SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

NOROX KP-9

Version: 1.0  Revision Date: 19.05.2015  MSDS Number: 123520-00001  Date of last issue: -
Date of first issue: 19.05.2015

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier
Trade name: NOROX KP-9

1.2 Relevant identified uses of the substance or mixture and uses advised against
Use of the Substance/Mixture: Hardener

1.3 Details of the supplier of the safety data sheet
Company: United Initiators AB
Ulvvägen 7
SE-893 40 Köpmanholmen

Telephone: +46 660 265830
Telefax: +46 660 223506

E-mail address of person responsible for the SDS: info@united-in.com

1.4 Emergency telephone number
+46 8 337043 (24 h)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)
Organic peroxides, Type D  H242: Heating may cause a fire.
Acute toxicity, Category 4  H302: Harmful if swallowed.
Skin corrosion, Category 1  H314: Causes severe skin burns and eye damage.

Classification (67/548/EEC, 1999/45/EC)
Oxidizing  R 7: May cause fire.
Corrosive  R34: Causes burns.
Harmful  R22: Harmful if swallowed.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)
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**NOROX KP-9**

<table>
<thead>
<tr>
<th>Version</th>
<th>Revision Date</th>
<th>MSDS Number</th>
<th>Date of last issue</th>
<th>Date of first issue</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>19.05.2015</td>
<td>123520-00001</td>
<td></td>
<td>19.05.2015</td>
</tr>
</tbody>
</table>

**Hazard pictograms:**

- Dangerous goods symbol
- Fire symbol
- Exclamation mark

**Signal word:** Danger

**Hazard statements:**

- H242 Heating may cause a fire.
- H302 Harmful if swallowed.
- H314 Causes severe skin burns and eye damage.

**Precautionary statements:**

**Prevention:**

- P220 Keep/Store away from clothing/strong acids, bases, heavy metal salts and other reducing substances/combustible materials.
- P233 Keep container tightly closed.
- P235 Keep cool.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.
- P262 Do not get in eyes, on skin, or on clothing.

**Response:**

- P315 Get immediate medical advice/attention.
- P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
- P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

**Disposal:**

- P501 Dispose of contents/container to an approved waste disposal plant.

Hazardous components which must be listed on the label:

- 2-Butanone, peroxide

**SECTION 3: Composition/information on ingredients**

**3.2 Mixtures**

**Hazardous components**

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS-No. EC-No. Registration number</th>
<th>Classification (67/548/EEC)</th>
<th>Classification (REGULATION (EC) No 1272/2008)</th>
<th>Concentration (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Butanone, peroxide</td>
<td>1338-23-4 215-661-2 01-</td>
<td>O; R 7 C; R34 Xn; R22</td>
<td>Org. Perox. D; H242 Acute Tox. 4; H302</td>
<td>&gt;= 30 - &lt; 50</td>
</tr>
</tbody>
</table>
SECTION 4: First aid measures

4.1 Description of first aid measures

General advice: In the case of accident or if you feel unwell, seek medical advice immediately.
When symptoms persist or in all cases of doubt seek medical advice.

Protection of first-aiders: First Aid responders should pay attention to self-protection, and use the recommended personal protective equipment when the potential for exposure exists.

If inhaled: If inhaled, remove to fresh air.
If not breathing, give artificial respiration.
If breathing is difficult, give oxygen.
Get medical attention immediately.

In case of skin contact: In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
Get medical attention immediately.
Wash clothing before reuse.
Thoroughly clean shoes before reuse.

In case of eye contact: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes.
If easy to do, remove contact lens, if worn.
Get medical attention immediately.

If swallowed: If swallowed, DO NOT induce vomiting.
If vomiting occurs have person lean forward.
Call a physician or poison control centre immediately.
Rinse mouth thoroughly with water. Never give anything by mouth to an unconscious person.

4.2 Most important symptoms and effects, both acute and delayed

Risks

- Causes digestive tract burns.
- Harmful if swallowed.
- Causes serious eye damage.
- Causes severe burns.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment

- Treat symptomatically and supportively.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

- Water spray
- Alcohol-resistant foam
- Carbon dioxide (CO2)
- Dry chemical

Unsuitable extinguishing media

- High volume water jet

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting

- Do not use a solid water stream as it may scatter and spread fire.
- Flash back possible over considerable distance.
- Vapours may form explosive mixtures with air.
- The product burns violently.
- Exposure to combustion products may be a hazard to health.

Hazardous combustion products

- Carbon oxides
- Nitrogen oxides (NOx)

5.3 Advice for firefighters

Special protective equipment for firefighters

- In the event of fire, wear self-contained breathing apparatus.
- Use personal protective equipment.

Specific extinguishing methods

- Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
- Use water spray to cool unopened containers.
- Remove undamaged containers from fire area if it is safe to do so.
- Evacuate area.
SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Personal precautions:
Remove all sources of ignition. Use personal protective equipment. Follow safe handling advice and personal protective equipment recommendations.

Environmental precautions:
Discharge into the environment must be avoided. Prevent further leakage or spillage if safe to do so. Prevent spreading over a wide area (e.g. by containment or oil barriers). Retain and dispose of contaminated wash water. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and material for containment and cleaning up
Methods for cleaning up:
Clear spills immediately. Do not clean-up or dispose of, except under supervision of a specialist. Take any precaution to avoid mixing with combustibles. Keep substance wet using water spray. Non-sparking tools should be used. Soak up with inert absorbent material. Suppress (knock down) gases/vapours/mists with a water spray jet. For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped, store recovered material in appropriate container. Clean up remaining materials from spill with suitable absorbent. Keep waste moist, cool and well-ventilated. Isolate waste and do not reuse. Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable. Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

6.4 Reference to other sections
See sections: 7, 8, 11, 12 and 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Technical measures:
See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.
Local/Total ventilation: Use with local exhaust ventilation. Use only in an area equipped with explosion proof exhaust ventilation.

Advice on safe handling: Do not get on skin or clothing. Do not breathe vapours or spray mist. Do not swallow. Do not get in eyes. Handle in accordance with good industrial hygiene and safety practice. Non-sparking tools should be used. Prevent pressure build-up. Confinement can rapidly increase rate of decomposition. Keep container tightly closed. Protect from contamination. Keep away from heat and sources of ignition. Take precautionary measures against static discharges. Keep away from combustible material. Take care to prevent spills, waste and minimize release to the environment.

Hygiene measures: Ensure that eye flushing systems and safety showers are located close to the working place. When using do not eat, drink or smoke. Wash contaminated clothing before re-use.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers: Keep in properly labelled containers. Store in original container. Store locked up. Keep tightly closed. Keep in a dry, cool and well-ventilated place. Protect from sunlight. Adhere to recommended storage temperature. Store in accordance with the particular national regulations. Keep away from heat and sources of ignition.

Advice on common storage: Store away from other materials.

Recommended storage temperature: < 30 °C

Other data: Avoid confinement.

7.3 Specific end use(s)

Specific use(s): No data available

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value type (Form)</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
</table>

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### SAFETY DATA SHEET
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<table>
<thead>
<tr>
<th>Compound</th>
<th>TWA (mg/m³)</th>
<th>STEL (ppm)</th>
<th>GB EH40</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimethyl phthalate</td>
<td>5</td>
<td>10</td>
<td>GB EH40</td>
</tr>
<tr>
<td>2-Butanone, peroxide</td>
<td>1.5</td>
<td>2 ppm</td>
<td>GB EH40</td>
</tr>
<tr>
<td>Hydrogen peroxide</td>
<td>1.4</td>
<td>2 ppm</td>
<td>GB EH40</td>
</tr>
<tr>
<td>2-Methyl-2,4-pentanediol</td>
<td>123</td>
<td>25 ppm</td>
<td>GB EH40</td>
</tr>
</tbody>
</table>

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

**2-Butanone, peroxide:**
- **End Use:** Workers
- Exposure routes: Inhalation
- Potential health effects: Long-term systemic effects
  - Value: 1.9 mg/m³
- **End Use:** Consumers
- Exposure routes: Skin contact
- Potential health effects: Long-term systemic effects
  - Value: 1.08 mg/kg bw/day
- **End Use:** Consumers
- Exposure routes: Inhalation
- Potential health effects: Long-term systemic effects
  - Value: 0.41 mg/m³

**Dimethyl phthalate:**
- **End Use:** Workers
- Exposure routes: Inhalation
- Potential health effects: Long-term systemic effects
  - Value: 293.86 mg/m³
- **End Use:** Consumers
- Exposure routes: Skin contact
- Potential health effects: Long-term systemic effects
  - Value: 100 mg/kg bw/day
- **End Use:** Consumers
- Exposure routes: Inhalation
- Potential health effects: Long-term systemic effects
  - Value: 86.96 mg/m³
<table>
<thead>
<tr>
<th>Substance</th>
<th>End Use</th>
<th>Exposure routes</th>
<th>Potential health effects</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Methyl-2,4-pentanediol</td>
<td>Workers</td>
<td>Inhalation</td>
<td>Long-term systemic effects</td>
<td>14 mg/m3</td>
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<tr>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Workers</td>
<td>Inhalation</td>
<td>Long-term local effects</td>
<td>49 mg/m3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Workers</td>
<td>Skin contact</td>
<td>Acute local effects</td>
<td>98 mg/m3</td>
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<tr>
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<td></td>
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</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Inhalation</td>
<td>Long-term systemic effects</td>
<td>2 mg/kg bw/day</td>
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<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Inhalation</td>
<td>Long-term local effects</td>
<td>25 mg/m3</td>
</tr>
<tr>
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<td></td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Inhalation</td>
<td>Acute local effects</td>
<td>49 mg/m3</td>
</tr>
<tr>
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<td></td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Skin contact</td>
<td>Long-term systemic effects</td>
<td>1 mg/kg bw/day</td>
</tr>
<tr>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Ingestion</td>
<td>Acute local effects</td>
<td>1.93 mg/m3</td>
</tr>
<tr>
<td>Hydrogen peroxide</td>
<td>Workers</td>
<td>Inhalation</td>
<td>Acute local effects</td>
<td>3 mg/m3</td>
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<tr>
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<td></td>
</tr>
<tr>
<td></td>
<td>Workers</td>
<td>Inhalation</td>
<td>Long-term local effects</td>
<td>1.4 mg/m3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Inhalation</td>
<td>Acute local effects</td>
<td>1 mg/kg bw/day</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Inhalation</td>
<td>Long-term local effects</td>
<td>0.21 mg/m3</td>
</tr>
</tbody>
</table>

Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:
<table>
<thead>
<tr>
<th>Substance</th>
<th>Fresh water</th>
<th>Marine water</th>
<th>Intermittent use/release</th>
<th>Sewage treatment plant</th>
<th>Fresh water sediment</th>
<th>Marine sediment</th>
<th>Soil</th>
<th>Oral</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Butanone, peroxide</td>
<td>Value: 0.0056 mg/l</td>
<td>Value: 0.00056 mg/l</td>
<td>Value: 0.056 mg/l</td>
<td>Value: 1.2 mg/l</td>
<td>Value: 0.0019 mg/kg</td>
<td>Value: 0.00231 mg/kg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>dimethyl phthalate</td>
<td>Fresh water</td>
<td>Value: 0.192 mg/l</td>
<td>Value: 0.0192 mg/l</td>
<td>Value: 0.39 mg/l</td>
<td>Value: 4 mg/l</td>
<td>Value: 1.403 mg/kg</td>
<td>Soil</td>
<td>Value: 3.16 mg/kg</td>
</tr>
<tr>
<td>2-Methyl-2,4-pentanediol</td>
<td>Fresh water</td>
<td>Value: 0.429 mg/l</td>
<td>Value: 0.0429 mg/l</td>
<td>Value: 4.29 mg/l</td>
<td>Value: 20 mg/l</td>
<td>Value: 1.79 mg/kg</td>
<td>Marine sediment</td>
<td>Value: 0.179 mg/kg</td>
</tr>
<tr>
<td>Hydrogen peroxide</td>
<td>Fresh water</td>
<td>Value: 0.0126 mg/l</td>
<td>Value: 0.0126 mg/l</td>
<td>Value: 0.0138 mg/l</td>
<td>Value: 4.66 mg/l</td>
<td>Value: 0.047 mg/kg</td>
<td>Marine sediment</td>
<td>Value: 0.047 mg/kg</td>
</tr>
</tbody>
</table>
8.2 Exposure controls

Engineering measures
Minimize workplace exposure concentrations.
Use only in an area equipped with explosion proof exhaust ventilation.
Use with local exhaust ventilation.

Personal protective equipment

Eye protection
Wear the following personal protective equipment:
Chemical resistant goggles must be worn.
If splashes are likely to occur, wear:
Face-shield

Hand protection
Material: butyl-rubber
Break through time: >= 480 min
Glove thickness: 0.5 mm

Remarks
Choose gloves to protect hands against chemicals depending on the concentration and quantity of the hazardous substance and specific to place of work. For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove manufacturer. Wash hands before breaks and at the end of workday.

Skin and body protection
Select appropriate protective clothing based on chemical resistance data and an assessment of the local exposure potential.
Wear the following personal protective equipment:
Flame retardant antistatic protective clothing.
Skin contact must be avoided by using impervious protective clothing (gloves, aprons, boots, etc).

Respiratory protection
Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines.

Filter type
Combined inorganic gas/vapour and organic vapour type (AB)

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance: liquid
Colour: colourless, clear
Odour: mint-like
Odour Threshold: No data available
<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>No data available</td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td>No data available</td>
</tr>
<tr>
<td>Decomposition</td>
<td></td>
</tr>
<tr>
<td>Flash point</td>
<td>&gt; 80 °C</td>
</tr>
<tr>
<td>Method: ISO 3679</td>
<td></td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Upper explosion limit</td>
<td>No data available</td>
</tr>
<tr>
<td>Lower explosion limit</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative vapour density</td>
<td>No data available</td>
</tr>
<tr>
<td>Density</td>
<td>1.11 - 1.13 g/cm³</td>
</tr>
<tr>
<td>Solubility(ies)</td>
<td></td>
</tr>
<tr>
<td>Water solubility</td>
<td>No data available</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>The substance or mixture is not classified self-reactive.</td>
</tr>
<tr>
<td>Viscosity</td>
<td></td>
</tr>
<tr>
<td>Viscosity, dynamic</td>
<td>18 - 22 mPa.s</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Not explosive</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>The substance or mixture is not classified as oxidizing.</td>
</tr>
</tbody>
</table>

**9.2 Other information**

Self-Accelerating decomposition temperature (SADT): >= 60 °C  
Method: UN-Test H.4
SECTION 10: Stability and reactivity

10.1 Reactivity
Heating may cause a fire.

10.2 Chemical stability
Stable if used as directed. Follow precautionary advice and avoid incompatible materials and conditions.

10.3 Possibility of hazardous reactions
Hazardous reactions: Combustible liquid.
Vapours may form explosive mixture with air.
Oxidizing material can cause a reaction.

10.4 Conditions to avoid
Conditions to avoid: Heat, flames and sparks.
Protect from contamination.
Temperatures greater than recommended storage temperature.
Contact with incompatible substances can cause decomposition at or below SADT.

10.5 Incompatible materials
Materials to avoid: Accelerators, strong acids and bases, heavy metals and heavy metal salts, reducing agents, oxidizing agents. Avoid impurities (e.g. rust, dust, ash), risk of decomposition. Flammable materials.

10.6 Hazardous decomposition products
No hazardous decomposition products are known.

SECTION 11: Toxicological information

11.1 Information on toxicological effects
Information on likely routes of exposure: Inhalation, Skin contact, Ingestion, Eye contact.

Acute toxicity
Harmful if swallowed.

Product:
Acute oral toxicity: Acute toxicity estimate: 1,461 mg/kg
Method: Calculation method

Acute inhalation toxicity: Acute toxicity estimate: > 5 mg/l
Exposure time: 4 h
Components:

2-Butanone, peroxide:
- Acute oral toxicity: Acute toxicity estimate: 500 mg/kg
  Method: Expert judgement
- Acute dermal toxicity: Acute toxicity estimate: 2,500 mg/kg
  Method: Expert judgement

Hydrogen peroxide:
- Acute oral toxicity: LD50 (Rat): 693.7 mg/kg
  Method: OECD Test Guideline 401
- Acute inhalation toxicity: LC50 (Rat): > 0.17 mg/l
  Exposure time: 4 h
  Test atmosphere: vapour
  Assessment: The substance or mixture has no acute inhalation toxicity
  Acute toxicity estimate: 1.5 mg/l
  Exposure time: 4 h
  Test atmosphere: dust/mist
  Method: Expert judgement
  Remarks: Based on harmonised classification in EU regulation 1272/2008, Annex VI
- Acute dermal toxicity: LD50 (Rabbit): > 2,000 mg/kg
  Assessment: The substance or mixture has no acute dermal toxicity

2-Methyl-2,4-pentanediol:
- Acute oral toxicity: LD50 (Rat): 4,700 mg/kg
- Acute dermal toxicity: LD50 (Rat): > 2,000 mg/kg
  Method: OECD Test Guideline 402
  Assessment: The substance or mixture has no acute dermal toxicity

Skin corrosion/irritation
Causes severe burns.

Components:

2-Butanone, peroxide:
Result: Corrosive after 4 hours or less of exposure

Hydrogen peroxide:
Result: Corrosive after 3 minutes or less of exposure

2-Methyl-2,4-pentanediol:
Result: Skin irritation
Remarks: Based on harmonised classification in EU regulation 1272/2008, Annex VI
Serious eye damage/eye irritation
Causes serious eye damage.

Components:
2-Butanone, peroxide:
Result: Irreversible effects on the eye

Hydrogen peroxide:
Result: Irreversible effects on the eye

2-Methyl-2,4-pentanediol:
Species: Rabbit
Result: Irritation to eyes, reversing within 21 days

Respiratory or skin sensitisation
Skin sensitisation: Not classified based on available information.
Respiratory sensitisation: Not classified based on available information.

Components:
2-Butanone, peroxide:
Assessment: Does not cause skin sensitisation.

2-Methyl-2,4-pentanediol:
Test Type: Maximisation Test (GPMT)
Exposure routes: Skin contact
Species: Guinea pig
Method: OECD Test Guideline 406
Result: negative

Germ cell mutagenicity
Not classified based on available information.

Components:
Hydrogen peroxide:
Genotoxicity in vitro: Test Type: Ames test
Result: negative

Genotoxicity in vivo: Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
Species: Mouse
Result: negative

2-Methyl-2,4-pentanediol:
Genotoxicity in vitro: Test Type: In vitro mammalian cell gene mutation test
Method: OECD Test Guideline 476
Result: negative

Carcinogenicity
Not classified based on available information.
Reproductive toxicity
Not classified based on available information.

Components:
2-Butanone, peroxide:
2-Methyl-2,4-pentanediol:
Effects on fertility: Test Type: Reproduction/Developmental toxicity screening test
Species: Rat
Application Route: Ingestion
Method: OECD Test Guideline 421
Result: negative

Effects on foetal development: Test Type: Embryo-foetal development
Species: Rat
Application Route: Ingestion
Method: OECD Test Guideline 414
Result: negative

STOT - single exposure
Not classified based on available information.

Components:
Hydrogen peroxide:
Assessment: May cause respiratory irritation.

STOT - repeated exposure
Not classified based on available information.

Repeated dose toxicity

Components:
Hydrogen peroxide:
Species: Mouse
Application Route: Ingestion
Exposure time: 90 d
Symptoms: No adverse effects

2-Methyl-2,4-pentanediol:
Species: Rat
NOAEL: 450 mg/kg
Application Route: Ingestion
Exposure time: 90 d
Method: OECD Test Guideline 408

Aspiration toxicity
Not classified based on available information.
SECTION 12: Ecological information

12.1 Toxicity

**Components:**

2-Butanone, peroxide:

Toxicity to algae:
- EC50: > 1 - 10 mg/l
  Exposure time: 72 h
- EC10: > 1 - 10 mg/l
  Exposure time: 72 h

Hydrogen peroxide:

Toxicity to fish:
- LC50 (Pimephales promelas (fathead minnow)): 16.4 mg/l
  Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates:
- LC50 (Daphnia pulex (Water flea)): 2.4 mg/l
  Exposure time: 48 h

Toxicity to algae:
- EC50 (Skeletonema costatum (marine diatom)): 1.38 mg/l
  Exposure time: 72 h
- NOEC (Skeletonema costatum (marine diatom)): 0.63 mg/l
  Exposure time: 72 h

Toxicity to bacteria:
- EC50: > 1,000 mg/l
  Exposure time: 3 h
  Method: OECD Test Guideline 209

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity):
- NOEC: 0.63 mg/l
  Exposure time: 21 d
  Species: Daphnia magna (Water flea)

2-Methyl-2,4-pentanediol:

Toxicity to fish:
- LC50 (Pimephales promelas (fathead minnow)): 8,690 mg/l
  Exposure time: 96 h
  Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates:
- EC50 (Daphnia magna (Water flea)): 5,410 mg/l
  Exposure time: 48 h
  Method: OECD Test Guideline 202

Toxicity to algae:
- EC50 (Pseudokirchneriella subcapitata (green algae)): > 429 mg/l
  Exposure time: 72 h
  Method: OECD Test Guideline 201

12.2 Persistence and degradability

**Components:**

2-Butanone, peroxide:
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Biodegradability: Result: rapidly degradable
Hydrogen peroxide:
Biodegradability: Result: rapidly degradable
2-Methyl-2,4-pentanediol:
Biodegradability: Result: Readily biodegradable
  Biodegradation: 81 %
  Exposure time: 28 d
  Method: OECD Test Guideline 301F

12.3 Bioaccumulative potential

Components:
2-Butanone, peroxide:
Partition coefficient: n-octanol/water
  log Pow: < 0.3

Hydrogen peroxide:
Partition coefficient: n-octanol/water
  log Pow: -1.57 (20 °C)
  Remarks: Calculation

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
Not relevant

12.6 Other adverse effects
No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods
Product:
Dispose of in accordance with local regulations.
According to the European Waste Catalogue, Waste Codes are not product specific, but application specific.
Waste codes should be assigned by the user, preferably in discussion with the waste disposal authorities.

Contaminated packaging:
Dispose of as unused product.
Empty containers should be taken to an approved waste handling site for recycling or disposal.
Do not burn, or use a cutting torch on, the empty drum.

SECTION 14: Transport information

14.1 UN number
ADN: UN 3105
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Version: 1.0
Revision Date: 19.05.2015
MSDS Number: 123520-00001
Date of last issue: -
Date of first issue: 19.05.2015

14.2 UN proper shipping name

| ADN | ORGANIC PEROXIDE TYPE D, LIQUID (METHYL ETHYL KETONE PEROXIDE(S)) |
| ADR | ORGANIC PEROXIDE TYPE D, LIQUID (METHYL ETHYL KETONE PEROXIDE(S)) |
| RID | ORGANIC PEROXIDE TYPE D, LIQUID (METHYL ETHYL KETONE PEROXIDE(S)) |
| IMDG | ORGANIC PEROXIDE TYPE D, LIQUID (METHYL ETHYL KETONE PEROXIDE(S)) |
| IATA | Organic peroxide type D, liquid (Methyl ethyl ketone peroxide(s)) |

14.3 Transport hazard class(es)

| ADN | 5.2 |
| ADR | 5.2 |
| RID | 5.2 |
| IMDG | 5.2 |
| IATA | 5.2 |

14.4 Packing group

| ADN Packing group | Not assigned by regulation |
| ADN Classification Code | P1 |
| ADN Labels | 5.2 |
| ADR Packing group | Not assigned by regulation |
| ADR Classification Code | P1 |
| ADR Labels | 5.2 |
| ADR Tunnel restriction code | (D) |
| RID Packing group | Not assigned by regulation |
| RID Classification Code | P1 |
| RID Hazard Identification Number | 539 |
| RID Labels | 5.2 |
| IMDG Packing group | Not assigned by regulation |
| IMDG Classification Code | P1 |
| IMDG Hazard Identification Number | 539 |
| IMDG Labels | 5.2 |
| IMDG EmS Code | F-J, S-R |
| IATA | 5.2 |
14.5 Environmental hazards

ADN
Environmentally hazardous : no

ADR
Environmentally hazardous : no

RID
Environmentally hazardous : no

IMDG
Marine pollutant : 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

Remarks : Not applicable for product as supplied.

SECTION 15: Regulatory information

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

Regulation (EC) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals : Not applicable

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59). : Not applicable

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer : Not applicable

Regulation (EC) No 850/2004 on persistent organic pollutants : Not applicable


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<th>Quantity 2</th>
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P6b: SELF-REACTION SUBSTANCES AND MIXTURES and ORGANIC PEROXIDES

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Other regulations:
- BGV B4 organische Peroxide. (German regulatory requirements)
- Gefahrengruppe nach § 3 BGV B4: Ib (German regulatory requirements)
- BG-Merkblatt M001 beachten (German regulatory requirements)
- Produkt unterliegt nicht dem Sprengstoffgesetz (SprengG). (German regulatory requirements)

Take note of Dir 94/33/EC on the protection of young people at work.

15.2 Chemical Safety Assessment
A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

Full text of R-Phrases
- R 5: Heating may cause an explosion.
- R 7: May cause fire.
- R 8: Contact with combustible material may cause fire.
- R20/22: Harmful by inhalation and if swallowed.
- R22: Harmful if swallowed.
- R34: Causes burns.
- R35: Causes severe burns.
- R36/38: Irritating to eyes and skin.

Full text of H-Statements
- H242: Heating may cause a fire.
- H271: May cause fire or explosion; strong oxidizer.
- H302: Harmful if swallowed.
- H314: Causes severe skin burns and eye damage.
- H315: Causes skin irritation.
- H319: Causes serious eye irritation.
- H332: Harmful if inhaled.
- H335: May cause respiratory irritation.
- H412: Harmful to aquatic life with long lasting effects.

Full text of other abbreviations
- Acute Tox.: Acute toxicity
- Aquatic Chronic: Chronic aquatic toxicity
- Eye Irrit.: Eye irritation
- Org. Perox.: Organic peroxides
- Ox. Liq.: Oxidizing liquids
- Skin Corr.: Skin corrosion
- Skin Irrit.: Skin irritation
- STOT SE: Specific target organ toxicity - single exposure
- GB EH40: UK. EH40 WEL - Workplace Exposure Limits
- GB EH40 / TWA: Long-term exposure limit (8-hour TWA reference period)
- GB EH40 / STEL: Short-term exposure limit (15-minute reference period)

Further information
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Sources of key data used to compile the Safety Data Sheet:

Items where changes have been made to the previous version are highlighted in the body of this document by two vertical lines.

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