelcoat, Resin and Glass.		
Question 6.	Do you service the equipment using outside contractors?		
Question 7.	Do you service the equipment yourself?		
Question 8.	Do you only use OEM recommended parts?		

Question 9. What are the ramifications of using unqualified parts in the catalyst system of your equipment?

Use of unqualified parts can lead to fire and explosion.

Questions 10. How do I legally dispose of waste or unused MEKP?

Either:

- Recycle in normal process if possible, or
- use a licensed waste disposal company (Note below)

Note: Incineration in a licensed incinerator after dilution of the BUTANOX MEKP to no more than 1% active oxygen content with clean Fuel Oil #2 or clean non flammable/non polymerisable hydrocarbons which are readily soluble with BUTANOX MEKP, is the preferred method of disposal; chemical treatment may also be used for small quantities. The active oxygen content for a BUTANOX MEKP grade can be found in the Technical Data Sheet. In all cases, consult Huntsman for advice.

Additional to Question 10.

- Storage and handling areas shall provide suitably constructed and labelled waste bins in a safe location for the storage of waste and contaminated items. Waste should not be confined.

Disposal of Empty Containers

- Drain and triple-rinse container with an appropriate solvent and dispose of washings as for waste or unused MEKP.
- Remove or deface labels and puncture containers.
- Properly drained and rinsed containers can be disposed in an approved landfill.

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References

National (Guidance only unless specifically referenced in law)

AS2714-1993 The storage and handling of hazardous materials-Class 5.2 substances (organic peroxides).
Australian Code for the Transport of Dangerous Goods by Road and Rail, 6th Edition, published by the Federal Office of Road Safety in 1998.
National Standard for Storage and Handling of Dangerous Goods [NOHSC: 1015 (2001)]
National Code of Practice for the Control of Workplace Hazardous Substances [NOHSC:2007 (1994)]'.

State and Territory (Compliance required)

Queensland

Dangerous Goods Safety Management Act 2001
Workplace Health and Safety Regulation 1997

NSW

Dangerous Goods Act 1975
Dangerous Goods (General) Regulation 1999 (NSW)
Occupational Health and Safety Regulation 2001

Victoria

Dangerous Goods Act 1985
Dangerous Goods (Storage and Handling) Regulations 2000
Occupational Health and Safety (Hazardous Substances) Regulations 1999

South Australia

Dangerous Substances Act 1979
Dangerous Substances Regulations 2002
Occupational Health, Safety and Welfare Regulations 1995

Western Australia

Explosives and Dangerous Goods Act 1961
Explosives and Dangerous Goods (Dangerous Goods Handling and Storage) Regulations 1992
Occupational Safety and Health Regulations 1996

Tasmania

Dangerous Goods Act 1998
Dangerous Goods (General) Regulations 1998
Workplace Health and Safety Regulations 1998

Northern Territory

Dangerous Goods Act 1980
Work Health (Occupational Health and Safety) Regulations 1986

Australian Capital Territory

Dangerous Substances Act 2004
Dangerous Substances (General) Regulations 2004

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Questions and Answers

Websites

www.nohsc.gov.au (National Occupational Health and Safety Commission)

www.wsa.tas.gov.au (Tasmania)

www.detir.qld.gov.au (Queensland)

www.wsa.tas.gov.au (Tasmania)

www.workcover.nsw.gov.au (New South Wales)

www.workcover.sa.gov.au (South Australia)

www.safetyline.wa.gov.au (Western Australia)

www.nt.gov.au (Northern Territory)

www.workcover.vic.gov.au (Victoria)

www.whs.qld.gov.au (Queensland)

www.workcover.act.gov.au (Australian Capital Territory)

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