

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

BUTANOX M-50

Version 2

Revision Date 10.05.2016

Print Date 25.04.2017

GB / EN

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Trade name : BUTANOX M-50

REACH Registration Number : 01-2119514691-43

1.2 Relevant identified uses of the substance or mixture and uses advised against

Use of the Substance/Mixture : Specific use(s): Curing agent

1.3 Details of the supplier of the safety data sheet

Company : Akzo Nobel Functional Chemicals B.V.
Velperweg 76
NL 6824 BM Arnhem
Netherlands

Telephone : +31263664433
Telefax : +31263665830
E-mail address : RegulatoryAffairs@akzonobel.com

1.4 Emergency telephone number

Emergency telephone number : 24 hours:+31 57 06 79211, CHEMTREC-USA:1-800-424-9300, CANUTEC-CANADA:1-613-996-6666,
化学事故应急咨询电话：国家化学事故应急响应中心 +86532 8388 9090

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Organic peroxides, D, H242
Acute toxicity, 4, H302
Acute toxicity, 4, H332
Skin corrosion, 1B, H314
Serious eye damage, 1, H318

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Pictogram

:



Signal word

: Danger

Hazard statements

: H242
H302 + H332
H314Heating may cause a fire.
Harmful if swallowed or if inhaled
Causes severe skin burns and eye damage.

Precautionary statements

: **Prevention:**

P220

Keep away from dirt, rust, chemicals in particular.

P234

Keep only in original container.

P261

Avoid breathing mist, vapours or spray.

P280

Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:

P303 + P361 + P353

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.

Hazardous components which must be listed on the label:

Methyl ethyl ketone peroxide; Reaction mass of butane- 1338-23-4
2,2-diyl dihydroperoxide and di-sec-butylhexaoxidane

2.3 Other hazards

No further data available.

PBT and vPvB assessment

: This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS**3.1 Substances****Hazardous substance**

Chemical name	PBT vPvB OEL	CAS-No. EC-No. REACH No.	Classification (REGULATION (EC) No 1272/2008)	Concentration [%]
Methyl ethyl ketone peroxide; Reaction mass of butane-2,2-diyl dihydroperoxide and di-sec-butylhexaoxidane		1338-23-4 215-661-2 01-2119514691-43	Org. Perox. A; H240 Acute Tox. 4; H302 Acute Tox. 4; H332 Skin Corr. 1B; H314 Eye Dam. 1; H318	30 - 37
Methyl ethyl ketone		78-93-3 201-159-0	Flam. Liq. 2; H225 Eye Irrit. 2; H319 STOT SE 3; H336	1 - 3

For the full text of the H-Statements mentioned in this Section, see Section 16.

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59).

Status : Not applicable

SECTION 4: FIRST AID MEASURES**4.1 Description of first aid measures**

- General advice : Immediate medical attention is required.
Move out of dangerous area.
Show this safety data sheet to the doctor in attendance.
- If inhaled : If breathed in, move person into fresh air.
Consult a physician after significant exposure.
- In case of skin contact : Take off contaminated clothing and shoes immediately.
Rinse immediately with plenty of water.
Immediate medical treatment is necessary as untreated wounds from corrosion of the skin heal slowly and with difficulty.
- In case of eye contact : Rinse with plenty of water.
Get medical attention immediately. Continue to rinse during transport.
Remove contact lenses.
Protect unharmed eye.
Keep eye wide open while rinsing.
Small amounts splashed into eyes can cause irreversible

tissue damage and blindness.

If swallowed : Clean mouth with water and drink afterwards plenty of water.
Never give anything by mouth to an unconscious person.
Take victim immediately to hospital.
Do not induce vomiting! May cause chemical burns in mouth and throat.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms : The symptoms and effects are as expected from the hazards as shown in section 2. No specific product related symptoms are known.

Risks : Harmful if swallowed or if inhaled
Causes serious eye damage.
Causes severe burns.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : Treat symptomatically.

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media : Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting / Specific hazards arising from the chemical : CAUTION: reignition may occur.
Supports combustion.
Water spray may be ineffective unless used by experienced firefighters.
Heating may cause decomposition with release of toxic fumes.

Combustion products : Fire will produce smoke containing hazardous combustion products (see section 10).

5.3 Advice for firefighters

Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.
Further information : Use water spray to cool unopened containers.
Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Use personal protective equipment.
Wear respiratory protection.

Ensure adequate ventilation.
Remove all sources of ignition.
Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

6.2 Environmental precautions

Environmental precautions : Prevent product from entering drains.
If the product contaminates rivers and lakes or drains inform respective authorities.

6.3 Methods and materials for containment and cleaning up

Methods for cleaning up /
Methods for containment : Keep wetted with water.
Soak up with inert absorbent material and dispose of as hazardous waste.
Confinement must be avoided.
Never return spills in original containers for re-use.

6.4 Reference to other sections

Additional advice : For personal protection see section 8.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Advice on safe handling : For personal protection see section 8.
Avoid formation of aerosol.
Do not breathe vapours or spray mist.
Smoking, eating and drinking should be prohibited in the application area.
Provide sufficient air exchange and/or exhaust in work rooms.
Open drum carefully as content may be under pressure.
Dispose of rinse water in accordance with local and national regulations.

Advice on protection against fire and explosion : Use explosion protected equipment.
Keep away from sources of ignition - No smoking.
No sparking tools should be used.
Keep away from reducing agents (e.g. amines), acids, alkalies and heavy metal compounds (e.g. accelerators, driers, metal soaps).
Do not cut or weld on or near this container even when empty.
Keep away from combustible material.

Temperature class : It is recommended to use electrical equipment of temperature group T3. However, autoignition can never be excluded.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : No smoking.
Electrical installations / working materials must comply with the technological safety standards.
Keep only in original container.
Store away from other materials.

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Maximum storage temperature: : 25 °C
 Other data : No decomposition if stored and applied as directed.

7.3 Specific end use(s)

Specific use(s) : Consult the technical guidelines for the use of this substance/mixture.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Components	CAS-No.	Value	Control parameters	Update	Basis	Form of exposure
Dimethyl phthalate	131-11-3	TWA	5 mg/m ³	2005-04-06	GB EH40	
		STEL	10 mg/m ³	2005-04-06	GB EH40	
		TWA	5 mg/m ³	2005-04-06	GB EH40	
		STEL	10 mg/m ³	2005-04-06	GB EH40	
Methyl ethyl ketone peroxide; Reaction mass of butane-2,2-diyl dihydroperoxide and di-sec-butylhexaoxidane	1338-23-4	STEL	0.2 ppm 1.5 mg/m ³	2005-04-06	GB EH40	
Methyl ethyl ketone	78-93-3	TWA	200 ppm 600 mg/m ³	2000-06-16	2000/39/EC	
	Further information	:	Indicative			
		STEL	300 ppm 900 mg/m ³	2000-06-16	2000/39/EC	
	Further information	:	Indicative			
		TWA	200 ppm 600 mg/m ³	2005-04-06	GB EH40	
	Further information	:	Sk: Can be absorbed through skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.			
		STEL	300 ppm 899 mg/m ³	2005-04-06	GB EH40	
	Further information	:	Sk: Can be absorbed through skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.			
Dimethyl phthalate	131-11-3	TWA	5 mg/m ³	2013-03-01	ACGIH	
	Further information	:	URT irr: Upper Respiratory Tract irritation eye irr: Eye irritation			
		TWA	5 mg/m ³	2013-10-08	NIOSH REL	

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		TWA	5 mg/m3	1997-08-04	OSHA Z-1	
		TWA	5 mg/m3	1989-01-19	OSHA P0	
		TWA	5 mg/m3	2007-01-01	ACGIH	
	Further information	:	Eye & Upper Respiratory Tract irritation			
		TWA	5 mg/m3	2005-09-01	NIOSH REL	
		TWA	5 mg/m3	1997-08-04	OSHA Z-1	
		TWA	5 mg/m3	1989-01-19	OSHA P0	
		PEL	5 mg/m3	2014-11-26	CAL PEL	
Methyl ethyl ketone peroxide; Reaction mass of butane-2,2-diyl dihydroperoxide and di-sec-butylhexaoxidane	1338-23-4	C	0.2 ppm	2013-03-01	ACGIH	
	Further information	:	eye irr: Eye irritation liver dam: Liver damage kidney dam: Kidney damage skin irr: Skin irritation			
		C	0.2 ppm 1.5 mg/m3	2013-10-08	NIOSH REL	
		C	0.7 ppm 5 mg/m3	1989-01-19	OSHA P0	
		C	0.2 ppm 1.5 mg/m3	2014-11-26	CAL PEL	
Methyl ethyl ketone	78-93-3	TWA	200 ppm	2013-03-01	ACGIH	
	Further information	:	CNS impair: Central Nervous System impairment URT irr: Upper Respiratory Tract irritation PNS impair: Peripheral Nervous System impairment BEI: Substances for which there is a Biological Exposure Index or Indices (see BEI® section)			
		STEL	300 ppm	2013-03-01	ACGIH	
	Further information	:	CNS impair: Central Nervous System impairment URT irr: Upper Respiratory Tract irritation PNS impair: Peripheral Nervous System impairment BEI: Substances for which there is a Biological Exposure Index or Indices (see BEI® section)			

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		TWA	200 ppm 590 mg/m ³	2013-10-08	NIOSH REL	
		ST	300 ppm 885 mg/m ³	2013-10-08	NIOSH REL	
		TWA	200 ppm 590 mg/m ³	1997-08-04	OSHA Z-1	
	Further information	:	(b): The value in mg/m ³ is approximate.			
		TWA	200 ppm 590 mg/m ³	1989-01-19	OSHA P0	
		STEL	300 ppm 885 mg/m ³	1989-01-19	OSHA P0	
		PEL	200 ppm 590 mg/m ³	2014-11-26	CAL PEL	
		STEL	300 ppm 885 mg/m ³	2014-11-26	CAL PEL	

ACGIH: American Conference of Governmental Industrial Hygienists
 AGW: Arbeitsplatzgrenzwert
 BEI: Biological Exposure Index
 MAC: Maximum Allowable Concentration
 NIOSH: National Institute for Occupational Safety and Health
 OEL: OEL: Occupational exposure limit.
 STEL: Short term exposure limit
 TRGS: Technische Regel für Gefahrstoffe
 TWA: Time Weighted Average

Occupational exposure limits of decomposition products

Decomposition products	CAS-No.	Value	Control parameters	Update	Basis	Form of exposure
Formic acid	64-18-6, 64-18-6	TWA	5 ppm 9 mg/m ³	2006-02-09	2006/15/EC	
	Further information	:	Indicative			
		TWA	5 ppm 9.6 mg/m ³	2005-04-06	GB EH40	
	Further information	:	2: Where no specific short-term exposure limit is listed, a figure three times the long-term exposure should be used			
Acetic acid	64-19-7, 64-19-7	TWA	10 ppm 25 mg/m ³	1991-07-05	91/322/EEC	
	Further information	:	Indicative			
Propionic acid	79-09-4, 79-09-4	TWA	10 ppm 31 mg/m ³	2000-06-16	2000/39/EC	
	Further information	:	Indicative			

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	information		STEL	20 ppm 62 mg/m ³	2000-06-16	2000/39/EC	
	Further information	:	Indicative				
			TWA	10 ppm 31 mg/m ³	2005-04-06	GB EH40	
			STEL	15 ppm 46 mg/m ³	2005-04-06	GB EH40	
Methyl ethyl ketone	78-93-3, 78-93-3		TWA	200 ppm 600 mg/m ³	2000-06-16	2000/39/EC	
	Further information	:	Indicative				
			STEL	300 ppm 900 mg/m ³	2000-06-16	2000/39/EC	
	Further information	:	Indicative				
			TWA	200 ppm 600 mg/m ³	2005-04-06	GB EH40	
	Further information	:	Sk: Can be absorbed through skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.				
			STEL	300 ppm 899 mg/m ³	2005-04-06	GB EH40	
	Further information	:	Sk: Can be absorbed through skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.				
Formic acid	64-18-6, 64-18-6		TWA	5 ppm	2013-03-01	ACGIH	
	Further information	:	URT irr: Upper Respiratory Tract irritation eye irr: Eye irritation skin irr: Skin irritation				
			STEL	10 ppm	2013-03-01	ACGIH	
	Further information	:	URT irr: Upper Respiratory Tract irritation eye irr: Eye irritation skin irr: Skin irritation				
			TWA	5 ppm 9 mg/m ³	2013-10-08	NIOSH REL	
			TWA	5 ppm 9 mg/m ³	2011-07-01	OSHA Z-1	
	Further information	:	(b): The value in mg/m ³ is approximate.				
			TWA	5 ppm 9 mg/m ³	1989-01-19	OSHA P0	
			PEL	5 ppm 9 mg/m ³	2014-11-26	CAL PEL	
			STEL	10 ppm 19 mg/m ³	2014-11-26	CAL PEL	

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Acetic acid	64-19-7, 64-19-7	TWA	10 ppm	2013-03-01	ACGIH	
	Further information	:	pulm func: Pulmonary function URT irr: Upper Respiratory Tract irritation eye irr: Eye irritation			
		STEL	15 ppm	2013-03-01	ACGIH	
	Further information	:	pulm func: Pulmonary function URT irr: Upper Respiratory Tract irritation eye irr: Eye irritation			
		TWA	10 ppm 25 mg/m3	2013-10-08	NIOSH REL	
	Further information	:	Can be found in concentrations of 5-8% in vinegar			
		ST	15 ppm 37 mg/m3	2013-10-08	NIOSH REL	
	Further information	:	Can be found in concentrations of 5-8% in vinegar			
		TWA	10 ppm 25 mg/m3	1997-08-04	OSHA Z-1	
	Further information	:	(b): The value in mg/m3 is approximate.			
		TWA	10 ppm 25 mg/m3	1989-01-19	OSHA P0	
		PEL	10 ppm 25 mg/m3	2014-11-26	CAL PEL	
		STEL	15 ppm 37 mg/m3	2014-11-26	CAL PEL	
		C	40 ppm	2014-11-26	CAL PEL	
Propionic acid	79-09-4, 79-09-4	TWA	10 ppm	2013-03-01	ACGIH	
	Further information	:	URT irr: Upper Respiratory Tract irritation eye irr: Eye irritation skin irr: Skin irritation			
		TWA	10 ppm 30 mg/m3	2013-10-08	NIOSH REL	
		ST	15 ppm 45 mg/m3	2013-10-08	NIOSH REL	
		TWA	10 ppm	1989-01-19	OSHA P0	

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			30 mg/m ³			
		PEL	10 ppm 30 mg/m ³	2014-11-26	CAL PEL	
Methyl ethyl ketone	78-93-3, 78-93-3	TWA	200 ppm	2013-03-01	ACGIH	
	Further information	:	CNS impair: Central Nervous System impairment URT irr: Upper Respiratory Tract irritation PNS impair: Peripheral Nervous System impairment BEI: Substances for which there is a Biological Exposure Index or Indices (see BEI® section)			
		STEL	300 ppm	2013-03-01	ACGIH	
	Further information	:	CNS impair: Central Nervous System impairment URT irr: Upper Respiratory Tract irritation PNS impair: Peripheral Nervous System impairment BEI: Substances for which there is a Biological Exposure Index or Indices (see BEI® section)			
		TWA	200 ppm 590 mg/m ³	2013-10-08	NIOSH REL	
		ST	300 ppm 885 mg/m ³	2013-10-08	NIOSH REL	
		TWA	200 ppm 590 mg/m ³	1997-08-04	OSHA Z-1	
	Further information	:	(b): The value in mg/m ³ is approximate.			
		TWA	200 ppm 590 mg/m ³	1989-01-19	OSHA P0	
		STEL	300 ppm 885 mg/m ³	1989-01-19	OSHA P0	
		PEL	200 ppm 590 mg/m ³	2014-11-26	CAL PEL	
		STEL	300 ppm 885 mg/m ³	2014-11-26	CAL PEL	

Biological occupational exposure limits

Substance name	CAS-No.	Control parameters	Sampling time	Update
Methyl ethyl ketone	78-93-3	butan-2-one: 70 micromol per litre (Urine)	After shift	2011-12-18

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Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006

Substance name	End Use	Exposure routes	Potential health effects	Value
Methyl ethyl ketone peroxide; Reaction mass of butane-2,2-diyldihydroperoxide and di-sec-butylhexaoxidane	Consumers	Skin contact	Long-term systemic effects	0.54 mg/kg
	Consumers	Inhalation	Long-term systemic effects	0.41 mg/m ³
	Consumers	Ingestion	Long-term systemic effects	0.27 mg/kg
	Workers	Skin contact	Long-term systemic effects	1.08 mg/kg
	Workers	Inhalation	Long-term systemic effects	1.9 mg/m ³
Methyl ethyl ketone	Workers	Inhalation	Long-term systemic effects	600 mg/m ³
	Workers	Skin contact	Long-term systemic effects	1161 mg/kg
	Consumers	Inhalation	Long-term systemic effects	106 mg/m ³
	Consumers	Skin contact	Long-term systemic effects	412 mg/kg
	Consumers	Ingestion	Long-term systemic effects	31 mg/kg

Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006

Substance name	Environmental Compartment	Value
Methyl ethyl ketone peroxide; Reaction mass of butane-2,2-diyldihydroperoxide and di-sec-butylhexaoxidane	Fresh water	0.0056 mg/l
	Intermittent water	0.056 mg/l
	Marine water	0.00056 mg/l
	Fresh water sediment	0.019 mg/kg dry weight
	Marine sediment	0.0019 mg/kg dry weight
	Sewage treatment plant	1.2 mg/l
	Soil	0.00231 mg/kg dry weight
Methyl ethyl ketone	Fresh water	55.8 mg/l
	Marine water	55.8 mg/l
	Intermittent water	55.8 mg/l
	Sewage treatment plant	709 mg/l
	Fresh water sediment	284.74 mg/kg dry weight
	Marine sediment	284.74 mg/kg dry weight
	Soil	22.5 mg/kg dry weight
Oral	1000 mg/kg food	

8.2 Exposure controls

Engineering controls

Explosion proof ventilation recommended.

Effective exhaust ventilation system

Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protective equipment

Respiratory protection : In the case of vapour or aerosol formation use a respirator with an approved filter.
Filter A

Hand protection : butyl-rubber
Neoprene

Eye protection : Tightly fitting safety goggles
Wear face-shield and protective suit for abnormal processing problems.

Skin and body protection : Protective suit

Hygiene measures : Handle in accordance with good industrial hygiene and safety practice.
When using do not eat or drink.
When using do not smoke.
Wash hands before breaks and at the end of workday.

Environmental exposure controls

General advice : Prevent product from entering drains.
If the product contaminates rivers and lakes or drains inform respective authorities.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance

Form : liquid

Colour : clear
colourless

Odour : Faint.

Odour Threshold : No data available

Safety data

pH : Weakly acidic

Melting point : No data available

Boiling point/boiling range : Decomposes below the boiling point.

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Flash point	: Above the SADT value No flash point was obtained, but the product may release flammable vapour.
Evaporation rate	: No data available
Flammability (solid, gas)	: Not applicable
Flammability (liquids)	: Decomposition products may be flammable.
Lower explosion limit	: No data available
Upper explosion limit	: No data available
Vapour pressure	: 1 hPa at 84 °C
Relative vapour density	: No data available
Relative density	: 1.180 at 20 °C
Bulk density	: Not applicable
Water solubility	: at 20 °C partly miscible
Solubility in other solvents	: 20 °C Miscible with:, Phthalates
Partition coefficient: n-octanol/water	: No data available
Auto-ignition temperature	: Test method not applicable
Decomposition temperature	: SADT - (Self accelerating decomposition temperature) is the lowest temperature at which self accelerating decomposition may occur with a substance in the packaging as used in transport. A dangerous self-accelerating decomposition reaction and, under certain circumstances, explosion or fire can be caused by thermal decomposition at and above the SADT. Contact with incompatible substances can cause decomposition below the SADT.
Self-Accelerating decomposition temperature (SADT)	: 60 °C
Viscosity, dynamic	: 24 mPa.s at 20 °C
Viscosity, kinematic	: 20.34 mm ² /s at 20 °C
Explosive properties	: Not explosive
Oxidizing properties	: Not classified as oxidising.

9.2 Other information

Active Oxygen Content : 8.8 - 9.0 %

Organic peroxides : 30 - 37 %

This safety datasheet only contains information relating to safety and does not replace any product information or product specification.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

Stable under normal conditions.

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No dangerous reaction known under conditions of normal use.

10.4 Conditions to avoid

Conditions to avoid : Confinement must be avoided.
Heat, flames and sparks.

10.5 Incompatible materials

Materials to avoid : Contact with the following incompatible materials will result in hazardous decomposition:
Acids and bases
Iron
Copper
Reducing agents
Heavy metals
Rust
Do not mix with peroxide accelerators, unless under controlled processing.
Use only stainless steel 316, PP, polyethylene or glass-lined equipment.
For queries regarding the suitability of other materials please contact the supplier.

10.6 Hazardous decomposition products

Hazardous decomposition products : Carbon oxides
Formic acid
Acetic acid
Propionic acid
Methyl ethyl ketone

Thermal decomposition	: SADT - (Self accelerating decomposition temperature) is the lowest temperature at which self accelerating decomposition may occur with a substance in the packaging as used in transport. A dangerous self-accelerating decomposition reaction and, under certain circumstances, explosion or fire can be caused by thermal decomposition at and above the SADT. Contact with incompatible substances can cause decomposition below the SADT.
Self-Accelerating decomposition temperature (SADT)	: 60 °C

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Product information:

Acute toxicity	: Harmful if swallowed or if inhaled
Skin corrosion/irritation	: Causes severe burns.
Serious eye damage/eye irritation	: Causes serious eye damage.
Respiratory or skin sensitisation	: Respiratory sensitisation: Not classified based on available information. Skin sensitisation: Not classified based on available information.
Germ cell mutagenicity	: Not classified based on available information.
Carcinogenicity	: Not classified based on available information.
Reproductive toxicity	: Not classified based on available information.
STOT - single exposure	: Not classified based on available information.
STOT - repeated exposure	: Not classified based on available information.
Aspiration hazard	: Not classified based on available information.
Further information	: No further data available.

Test result

Acute oral toxicity	: LD50 Oral: 1,070 mg/kg Species: rats Method: OECD Test Guideline 401
Acute inhalation toxicity	: LC50 (Rat): 1.5 mg/l Exposure time: 4 h Test atmosphere: dust/mist
Acute dermal toxicity	: LD50: 4,000 mg/kg Species: Rabbit Method: OECD Test Guideline 402

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Skin corrosion/irritation : Species: Rabbit
Result: Sub-category 1B
Classification: Category 1B
Method: Tested according to Annex V of Directive 67/548/EEC.

Serious eye damage/eye irritation : Species: Rabbit
Result: Risk of serious damage to eyes.
Classification: Risk of serious damage to eyes.
Method: Tested according to Annex V of Directive 67/548/EEC.

Toxicology data for the components:

Methyl ethyl ketone peroxide; Reaction mass of butane-2,2-diyl dihydroperoxide and di-sec-butylhexaoxidane

Acute toxicity:

Acute oral toxicity : LD50: 1,017 mg/kg
Species: Rat

Acute inhalation toxicity : LC50 (Rat): 1.5 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist

Acute dermal toxicity : LD50: 4,000 mg/kg
Species: Rat

Skin corrosion/irritation : Result: Causes burns.

Serious eye damage/eye irritation : Result: Risk of serious damage to eyes.

Germ cell mutagenicity

Genotoxicity in vitro : Ames test
Result: negative

Genotoxicity in vivo : Not classified due to data which are conclusive although insufficient for classification.

Carcinogenicity :
No data available

Reproductive toxicity/Fertility : Species: Rat, male and female
Application Route: Oral
Dose: 0, 25, 50, 75 milligram per kilogram
General Toxicity - Parent: No observed adverse effect level: 50 mg/kg bw/day
General Toxicity F1: No observed adverse effect level F1: 50 mg/kg bw/day
Fertility: No observed adverse effect level Parent: 75 mg/kg bw/day
Method: OECD Test Guideline 421

GLP: yes

STOT - repeated exposure : The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Aspiration hazard : No aspiration toxicity classification

Methyl ethyl ketone

Acute toxicity:

Acute oral toxicity : LD50: 2,737 mg/kg
Species: Rat

Acute dermal toxicity : LD50: 6,480 mg/kg
Species: Rabbit

Skin corrosion/irritation : Result: Repeated exposure may cause skin dryness or cracking.
Moderately irritating.

Serious eye damage/eye irritation : Result: Irritating to eyes.

STOT - single exposure : Exposure routes: Inhalation
The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with narcotic effects.

Aspiration hazard : No aspiration toxicity classification

SECTION 12: ECOLOGICAL INFORMATION

Product information:

Ecotoxicology Assessment

Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Toxic to aquatic life.

12.1 Toxicity

Test result

Toxicity to fish : LC50: 44.2 mg/l
Exposure time: 96 h
Species: *Poecilia reticulata* (guppy)
Test Type: semi-static test

Toxicity to daphnia and other aquatic invertebrates : 39 mg/l
Exposure time: 48 h
Species: *Daphnia magna* (Water flea)
Test Type: Immobilization

Toxicity to algae : ErC50: 5.6 mg/l
Exposure time: 72 h
Species: *Pseudokirchneriella subcapitata* (algae)
Test Type: Growth inhibition

Toxicity to bacteria : EC10: 12 mg/l
Exposure time: 0.5 h
Species: activated sludge
Test Type: Respiration inhibition
Method: Domestic OECD Guideline 209

Components:

Test result

Methyl ethyl ketone peroxide;Reaction mass of butane-2,2-diyl dihydroperoxide and di-sec-butylhexaoxidane

Toxicity to fish : LC50: 44.2 mg/l
Exposure time: 96 h
Species: Poecilia reticulata (guppy)
Test Type: semi-static test

Toxicity to daphnia and other aquatic invertebrates : 39 mg/l
Exposure time: 48 h
Species: Daphnia magna (Water flea)
Test Type: Immobilization

Toxicity to algae : ErC50: 5.6 mg/l
Exposure time: 72 h
Species: Pseudokirchneriella subcapitata (algae)
Test Type: Growth inhibition

Toxicity to bacteria : EC10: 12 mg/l
Exposure time: 0.5 h
Species: activated sludge
Test Type: Respiration inhibition
Method: Domestic OECD Guideline 209

Methyl ethyl ketone

Toxicity to fish : LC50: 3,220 mg/l
Exposure time: 96 h
Species: Lepomis macrochirus (Bluegill sunfish)

12.2 Persistence and degradability

Product information : No information available.

Components:

Methyl ethyl ketone peroxide;Reaction mass of butane-2,2-diyl dihydroperoxide and di-sec-butylhexaoxidane

Biodegradability : Result: Readily biodegradable
Method: Closed Bottle test

Methyl ethyl ketone

Biodegradability : Result: Readily biodegradable

12.3 Bioaccumulative potential

Product information : No information available.

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Components:

Methyl ethyl ketone peroxide; Reaction mass of butane-2,2-diyl dihydroperoxide and di-sec-butylhexaoxidane

Bioaccumulation : Bioconcentration factor (BCF): 10.3
Not expected considering the low log Pow value.

12.4 Mobility in soil

Product information : No information available.

Components : No information available.

12.5 Results of PBT and vPvB assessment

Product information:

PBT and vPvB assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Components : No information available.

12.6 Other adverse effects

Product information : No information available.

Components : No information available.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product : The product should not be allowed to enter drains, water courses or the soil.
Do not contaminate ponds, waterways or ditches with chemical or used container.
Hazardous waste
Dispose of contents/container in accordance with local regulation.

Contaminated packaging : Empty remaining contents.
Dispose of as unused product.
Do not burn, or use a cutting torch on, the empty drum.
Due to the high risk of contamination recycling/recovery is not recommended.
Follow all warnings even after the container is emptied.

SECTION 14: TRANSPORT INFORMATION

14.1 UN number

ADR : UN 3105
RID : UN 3105
IMDG-Code : UN 3105
IATA-DGR : UN 3105

14.2 Proper shipping name

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ADR	:	ORGANIC PEROXIDE TYPE D, LIQUID (Methyl ethyl ketone peroxide)
RID	:	ORGANIC PEROXIDE TYPE D, LIQUID (Methyl ethyl ketone peroxide)
IMDG-Code	:	ORGANIC PEROXIDE TYPE D, LIQUID (Methyl ethyl ketone peroxide)
IATA-DGR	:	Organic peroxide type D, liquid (Methyl ethyl ketone peroxide)

14.3 Transport hazard class

ADR	:	5.2
RID	:	5.2
IMDG-Code	:	5.2
IATA-DGR	:	5.2 (HEAT)

14.4 Packing group

ADR		
Packing group	:	Not Assigned
Classification Code	:	P1
Labels	:	5.2
Tunnel restriction code	:	(D)

RID		
Packing group	:	Not Assigned
Classification Code	:	P1
Hazard Identification Number	:	539
Labels	:	5.2

IMDG-Code		
Packing group	:	Not Assigned
Labels	:	5.2
EmS Code	:	F-J, S-R

IATA-DGR		
Packing instruction (cargo aircraft)	:	570
Packing instruction (passenger aircraft)	:	570
Packing group	:	Not Assigned
Labels	:	5.2 (HEAT)

14.5 Environmental hazards

ADR		
Environmentally hazardous	:	no

RID		
Environmentally hazardous	:	no

IMDG-Code		
Marine pollutant	:	no

IATA-DGR		
Environmentally hazardous	:	no

14.6 Special precautions for user

Not applicable

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Major Accident Hazard Legislation : Seveso Directive
2012/18/EU
SELF-REACTIVE SUBSTANCES AND MIXTURES and
ORGANIC PEROXIDES
P6b
Quantity 1: 50 t
Quantity 2: 200 t

Water contaminating class (Germany) : WGK 1 slightly water endangering

Notification status

TSCA : YES. All chemical substances in this product are either listed on the TSCA Inventory or in compliance with a TSCA Inventory exemption.
DSL : YES. All components of this product are on the Canadian DSL
AICS : YES. On the inventory, or in compliance with the inventory
NZIoC : YES. On the inventory, or in compliance with the inventory
ENCS : YES. On the inventory, or in compliance with the inventory
ISHL : YES. On the inventory, or in compliance with the inventory
KECI : YES. On the inventory, or in compliance with the inventory
PICCS : YES. On the inventory, or in compliance with the inventory
IECSC : YES. On the inventory, or in compliance with the inventory

For explanation of abbreviation see section 16.

Further information

Take note of Directive 94/33/EC on the protection of young people at work or stricter national regulations, where applicable.

This product is to be considered as a substance according to EU-legislation.

15.2 Chemical safety assessment

Methyl ethyl ketone peroxide; Reaction mass of butane-2,2-diyldihydroperoxide and di-sec-butylhexaoxidane : A Chemical Safety Assessment has been carried out for this substance.

SECTION 16: OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

H225 : Highly flammable liquid and vapour.
H240 : Heating may cause an explosion.
H242 : Heating may cause a fire.
H302 : Harmful if swallowed.
H314 : Causes severe skin burns and eye damage.
H318 : Causes serious eye damage.

H319 : Causes serious eye irritation.
H332 : Harmful if inhaled.
H336 : May cause drowsiness or dizziness.

Classification procedure:

Organic peroxides, D, H242, On basis of test data.
Acute toxicity, 4, H302, On basis of test data.
Acute toxicity, 4, H332, On basis of test data.
Skin corrosion, 1B, H314, Calculation method
Serious eye damage, 1, H318, On basis of test data.

Full text of other abbreviations

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

Further information

This data sheet contains changes from the previous version in section(s):
Hazards identification
Composition/information on ingredients
Toxicological information
Ecological information

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