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

1.1 Product identifier

PEROXAN DB

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

Application of the substance / the mixture

Reaction initiator

For industrial use

1.3 Details of the supplier of the safety data sheet

Manufacturer/Supplier:

PERGAN GmbH

Hilfsstoffe für industrielle Prozesse

Schlavenhorst 71

D-46395 Bocholt

Tel: +49 2871 9902-0

Fax: +49 2871 9902-50

Further information obtainable from:

Environment protection / Security of labour

Competent person:

* Sales Manager Germany: Mr. Ansgar Pappenheim, e-mail: a.pappenheim@pergan.com

* Export Sales Manager: Mr. Dr. Thomas Philipps, e-mail: dr.philipps@pergan.com

* Environment protection / Security of labour: Mr. Christoph Wilting, e-mail: c.wilting@pergan.com

1.4 Emergency telephone number:

Tel: +49 2871 9902-0

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Flam. Liq. 2 H225 Highly flammable liquid and vapour.

Org. Perox. E H242 Heating may cause a fire.

Muta. 2 H341 Suspected of causing genetic defects.

Aquatic Chronic 3 H412 Harmful to aquatic life with long lasting effects.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008

The substance is classified and labelled according to the CLP regulation.

Signal word

Danger

Hazard pictograms

GHS02 GHS08

Hazard-determining components of labelling:

di-tert-butyl peroxide

H225 Highly flammable liquid and vapour.

H242 Heating may cause a fire.

H341 Suspected of causing genetic defects.

H412 Harmful to aquatic life with long lasting effects.

Precautionary statements

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P220 Keep away from dirt, rust, chemicals in particular concentrated acids, alkalis and accelerators (e. g. heavy metal compounds and amines).

P234 Keep only in original container.

P243 Take precautionary measures against static discharge.

P273 Avoid release to the environment.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

P410 Protect from sunlight.

P411+P235 Store at temperatures not exceeding +40°C. Keep cool.

P420 Do not mix with peroxide-accelerators or reducing agents.

P501 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.
SECTION 3: Composition/information on ingredients

· 3.1 Chemical characterisation: Substances
  - CAS No. Description
    110-05-4 di-tert-butyl peroxide
  - EC number: 203-733-6
  - Index number: 617-001-00-2

SECTION 4: First aid measures

· 4.1 Description of first aid measures
  - General information:
    Take care of personal protection for the first aider.

  - After inhalation: Take affected persons into fresh air and keep quiet.
  - After skin contact: Immediately remove contaminated clothing.
  - After eye contact: Rinse opened eye for several minutes under running water.
  - After swallowing: If symptoms persist consult doctor.

· 4.2 Most important symptoms and effects, both acute and delayed
  No further relevant information available.

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

SECTION 5: Firefighting measures

· 5.1 Extinguishing media
  - Suitable extinguishing agents: CO₂, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
  - For safety reasons unsuitable extinguishing agents: Water with full jet

· 5.2 Special hazards arising from the substance or mixture
  Under certain fire conditions, traces of other toxic gases cannot be excluded. Hydrocarbons, carbondioxide and -monoxid.

· 5.3 Advice for firefighters
  - Protective equipment: Do not inhale explosion gases or combustion gases.
  - Additional information: Cool endangered receptacles with water spray. Self-protection first!

SECTION 6: Accidental release measures

· 6.1 Personal precautions, protective equipment and emergency procedures
  Keep away from ignition sources.
  In case of further temperature should be cooled with waterspray from a safe distance.
  Wear breathing apparatus with filter A during decomposition of materials.

· 6.2 Environmental precautions:
  Do not allow to enter sewers/surface or ground water.

· 6.3 Methods and material for containment and cleaning up:
  Dispose contaminated material as waste according to item 13.
  Ensure adequate ventilation.
  Large quantities should be diluted with suitable desensitation agent to a concentration below 10 % before disposal.
  Soak up with absorbant material (e. g. Vermiculit) and dispose of in accordance with government regulations.

· 6.4 Reference to other sections
  In case of large spillage the environmental authority should be informed.

SECTION 7: Handling and storage

· 7.1 Precautions for safe handling
  Keep receptacles tightly sealed.
  Store in cool, dry place in tightly closed receptacles.
Trade name: **PEROXAN DB**

---

**Keep away from heat and direct sunlight.**

Open and handle receptacle with care.

Prevent formation of aerosols.

Wear suitable respiratory protective device when decanting larger quantities without extractor facilities.

Do not refill residue into storage receptacles.

Restrict the quantity stored at the workplace.

Before break and at the end of work hands should be thoroughly washed.

Only use tools made of suitable materials (e.g. polyethylene or stainless steel).

Keep away from dirt, rust, chemicals in particular concentrated acids, alkalis and accelerators (e.g. heavy-metal compounds and amines).

Oxidizing because of releasing oxygen.

While using do not eat, drink or smoke.

Do not generate flames or sparks.

Keep product and emptied container away from heat and sources of ignition.

Avoid shock and friction.

Take precautionary measures against static discharges.

---

**Information about fire - and explosion protection:**

Do not smoke.

---

**7.2 Conditions for safe storage, including any incompatibilities**

**Storage:**

- Requirements to be met by storerooms and receptacles:
  - Pay attention to the special requirements of your local authorities for storing dangerous goods.
  - Store in a cool location.
  - Store only in the original receptacle.
  - Prevent any seepage into the ground.
  - Use only receptacles specifically permitted for this substance/product.

**Information about storage in one common storage facility:**

- Do not store or park organic peroxide together with heavy metal compounds and amines.
- Store away from foodstuffs, drinks and feeding stuffs.

**Further information about storage conditions:**

- Keep container tightly sealed.
- Store in cool, dry conditions in well sealed receptacles.
- Protect from heat and direct sunlight.
- Protect from contamination.
- Store in a cool place.

---

**Recommended storage temperature (To maintain quality):**

max.: +40°C

**Storage class:**

5.2

---

**SECTION 8: Exposure controls/personal protection**

---

**8.1 Control parameters**

**Ingredients with limit values that require monitoring at the workplace:**

- Not required.

---

**DNELs**

**110-05-4 di-tert-butyl peroxide**

<table>
<thead>
<tr>
<th>Route</th>
<th>DNEL Long Term System</th>
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<tbody>
<tr>
<td>Dermal</td>
<td>3 mg/kg bw/day (Worker)</td>
</tr>
<tr>
<td>Inhalative</td>
<td>20 mg/m³ (Worker)</td>
</tr>
</tbody>
</table>

---

(Contd. on page 4)
7.1.11 · PNECs

110-05-4 di-tert-butyl peroxide

<table>
<thead>
<tr>
<th>Environment</th>
<th>PNEC Value</th>
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<tbody>
<tr>
<td>Marine water sed</td>
<td>1.5 mg/kg sed dw (-)</td>
</tr>
<tr>
<td>Freshwater</td>
<td>0.144 mg/l (AF 50)</td>
</tr>
<tr>
<td>Freshwater sed</td>
<td>15 mg/kg sed dw (-)</td>
</tr>
<tr>
<td>Soil</td>
<td>2.94 mg/kg soil dw (-)</td>
</tr>
<tr>
<td>STP</td>
<td>10 mg/l (AF 100)</td>
</tr>
<tr>
<td>Marine water</td>
<td>0.014 mg/l (AF 500)</td>
</tr>
</tbody>
</table>

· Additional information: The lists valid during the making were used as basis.

8.2 Exposure controls

· Personal protective equipment:
  · General protective and hygienic measures:
    The usual precautionary measures are to be adhered to when handling chemicals.
    Keep away from foodstuffs, beverages and feed.
    Immediately remove all soiled and contaminated clothing.
    Wash hands before breaks and at the end of work.
    Store protective clothing separately.
    Do not eat, drink, smoke or sniff while working.
    Use skin protection cream for skin protection.
    Be sure to clean skin thoroughly after work and before breaks.
  · Respiratory protection: Not necessary if room is well-ventilated.
    Use suitable respiratory device when it exceed exposure limit and when insufficiently ventilated.
    Filter A2
  · Protection of hands: Only use chemical-protective gloves with CE-labelling of category III.
    Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
    Protective gloves
  · Material of gloves
    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.
    Butyl rubber, BR
    Fluorocarbon rubber (Viton)
    Nitrile rubber, NBR
    Neoprene
  · Penetration time of glove material
    The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.
  · Eye protection: Tightly sealed goggles
  · Body protection: Protective work clothing

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

· General Information
  · Form: Fluid
  · Colour: Colourless
  · Odour: Characteristic
  · Change in condition
    · Melting point/freezing point: Not applicable.
    · Initial boiling point and boiling range: Not applicable.
  · Flash point: <6 °C
  · Decomposition temperature: +80 °C (SADT)
  · Explosive properties: Product is not explosive. However, formation of explosive air/vapour mixtures are possible.
  · Explosion limits:
    · Lower: 5.7 Vol %
  · Vapour pressure at 20 °C: 24 hPa

(Contd. on page 5)
Trade name: PEROXAN DB

(Contd. of page 4)

SECTION 10: Stability and reactivity

- **10.1 Reactivity**: No further relevant information available.

- **10.2 Chemical stability**
  - Thermal decomposition / conditions to be avoided: SADT (Self Accelerating Decomposition Temperature) is the lowest temperature at which self accelerating decomposition may occur with substance in the packaging as used in transport. A dangerous self-accelerating decomposition reaction and, under certain circumstances, explosion or fire can be cause decomposition at and above the temperature. Contact with incompatible substances can cause decomposition at or below the SADT. No decomposition if used and stored according to specifications. To avoid thermal decomposition do not overheat.

- **10.3 Possibility of hazardous reactions**: Self-accelerating decomposition at SADT.

- **10.4 Conditions to avoid**: No further relevant information available.

- **10.5 Incompatible materials**: Rapid decomposition by dirt, rust, chemicals in particular concentrated acids, alkalis and accelerators (e.g. heavy-metal compounds and amines).

- **10.6 Hazardous decomposition products**: Hydrocarbons, carbondioxide and -monoxid.

- **Additional information**: Emergency procedures will vary depending on conditions. The customer should have an emergency response plane in place.

SECTION 11: Toxicological information

- **11.1 Information on toxicological effects**
  - Acute toxicity: Based on available data, the classification criteria are not met.

  - LD/LC50 values relevant for classification:

    | 110-05-4 di-tert-butyl peroxide |
    |----------------------------------|
    | Oral LD50 | >25,000 mg/kg (rattus) |
    | Dermal LD50 | >19,000 mg/kg (mus) |
    | Inhalative LC50 / 4h | >24.5 mg/l (rattus) |

- **Primary irritant effect**: Based on available data, the classification criteria are not met.

  - Skin corrosion/irritation: Low irritant effect
  - Serious eye damage/irritation: Based on available data, the classification criteria are not met.
  - Respiratory or skin sensitisation: Based on available data, the classification criteria are not met.

- **CMR effects (carcinogenity, mutagenicity and toxicity for reproduction)**

  - Germ cell mutagenicity: Suspected of causing genetic defects
  - Carcinogenicity: Based on available data, the classification criteria are not met.
  - Reproductive toxicity: Based on available data, the classification criteria are not met.

- **STOT-single exposure**, **STOT-repeated exposure** and **Aspiration hazard**: Based on available data, the classification criteria are not met.

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.

(Contd. on page 6)
SECTION 13: Disposal considerations

13.1 Waste treatment methods
Recommendation
After diluting with a suitable desensitisation agent to 10 %, the solution must be supplied to a special treatment (e.g. thermal utilization) under observance of all official regulations.

Waste disposal key:
Please contact your hazardous waste disposers to assign the right EWC-(European waste catalog)-number.

Uncleaned packaging:
This material and its container must be disposed of as hazardous waste.

SECTION 14: Transport information

14.1 UN-Number
ADR, IMDG, IATA
UN3107

14.2 UN proper shipping name
ADR
UN3107 ORGANIC PEROXIDE TYPE E, LIQUID (DI-tert-BUTYL PEROXIDE)
IMDG, IATA
ORGANIC PEROXIDE TYPE E, LIQUID (DI-tert-BUTYL PEROXIDE)

14.3 Transport hazard class(es)
ADR
Class 5.2 (P1) Organic peroxides.
Label 5.2

IMDG, IATA
Class 5.2 Organic peroxides.
Label 5.2

14.4 Packing group
ADR, IMDG, IATA
Void

14.5 Environmental hazards:
Marine pollutant:
No

14.6 Special precautions for user
Danger code (Kemler):
Warning: Organic peroxides.
-
Stowage Category
SW1 Protected from sources of heat.
SG35 Stow "separated from" acids.
SG36 Stow "separated from" alkalis.
SG72 See 7.2.6.3.2.

Stowage Code
Segregation Code

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
Code: E0
Not permitted as Excepted Quantity
Transport category

(Contd. on page 7)
**Trade name:** PEROXAN DB

<table>
<thead>
<tr>
<th>· Tunnel restriction code</th>
<th>D</th>
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</thead>
<tbody>
<tr>
<td>· RID / GGVSEB:</td>
<td>like ADR</td>
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<tr>
<td>· IMDG</td>
<td></td>
</tr>
<tr>
<td>· Limited quantities (LQ)</td>
<td>125 ml</td>
</tr>
<tr>
<td>· Excepted quantities (EQ)</td>
<td>Code: E0</td>
</tr>
<tr>
<td></td>
<td>Not permitted as Excepted Quantity</td>
</tr>
</tbody>
</table>

**SECTION 15: Regulatory information**

- 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
  - Directive 2012/18/EU
  - 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:
  - Other regulations, limitations and prohibitive regulations
  - Please note: Take care of the respective local regulations.

**SECTION 16: Other information**

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- Department issuing SDS: Environment protection / Security of labour
- Contact: Tel: +49 2871 9902-0
- E-mail: mail@pergan.com
- Abbreviations and acronyms:
  - RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
  - ICAO: International Civil Aviation Organisation
  - 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
  - EINECS: European Inventory of Existing Commercial Chemical Substances
  - CAS: Chemical Abstracts Service (division of the American Chemical Society)
  - DNEL: Derived No-Effect Level (REACH)
  - PNEC: Predicted No-Effect Concentration (REACH)
  - LC50: Lethal concentration, 50 percent
  - LD50: Lethal dose, 50 percent
  - PBT: Persistent, Bioaccumulative and Toxic
  - vPvB: very Persistent and very Bioaccumulative
  - Flam. Liq. 2: Flammable liquids – Category 2
  - Org. Perox. E: Organic peroxides – Type E/F
  - Mut. 2: Germ cell mutagenicity – Category 2
  - Aquatic Chronic 3: Hazardous to the aquatic environment - long-term aquatic hazard – Category 3

* Data compared to the previous version altered.