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

1.1 Product identifier
Trade name: Cumyl hydroperoxide, tech. 80%

Stock number: L06866

1.2 Relevant identified uses of the substance or mixture and uses advised against.
Identified use: SU24 - Scientific research and development

1.3 Details of the supplier of the safety data sheet
Manufacturer/Supplier:
Thermo Fisher (Kandel) GmbH
Zeppelinstr. 7b
76185 Karlsruhe / Germany
Tel: +49 (0) 721 84007 280
Fax: +49 (0) 721 84007 300
Email: tech@alfa.com
www.alfa.com
Informing department: Product safety Tel + +049 (0) 7275 988687-0

1.4 Emergency telephone number:
Carechem 24: +44 (0) 1235 239 670 (Multi-language emergency number)
Poison Information Center Mainz
www.giftinfo.uni-mainz.de Telephone: +49(0)6131/19240

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture
Classification according to Regulation (EC) No 1272/2008

| H226 | Flammable liquid and vapour. |
| H242 | Heating may cause a fire. |
| H314 | Causes severe skin burns and eye damage. |
| H318 | Causes serious eye damage. |
| H331 | Toxic if inhaled. |
| H304 | May be fatal if swallowed and enters airways. |
| H411 | Toxic to aquatic life with long lasting effects. |

GHS02 flame
GHS05 corrosion
GHS06 skull and crossbones
Acute Tox. 3
STOT RE 2
Asp. Tox. 1
Skin Corr. 1B
Eye Dam. 1
GHS07
Acute Tox. 4
Acute Tox. 4
STOT SE 3

GHS09 environment
Aquatic Chronic 2

2.2 Label elements
Labelling according to Regulation (EC) No 1272/2008
The product is classified and labelled according to the CLP regulation.

Hazard pictograms

GHS02 GHS05 GHS06 GHS08 GHS09

Signal word: Danger

Hazard-determining components of labelling:
Cumyl hydroperoxide
Cumene

Hazard statements:
H226 - Flammable liquid and vapour.
H242 - Heating may cause a fire.
H304+H312 - Harmful if swallowed and in contact with skin.
H331 - Toxic if inhaled.
H314 - Causes severe skin burns and eye damage.
H335 - May cause respiratory irritation.
H373 - May cause damage to the lung, the kidneys and the skin through protracted or repeated exposure. Route of exposure: Oral, Inhalation and Dermal.
H304 - May be fatal if swallowed and enters airways.
H411 - Toxic to aquatic life with long lasting effects.

Precautionary statements:
P301+P310 - IF SWALLOWED: Immediately call a POISON CENTER/doctor.
P303+P361+P333 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P313 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P405 - Store locked up.
P410 - Protect from sunlight.
P451 - Dispose of contents/container in accordance with local/regional/national/international regulations.

2.3 Other hazards
Results of PBT and vPvB assessment
PBT: Not applicable.
Safety data sheet
according to 1907/2006/EC, Article 31

Trade name Cumyl hydroperoxide, tech. 80%

(SECT. 3. Composition/information on ingredients)

3.2 Mixtures

Dangerous components:

<table>
<thead>
<tr>
<th>CAS</th>
<th>EINECS:</th>
<th>Index number:</th>
</tr>
</thead>
<tbody>
<tr>
<td>80-15-9</td>
<td>201-254-7</td>
<td>617-002-00-8</td>
</tr>
<tr>
<td>98-82-8</td>
<td>202-704-5</td>
<td>601-024-00-X</td>
</tr>
</tbody>
</table>

Cumyl hydroperoxide
- Aquatic Chronic 2, H411; Acute Tox. 4, H302; Acute Tox. 4, H312

80.0%

Cumene
- Flam. Liq. 3, H226; Asp. Tox. 1, H304; Aquatic Chronic 2, H411; Acute Tox. 4, H302; STOT SE 3, H335

20.0%

Additional information: None known.

(SECT. 4: First aid measures)

4.1 Description of first aid measures

General information:
- Instantly remove any clothing soiled by the product.
- Remove breathing apparatus only after soiled clothing has been completely removed.
- In case of irregular breathing or respiratory arrest provide artificial respiration.

After inhalation:
- Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.
- Seek immediate medical advice.

After skin contact:
- Instantly wash with water and soap and rinse thoroughly.
- Seek immediate medical advice.

After eye contact:
- Rinse opened eye for several minutes under running water. Then consult doctor.

After swallowing:
- Seek medical treatment.

4.2 Most important symptoms and effects, both acute and delayed

Causes severe skin burns.
Harmful if swallowed.
Harmful in contact with skin.
Toxic if inhaled.
Causes serious eye damage.
May be fatal if swallowed and enters airways.
May cause damage to the lung, the kidneys and the skin through prolonged or repeated exposure. Route of exposure: Oral, Inhalation and Dermal.

4.3 Indication of any immediate medical attention and special treatment needed
No further relevant information available.

(SECT. 5: Firefighting measures)

5.1 Extinguishing media

Suitable extinguishing agents: CO2, extinguishing powder or water jet. Fight larger fires with water jet or alcohol-resistant foam.

For safety reasons unsuitable extinguishing agents: Halocarbon extinguisher

5.2 Special hazards arising from the substance or mixture

This substance is an oxidizer and its heat of reaction with reducing agents or combustibles may cause ignition.
If this product is involved in a fire, the following can be released:
- Carbon monoxide and carbon dioxide

5.3 Advice for firefighters

Protective equipment:
- Wear self-contained breathing apparatus.
- Wear full protective suit.

(SECT. 6: Accidental release measures)

6.1 Personal precautions, protective equipment and emergency procedures

Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation.

6.2 Environmental precautions:

Do not allow product to reach sewage system or water bodies.

6.3 Methods and material for containment and cleaning up

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Use neutralising agent.
Dispose of contaminated material as waste according to section 13.
Ensure adequate ventilation.

Prevention of secondary hazards:
- Acts as an oxidizing agent on organic materials such as wood, paper and fats
- Keep away from combustible material.

6.4 Reference to other sections
See Section 7 for information on safe handling
See section 6 for information on personal protection equipment.
See Section 13 for information on disposal.

(SECT. 7: Handling and storage)

7.1 Precautions for safe handling

Keep containers tightly sealed.
Store in cool, dry place in tightly closed containers.
Ensure good ventilation/exhaustion at the workplace.
Open and handle container with care.

Information about protection against explosions and fires:
- Substance/product can reduce the ignition temperature of flammable substances.
- Keep ignition sources away - Do not smoke.

7.2 Conditions for safe storage, including any incompatibilities

Storage
- Requirements to be met by storerooms and containers: No special requirements.
- Information about storage in one common storage facility:
- Store away from flammable substances.
- Store away from reducing agents.
- Do not store with organic materials.
- Store away from metal powders.
- Store away from oxidising agents.

Further information about storage conditions:
- Keep container tightly sealed.
- Store in cool, dry conditions in well sealed containers.
- Store in a locked cabinet or with access restricted to technical experts or their assistants.

7.3 Specific end use(s)
No further relevant information available.
### SECTION 8: Exposure controls/personal protection

Additional information about design of technical systems:
Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

8.1 Control parameters

<table>
<thead>
<tr>
<th>Component</th>
<th>MAK (Germany)</th>
<th>WEEL (USA)</th>
<th>AGW (Germany)</th>
<th>PEL (USA)</th>
<th>REL (USA)</th>
<th>TLV (USA)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>als Dampf und Aerosol; vgl. Abschn. Xa</td>
<td>Long-term value: 6 mg/m³, 1 ppm</td>
<td>Long-term value: 60 mg/m³, 10 ppm</td>
<td>Long-term value: 245 mg/m³, 50 ppm</td>
<td>Long-term value: 245 mg/m³, 50 ppm</td>
<td>Long-term value: 246 mg/m³, 50 ppm</td>
</tr>
<tr>
<td>80-15-9 Cumyl hydroperoxide (80.0%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>98-82-8 Cumene (20.0%)</td>
<td></td>
<td></td>
<td>4(II); H, Y, AGS, EU, DFG</td>
<td>Skin</td>
<td>Skin</td>
<td>Skin</td>
</tr>
<tr>
<td>MAK (Germany)</td>
<td></td>
<td></td>
<td>Long-term value: 30 mg/m³, 10 ppm</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Ingredients with biological limit values:

- **Cumene (20.0%)**
  - **BGW (Germany)** 10 mg/g Kreatinin
  - Untersuchungsmaterial: Urin
  - Probenahmepunkt: Expositionsende bzw. Schichtende
  - Parameter: 2-Phenyl-2-propanol (nach Hydrolyse)

### 8.2 Exposure controls

Personal protective equipment

**General protective and hygienic measures**
The usual precautionary measures should be adhered to in handling the chemicals.

- Keep away from foodstuffs, beverages and food.
- Instantly remove any soiled and impregnated garments.
- Wash hands during breaks and at the end of the work.
- Store protective clothing separately.
- Avoid contact with the eyes and skin.
- Maintain an ergonomically appropriate working environment.

**Breathing equipment:** Use self-contained respiratory protective device in emergency situations.

**Recommended filter device for short term use:**
Use a respirator with multi-purpose combination (US) or type ABEK (EN 14387) as a backup to engineering controls. Risk assessment should be performed to determine if air-purifying respirators are appropriate. Only use equipment tested and approved under appropriate government standards such as NIOSH (USA) or CEN (EU).

**Protection of hands:**
Check protective gloves prior to each use for their proper condition.
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

**Eye protection:**
Tightly sealed safety glasses.

**Body protection:**
Protective work clothing.

### SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

**General Information**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form</td>
<td>Liquid</td>
</tr>
<tr>
<td>Odour</td>
<td>Not determined</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>Not determined</td>
</tr>
<tr>
<td>pH-value</td>
<td>Not determined</td>
</tr>
</tbody>
</table>

**Change in condition**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melting point/freezing point</td>
<td>Not determined</td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td>Not determined</td>
</tr>
<tr>
<td>Sublimation temperature / start</td>
<td>Not determined</td>
</tr>
</tbody>
</table>

**Flash point**

66 °C

**Inflammability (solid, gaseous)**

Not determined.

**Decomposition temperature**

425 °C

**Self-inflammability**

Product is not self-igniting.

**Explosive properties**

Critical values for explosion:

- Lower: 0.9 Vol %
- Upper: 6.5 Vol %

**Steam pressure**

Density at 20 °C 1.03 g/cm³

**Relative density**

Vapour density Not determined.

**Evaporation rate**

Not determined.

**Solubility in / Miscibility with**

- Water: Not miscible or difficult to mix
- Partition coefficient: n-octanol/water: Not determined.
- Viscosity: dynamic: Not determined.
- kinematic: Not determined.

**Solvent content**

Organic solvents: 0.0 %

9.2 Other information

No further relevant information available.

### SECTION 10: Stability and reactivity

10.1 Reactivity

May cause fire. May intensify fire; oxidiser.
10.2 Chemical stability Stable under recommended storage conditions.

Thermal decomposition / conditions to be avoided: No decomposition if used and stored according to specifications.

10.3 Possibility of hazardous reactions
Reacts with strong oxidising agents
Reacts with flammable substances

10.4 Conditions to avoid No further relevant information available.

10.5 Incompatible materials:
Flammable substances
Reducing agents
Oxidising agents
Organic materials
Metal powders

10.6 Hazardous decomposition products: Carbon monoxide and carbon dioxide

SECTION 11: Toxicological information

11.1 Information on toxicological effects
Acute toxicity
Harmful in contact with skin.
Harmful in contact with skin.
Harmful if swallowed.

Toxic if inhaled.

Danger by skin resorption.

Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

The Registry of Toxic Effects of Chemical Substances (RTECS) contains acute toxicity data for components in this product.

Harmful if swallowed or in contact with skin.

Toxic if inhaled.

LD/LC50 values that are relevant for classification:

80-15-9 Cumyl hydroperoxide
Oral LD50 382 mg/kg (rat)
Dermal LD50 500 mg/kg (rat)

98-82-8 Cumene
Oral LD50 1400 mg/kg (rat)

Skin irritation or corrosion:
Causes severe skin burns.
Causes severe skin burns and eye damage.

Eye irritation or corrosion:
Causes serious eye damage.
Causes serious eye damage.

Respiratory or skin sensitisation Based on available data, the classification criteria are not met.

Carcinogenicity:
IARC-2B: Possibly carcinogenic to humans: limited evidence in humans in the absence of sufficient evidence in experimental animals.

The Registry of Toxic Effects of Chemical Substances (RTECS) contains tumorigenic and/or carcinogenic and/or neoplastic data for components in this product.

Reproductive toxicity:
No effects known.

Germ cell mutagenicity:
The Registry of Toxic Effects of Chemical Substances (RTECS) contains mutation data for components in this product.

Carcinogenicity:
IARC-2B: Possibly carcinogenic to humans: limited evidence in humans in the absence of sufficient evidence in experimental animals.

The Registry of Toxic Effects of Chemical Substances (RTECS) contains tumorigenic and/or carcinogenic and/or neoplastic data for components in this product.

12.5 Results of PBT and vPvB assessment
PBT: Not applicable.
vPvB: Not applicable.

12.6 Other adverse effects No further relevant information available.

SECTION 12: Ecological information

12.1 Toxicity
Aquatic toxicity: No further relevant information available.

12.2 Persistence and degradability No further relevant information available.

12.3 Bioaccumulative potential No further relevant information available.

12.4 Mobility in soil No further relevant information available.

Additional ecological information:

General notes:
Do not allow product to reach ground water, water bodies or sewage system.
Water hazard class 2 (Self-assessment): hazardous for water.
Danger to drinking water if even small quantities leak into soil.
Also poisonous for fish and plankton in water bodies.
Toxic to aquatic life.
May cause long lasting harmful effects to aquatic life.
Avoid transfer into the environment.

12.5 Results of PBT and vPvB assessment
PBT: Not applicable.
vPvB: Not applicable.

12.6 Other adverse effects No further relevant information available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods
Recommendation
Hand over to disposers of hazardous waste.
Must be specially treated under adherence to official regulations.
Consult state, local or national regulations for proper disposal.

Uncleaned packagings:
Recommendation: Disposal must be made according to official regulations.

SECTION 14: Transport information

UN-Number
ADR, IMDG, IATA

UN3109

14.2 UN proper shipping name
ADR
IMDG, IATA

3109 ORGANIC PEROXIDE TYPE F, LIQUID
ORGANIC PEROXIDE TYPE F, LIQUID
14.3 Transport hazard class(es)

ADR

Class
IMDG, IATA

Label
5.2 (P1) Organic peroxides.

5.2

14.5 Environmental hazards:
Not applicable.

14.6 Special precautions for user

Warning: Organic peroxides.

Kemler Number:
539

EMS Number:
F-J-S-R

IMDG, IATA

Class
5.2 Organic peroxides.

Label
5.2

Segregation Code
SG35 Stow *separated from* acids.
SG36 Stow *separated from* alkalis.
SG72 See 7.2.6.3.2.

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code
Not applicable.

Transport/Additional information:

ADR

Limited quantities (LQ) 125 ml

Excepted quantities (EQ)
Code: E0

Not permitted as Excepted Quantity

UN "Model Regulation":
UN 3109 ORGANIC PEROXIDE TYPE F, LIQUID, 5.2

SECTION 15: Regulatory information

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

Australian Inventory of Chemical Substances

All ingredients are listed.

Standard for the Uniform Scheduling of Medicines and Poisons

None of the ingredients is listed.

Directive 2012/18/EU
Named dangerous substances - ANNEX I None of the ingredients is listed.

Seveso category
H2 ACUTE TOXIC

P6b SELF-REACTIVE SUBSTANCES AND MIXTURES and ORGANIC PEROXIDES

E2 Hazardous to the Aquatic Environment

Qualifying quantity (tonnes) for the application of lower-tier requirements 50 t

Qualifying quantity (tonnes) for the application of upper-tier requirements 200 t

REGULATION (EC) No 1907/2006 ANNEX XVII Conditions of restriction: 3

National regulations

Information about limitation of use:
Employment restrictions concerning young persons must be observed.

For use only by technically qualified individuals.

Classification according to VbF: A III

Technical instructions (air):

<table>
<thead>
<tr>
<th>Class</th>
<th>Share in %</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>80.0</td>
</tr>
</tbody>
</table>

Water hazard class: Water hazard class 2 (Self-assessment): hazardous for water.

Other regulations, limitations and prohibitive regulations

ELINCS (European List of Notified Chemical Substances)

None of the ingredients is listed.

Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006.

None of the ingredients are listed.

The conditions of restrictions according to Article 67 and Annex XVII of the Regulation (EC) No 1907/2006 (REACH) for the manufacturing, placing on the market and use must be observed.

None of the ingredients is listed.

Annex XIV of the REACH Regulations (requiring Authorisation for use)

None of the ingredients is listed.

15.2 Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

Relevant phrases

H226 Flammable liquid and vapour.
H242 Heating may cause a fire.
H302 Harmful if swallowed.
H304 May be fatal if swallowed and enters airways.
H312 Harmful in contact with skin.
H314 Causes severe skin burns and eye damage.
H331 Toxic if inhaled.
H335 May cause respiratory irritation.
H336 May cause damage to the lung, the kidneys and the skin through prolonged or repeated exposure. Route of exposure: Oral, Inhalation and Dermal.
H411 Toxic to aquatic life with long lasting effects.

Department issuing SDS:
Global Marketing Department

Abbreviations and acronyms:

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
## Trade name Cumyl hydroperoxide, tech. 80%

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EINECS</td>
<td>European Inventory of Existing Commercial Chemical Substances</td>
</tr>
<tr>
<td>ELINCS</td>
<td>European List of Notified Chemical Substances</td>
</tr>
<tr>
<td>CAS</td>
<td>Chemical Abstracts Service (division of the American Chemical Society)</td>
</tr>
<tr>
<td>VbF</td>
<td>Verordnung über brennbare Flüssigkeiten, Österreich (Ordinance on the storage of combustible liquids, Austria)</td>
</tr>
<tr>
<td>LC50</td>
<td>Lethal concentration, 50 percent</td>
</tr>
<tr>
<td>LD50</td>
<td>Lethal dose, 50 percent</td>
</tr>
<tr>
<td>PBT</td>
<td>Persistent, Bioaccumulative and Toxic</td>
</tr>
<tr>
<td>SVHC</td>
<td>Substances of Very High Concern</td>
</tr>
<tr>
<td>MAB</td>
<td>very Persistent and very Bioaccumulative</td>
</tr>
<tr>
<td>OSHA</td>
<td>National Institute for Occupational Safety</td>
</tr>
<tr>
<td>DOSHA</td>
<td>Occupational Safety and Health Administration (USA)</td>
</tr>
<tr>
<td>TLV</td>
<td>Threshold Limit Value</td>
</tr>
<tr>
<td>PEL</td>
<td>Permissible Exposure Limit</td>
</tr>
<tr>
<td>BBEI</td>
<td>Biological Exposure Limit</td>
</tr>
<tr>
<td>REL</td>
<td>Recommended Exposure Limit</td>
</tr>
<tr>
<td>Flam. Liq.</td>
<td>Flammable liquids – Category 3</td>
</tr>
<tr>
<td>Org. Perox.</td>
<td>Organic peroxides – Type E/F</td>
</tr>
<tr>
<td>Acute Tox.</td>
<td>Acute toxicity – Category 4</td>
</tr>
<tr>
<td>Skin Corr.</td>
<td>Skin corrosion/irritation – Category 1B</td>
</tr>
<tr>
<td>Eye Dam.</td>
<td>Serious eye damage/eye irritation – Category 1</td>
</tr>
<tr>
<td>STOT SE</td>
<td>Specific target organ toxicity (single exposure) – Category 3</td>
</tr>
<tr>
<td>STOT RE</td>
<td>Specific target organ toxicity (repeated exposure) – Category 2</td>
</tr>
<tr>
<td>Asp. Tox.</td>
<td>Aspiration hazard – Category 1</td>
</tr>
<tr>
<td>Aquatic Chronic</td>
<td>Hazardous to the aquatic environment - long-term aquatic hazard – Category 2</td>
</tr>
</tbody>
</table>