# 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 | Heating may cause a fire. |
| | H302 + H332 | Harmful if swallowed or if inhaled |
| | H314 | 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-2,2-diyl dihydroperoxide and di-sec-butylhexaoxidane 1338-23-4

**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<br>vPvB<br>OEL | CAS-No.<br>EC-No.<br>REACH No. | Classification<br>(REGULATION (EC) No 1272/2008) | Concentration<br>[%] |
|---|---|---|---|---|
| Methyl ethyl ketone peroxide;Reaction mass of butane-2,2-diyl dihydroperoxide and di-sec-butylhexaoxidane | | 1338-23-4<br>215-661-2<br>01-2119514691-43 | Org. Perox. A; H240<br>Acute Tox. 4; H302<br>Acute Tox. 4; H332<br>Skin Corr. 1B; H314<br>Eye Dam. 1; H318 | 30 - 37 |
| Methyl ethyl ketone | | 78-93-3<br>201-159-0 | Flam. Liq. 2; H225<br>Eye Irrit. 2; H319<br>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.<br>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.<br>Soak up with inert absorbent material and dispose of as hazardous waste.<br>Confinement must be avoided.<br>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.<br>Avoid formation of aerosol.<br>Do not breathe vapours or spray mist.<br>Smoking, eating and drinking should be prohibited in the application area.<br>Provide sufficient air exchange and/or exhaust in work rooms.<br>Open drum carefully as content may be under pressure.<br>Dispose of rinse water in accordance with local and national regulations. |
| Advice on protection against fire and explosion | : | Use explosion protected equipment.<br>Keep away from sources of ignition - No smoking.<br>No sparking tools should be used.<br>Keep away from reducing agents (e.g. amines), acids, alkalies and heavy metal compounds (e.g. accelerators, driers, metal soaps).<br>Do not cut or weld on or near this container even when empty.<br>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.<br>Electrical installations / working materials must comply with the technological safety standards.<br>Keep only in original container.<br>Store away from other materials. |

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/m3 | 2005-04-06 | GB EH40 | |
| | | STEL | 10 mg/m3 | 2005-04-06 | GB EH40 | |
| | | TWA | 5 mg/m3 | 2005-04-06 | GB EH40 | |
| | | STEL | 10 mg/m3 | 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<br>1.5 mg/m3 | 2005-04-06 | GB EH40 | |
| Methyl ethyl ketone | 78-93-3 | TWA | 200 ppm<br>600 mg/m3 | 2000-06-16 | 2000/39/EC | |
| | Further information | : | Indicative | | | |
| | | STEL | 300 ppm<br>900 mg/m3 | 2000-06-16 | 2000/39/EC | |
| | Further information | : | Indicative | | | |
| | | TWA | 200 ppm<br>600 mg/m3 | 2005-04-06 | GB EH40 | |
| | Further information | : | Sk: Can be absorbed through skin. The assigned substances are those for w hich there are concerns that dermal absorption w ill lead to systemic toxicity. | | | |
| | | STEL | 300 ppm<br>899 mg/m3 | 2005-04-06 | GB EH40 | |
| | Further information | : | Sk: Can be absorbed through skin. The assigned substances are those for w hich there are concerns that dermal absorption w ill lead to systemic toxicity. | | | |
| Dimethyl phthalate | 131-11-3 | TWA | 5 mg/m3 | 2013-03-01 | ACGIH | |
| | Further information | : | URT irr: Upper Respiratory Tract irritation<br>eye irr: Eye irritation | | | |
| | | TWA | 5 mg/m3 | 2013-10-08 | NIOSH REL | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | 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<br>liver dam: Liver damage<br>kidney dam: Kidney damage<br>skin irr: Skin irritation | | | |
| | | C | 0.2 ppm<br>1.5 mg/m3 | 2013-10-08 | NIOSH REL | |
| | | C | 0.7 ppm<br>5 mg/m3 | 1989-01-19 | OSHA P0 | |
| | | C | 0.2 ppm<br>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<br>URT irr: Upper Respiratory Tract irritation<br>PNS impair: Peripheral Nervous System impairment<br>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<br>URT irr: Upper Respiratory Tract irritation<br>PNS impair: Peripheral Nervous System impairment<br>BEI: Substances for which there is a Biological Exposure Index or Indices (see BEI® section) | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | TWA | 200 ppm<br>590 mg/m3 | 2013-10-08 | NIOSH REL | |
| | | ST | 300 ppm<br>885 mg/m3 | 2013-10-08 | NIOSH REL | |
| | | TWA | 200 ppm<br>590 mg/m3 | 1997-08-04 | OSHA Z-1 | |
| | Further information | : | (b): The value in mg/m3 is approximate. | | | |
| | | TWA | 200 ppm<br>590 mg/m3 | 1989-01-19 | OSHA P0 | |
| | | STEL | 300 ppm<br>885 mg/m3 | 1989-01-19 | OSHA P0 | |
| | | PEL | 200 ppm<br>590 mg/m3 | 2014-11-26 | CAL PEL | |
| | | STEL | 300 ppm<br>885 mg/m3 | 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<br>9 mg/m3 | 2006-02-09 | 2006/15/EC | |
| | Further information | : | Indicative | | | |
| | | TWA | 5 ppm<br>9.6 mg/m3 | 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<br>25 mg/m3 | 1991-07-05 | 91/322/EEC | |
| | Further information | : | Indicative | | | |
| Propionic acid | 79-09-4, 79-09-4 | TWA | 10 ppm<br>31 mg/m3 | 2000-06-16 | 2000/39/EC | |
| | Further | : | Indicative | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | information | | | | | |
| | | STEL | 20 ppm<br>62 mg/m3 | 2000-06-16 | 2000/39/EC | |
| | Further information | : | Indicative | | | |
| | | TWA | 10 ppm<br>31 mg/m3 | 2005-04-06 | GB EH40 | |
| | | STEL | 15 ppm<br>46 mg/m3 | 2005-04-06 | GB EH40 | |
| Methyl ethyl ketone | 78-93-3, 78-93-3 | TWA | 200 ppm<br>600 mg/m3 | 2000-06-16 | 2000/39/EC | |
| | Further information | : | Indicative | | | |
| | | STEL | 300 ppm<br>900 mg/m3 | 2000-06-16 | 2000/39/EC | |
| | Further information | : | Indicative | | | |
| | | TWA | 200 ppm<br>600 mg/m3 | 2005-04-06 | GB EH40 | |
| | Further information | : | Sk: Can be absorbed through skin. The assigned substances are those for w hich there are concerns that dermal absorption w ill lead to systemic toxicity. | | | |
| | | STEL | 300 ppm<br>899 mg/m3 | 2005-04-06 | GB EH40 | |
| | Further information | : | Sk: Can be absorbed through skin. The assigned substances are those for w hich there are concerns that dermal absorption w ill 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<br>eye irr: Eye irritation<br>skin irr: Skin irritation | | | |
| | | STEL | 10 ppm | 2013-03-01 | ACGIH | |
| | Further information | : | URT irr: Upper Respiratory Tract irritation<br>eye irr: Eye irritation<br>skin irr: Skin irritation | | | |
| | | TWA | 5 ppm<br>9 mg/m3 | 2013-10-08 | NIOSH REL | |
| | | TWA | 5 ppm<br>9 mg/m3 | 2011-07-01 | OSHA Z-1 | |
| | Further information | : | (b): The value in mg/m3 is approximate. | | | |
| | | TWA | 5 ppm<br>9 mg/m3 | 1989-01-19 | OSHA P0 | |
| | | PEL | 5 ppm<br>9 mg/m3 | 2014-11-26 | CAL PEL | |
| | | STEL | 10 ppm<br>19 mg/m3 | 2014-11-26 | CAL PEL | |

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

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | 30 mg/m3 | | | |
| | | PEL | 10 ppm<br>30 mg/m3 | 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<br>URT irr: Upper Respiratory Tract irritation<br>PNS impair: Peripheral Nervous System impairment<br>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<br>URT irr: Upper Respiratory Tract irritation<br>PNS impair: Peripheral Nervous System impairment<br>BEI: Substances for which there is a Biological Exposure Index or Indices (see BEI® section) | | | |
| | | TWA | 200 ppm<br>590 mg/m3 | 2013-10-08 | NIOSH REL | |
| | | ST | 300 ppm<br>885 mg/m3 | 2013-10-08 | NIOSH REL | |
| | | TWA | 200 ppm<br>590 mg/m3 | 1997-08-04 | OSHA Z-1 | |
| | Further information | : | (b): The value in mg/m3 is approximate. | | | |
| | | TWA | 200 ppm<br>590 mg/m3 | 1989-01-19 | OSHA P0 | |
| | | STEL | 300 ppm<br>885 mg/m3 | 1989-01-19 | OSHA P0 | |
| | | PEL | 200 ppm<br>590 mg/m3 | 2014-11-26 | CAL PEL | |
| | | STEL | 300 ppm<br>885 mg/m3 | 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 |

**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-diyl dihydroperoxide and di-sec-butylhexaoxidane | Consumers | Skin contact | Long-term systemic effects | 0.54 mg/kg |
| | Consumers | Inhalation | Long-term systemic effects | 0.41 mg/m3 |
| | 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/m3 |
| Methyl ethyl ketone | Workers | Inhalation | Long-term systemic effects | 600 mg/m3 |
| | Workers | Skin contact | Long-term systemic effects | 1161 mg/kg |
| | Consumers | Inhalation | Long-term systemic effects | 106 mg/m3 |
| | 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-diyl dihydroperoxide 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.<br>Filter A |
| Hand protection | : | butyl-rubber<br><br>Neoprene |
| Eye protection | : | Tightly fitting safety goggles<br>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.<br>When using do not eat or drink.<br>When using do not smoke.<br>Wash hands before breaks and at the end of workday. |

**Environmental exposure controls**

| | | |
|---|---|---|
| General advice | : | Prevent product from entering drains.<br>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<br>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. |

| | | |
|---|---|---|
| Flash point | : | Above the SADT value<br>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<br>partly miscible |
| Solubility in other solvents | : | 20 °C<br>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 mm2/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.<br>Heat, flames and sparks. |

### 10.5 Incompatible materials

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

### 10.6 Hazardous decomposition products

| | | |
|---|---|---|
| Hazardous decomposition products | : | Carbon oxides<br>Formic acid<br>Acetic acid<br>Propionic acid<br>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.<br>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<br>Species: rats<br>Method: OECD Test Guideline 401 |
| Acute inhalation toxicity | : | LC50 (Rat): 1.5 mg/l<br>Exposure time: 4 h<br>Test atmosphere: dust/mist |
| Acute dermal toxicity | : | LD50: 4,000 mg/kg<br>Species: Rabbit<br>Method: OECD Test Guideline 402 |

| | | |
|---|---|---|
| Skin corrosion/irritation | : | Species: Rabbit<br>Result: Sub-category 1B<br>Classification: Category 1B<br>Method: Tested according to Annex V of Directive 67/548/EEC. |
| Serious eye damage/eye irritation | : | Species: Rabbit<br>Result: Risk of serious damage to eyes.<br>Classification: Risk of serious damage to eyes.<br>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<br>Species: Rat |
| Acute inhalation toxicity | : | LC50 (Rat): 1.5 mg/l<br>Exposure time: 4 h<br>Test atmosphere: dust/mist |
| Acute dermal toxicity | : | LD50: 4,000 mg/kg<br>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<br>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<br>Application Route: Oral<br>Dose: 0, 25, 50, 75 milligram per kilogram<br>General Toxicity - Parent: No observed adverse effect level: 50 mg/kg bw/day<br>General Toxicity F1: No observed adverse effect level F1: 50 mg/kg bw/day<br>Fertility: No observed adverse effect level Parent: 75 mg/kg bw/day<br>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<br>Species: Rat |
| Acute dermal toxicity | : | LD50: 6,480 mg/kg<br>Species: Rabbit |
| Skin corrosion/irritation | : | Result: Repeated exposure may cause skin dryness or cracking.<br>Moderately irritating. |
| Serious eye damage/eye irritation | : | Result: Irritating to eyes. |
| STOT - single exposure | : | Exposure routes: Inhalation<br>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.<br>Toxic to aquatic life. |

### 12.1 Toxicity

**Test result**

| | | |
|---|---|---|
| Toxicity to fish | : | LC50: 44.2 mg/l<br>Exposure time: 96 h<br>Species: Poecilia reticulata (guppy)<br>Test Type: semi-static test |
| Toxicity to daphnia and other aquatic invertebrates | : | 39 mg/l<br>Exposure time: 48 h<br>Species: Daphnia magna (Water flea)<br>Test Type: Immobilization |
| Toxicity to algae | : | ErC50: 5.6 mg/l<br>Exposure time: 72 h<br>Species: Pseudokirchneriella subcapitata (algae)<br>Test Type: Growth inhibition |

| | | |
|---|---|---|
| Toxicity to bacteria | : | EC10: 12 mg/l<br>Exposure time: 0.5 h<br>Species: activated sludge<br>Test Type: Respiration inhibition<br>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<br>Exposure time: 96 h<br>Species: Poecilia reticulata (guppy)<br>Test Type: semi-static test |
| Toxicity to daphnia and other aquatic invertebrates | : | 39 mg/l<br>Exposure time: 48 h<br>Species: Daphnia magna (Water flea)<br>Test Type: Immobilization |
| Toxicity to algae | : | ErC50: 5.6 mg/l<br>Exposure time: 72 h<br>Species: Pseudokirchneriella subcapitata (algae)<br>Test Type: Growth inhibition |
| Toxicity to bacteria | : | EC10: 12 mg/l<br>Exposure time: 0.5 h<br>Species: activated sludge<br>Test Type: Respiration inhibition<br>Method: Domestic OECD Guideline 209 |

**Methyl ethyl ketone**

| | | |
|---|---|---|
| Toxicity to fish | : | LC50: 3,220 mg/l<br>Exposure time: 96 h<br>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<br>Method: Closed Bottle test |

**Methyl ethyl ketone**

| | | |
|---|---|---|
| Biodegradability | : | Result: Readily biodegradable |

### 12.3 Bioaccumulative potential

| | | |
|---|---|---|
| **Product information** | : | No information available. |

**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**

| | | |
|---|---|---|
| **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<br>2012/18/EU<br>SELF-REACTIVE SUBSTANCES AND MIXTURES and ORGANIC PEROXIDES<br>P6b<br>Quantity 1: 50 t<br>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-diyl dihydroperoxide 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

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.