

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

1.1 Product identifier

- Trade name: **PEROXAN OHP**
- CAS Number: 5809-08-5
- EC number: 227-369-2
- Registration number: 01-2119969650-30
- 1.2 Relevant identified uses of the substance or mixture and uses advised against
No further relevant information available.

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:

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. 3 | H226 | Flammable liquid and vapour. |
| Org. Perox. D | H242 | Heating may cause a fire. |
| Acute Tox. 4 | H302 | Harmful if swallowed. |
| Acute Tox. 3 | H331 | Toxic if inhaled. |
| Skin Corr. 1B | H314 | Causes severe skin burns and eye damage. |
| Eye Dam. 1 | H318 | Causes serious eye damage. |
| Skin Sens. 1 | H317 | May cause an allergic skin reaction. |
| Aquatic Chronic 2 | H411 | Toxic to aquatic life with long lasting effects. |

2.2 Label elements

Labelling according to

Regulation (EC) No 1272/2008

Hazard pictograms

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



GHS02 GHS05 GHS06 GHS09

Signal word

Danger

Hazard-determining components of labelling:

Hazard statements

1,1,3,3-tetramethylbutyl hydroperoxide
 H226 Flammable liquid and vapour.
 H242 Heating may cause a fire.
 H302 Harmful if swallowed.
 H331 Toxic if inhaled.
 H314 Causes severe skin burns and eye damage.
 H317 May cause an allergic skin reaction.
 H411 Toxic 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.
 P264 Wash thoroughly after handling.
 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.
 P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P310 Immediately call a POISON CENTER/doctor.

Trade name: **PEROXAN OHP**

(Contd. of page 1)

| | |
|-----------|---|
| P403+P235 | Store in a well-ventilated place. Keep cool. |
| P410 | Protect from sunlight. |
| P411 | Store at temperatures not exceeding +25°C. |
| 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.
- **vPvB:** Not applicable.

SECTION 3: Composition/information on ingredients

· **3.1 Chemical characterisation: Substances**

- **CAS No. Description** 5809-08-5 1,1,3,3-tetramethylbutyl hydroperoxide
- **Identification number(s)**
- **EC number:** 227-369-2

· **Impurities and stabilising additives:**

| | | |
|--|------------------------|---|
| CAS: 25167-70-8 EINECS: 246-690-9 Index number: 601-087-00-3 | 2,4,4-trimethylpentene | Flam. Liq. 2, H225; Asp. Tox. 1, H304; Aquatic Chronic 1, H410; STOT SE 3, H336 |
| CAS: 75-84-3 EINECS: 200-907-3 | 2,2-dimethylpropanol | Flam. Sol. 1, H228 |
| CAS: 7732-18-5 EINECS: 231-791-2 | water | |

SECTION 4: First aid measures

· **4.1 Description of first aid measures**

- **General information:** Immediately remove any clothing soiled by the product. Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.



Take care of personal protection for the first aider.

- **After inhalation:** Supply fresh air and to be sure call for a doctor. In case of unconsciousness place patient stably in side position for transportation. Take affected persons into fresh air and keep quiet.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly. Immediately remove contaminated clothing.
- **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
- **After swallowing:** Call for a doctor immediately. Drink plenty of water and provide fresh air. Call for a doctor immediately.

· **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, sand, extinguishing powder. Do not use water.
- **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:** Mouth respiratory protective device. Do not inhale explosion gases or combustion gases.
- **Additional information** Cool endangered receptacles with water spray. Self-protection first!

Trade name: **PEROXAN OHP**

(Contd. of page 2)

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.
Wear protective equipment. Keep unprotected persons away.

6.2 Environmental precautions:

Inform respective authorities in case of seepage into water course or sewage system.



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.
Do not flush with water or aqueous cleansing agents
Large quantities should be diluted with suitable desensitisation 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

See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.
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.
Keep away from heat and direct sunlight.
Ensure good ventilation/exhaustion at the workplace.
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 work place.
Use only in well ventilated areas.
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 oxygene.
Avoid contact with skin and eyes.
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.



Do not smoke.

Information about fire - and explosion protection:

Protect from heat.
Protect against electrostatic charges.
Prevent impact and friction.
Use explosion-proof apparatus / fittings and spark-proof tools.
Fumes can combine with air to form an explosive mixture.



Wear shoes with conductive soles.

Formation of flammable or explosive gas/air-mixtures is possible.



Avoid open flames, sparks, direct sunlight and other sources of ignition.

Keep ignition sources away - Do not smoke.

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

Pay attention to the special requirements of your local authorities for storing dangerous goods.

Requirements to be met by storerooms and receptacles:

Store in a cool location.
Store only in the original receptacle.

(Contd. on page 4)

Trade name: **PEROXAN OHP**

(Contd. of page 3)



- **Information about storage in one common storage facility:** Prevent any seepage into the ground.
Use only receptacles specifically permitted for this substance/product.
- **Further information about storage conditions:** Do not store or park organic peroxide together with heavy metal compounds and amines.
Store away from foodstuffs, drinks and feeding stuffs.
Keep container tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
Protect from heat and direct sunlight.
Protect from contamination.
Store under lock and key and out of the reach of children.
Store in a cool place.
Storage in a collecting room is required.
- **Recommended storage temperature (To maintain quality):** -5 +25 °C
- **Storage class:** 5.2
- **7.3 Specific end use(s):** No further relevant information available.

SECTION 8: Exposure controls/personal protection

- **Additional information about design of technical facilities:** No further data; see item 7.
- **8.1 Control parameters**
- **Ingredients with limit values that require monitoring at the workplace:** Not required.

| · DNELs | | |
|--|----------------------|----------------------------|
| 5809-08-5 1,1,3,3-tetramethylbutyl hydroperoxide | | |
| Dermal | DNEL Longterm System | 0.67 mg/kg bw/day (Worker) |
| Inhalative | DNEL Longterm System | 2.35 mg/m3 (Worker) |

| · PNECs | | |
|--|--|------------------------|
| 5809-08-5 1,1,3,3-tetramethylbutyl hydroperoxide | | |
| PNEC Marinewater sed | | 0.22 mg/kg sed dw (-) |
| PNEC Freshwater | | 0.007 mg/l (AF 50) |
| PNEC Seawater | | 0.0007 mg/l (AF 500) |
| PNEC Freshwater sed | | 1.68 mg/kg sed dw (-) |
| PNEC Soil | | 0.04 mg/kg soil dw (-) |
| PNEC STP | | 3.3 mg/l (AF 10) |

- **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.
Avoid close or long term contact with the skin.
Avoid contact with the eyes and skin.
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:** In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.
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

(Contd. on page 5)

Trade name: **PEROXAN OHP**

(Contd. of page 4)

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

· Appearance:

- **Form:** Fluid
- **Colour:** Colourless
- **Odour:** Characteristic
- **Odour threshold:** Not determined.

· **pH-value:** Not determined.

· Change in condition

- **Melting point/freezing point:** Not applicable.
- **Initial boiling point and boiling range:** Not applicable.

· **Flash point:** 40 °C

· **Flammability (solid, gas):** Not applicable.

· **Decomposition temperature:** +60 °C (SADT)

· **Auto-ignition temperature:** Not determined.

· **Explosive properties:** Product does not present an explosion hazard.

· Explosion limits:

- **Lower:** Not determined.
- **Upper:** Not determined.

· **Vapour pressure:** Not determined.

- **Density at 20 °C:** 0.89 g/cm³
- **Relative density** Not determined.
- **Vapour density** Not determined.
- **Evaporation rate** Not determined.

· Solubility in / Miscibility with

· **water:** Undetermined.

· **Partition coefficient: n-octanol/water:** not determined
Not determined.

· Viscosity:

- **Dynamic:** Not determined.
- **Kinematic:** Not determined.
- **Water:** 0.0 %

· **Solids content:** 0.0 %

· **9.2 Other information** No further relevant information available.

· **Active oxygen** 9.3 %

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 caused by decomposition at and above the temperature. Contact with incompatible substances can cause decomposition at or below the SADT.

(Contd. on page 6)

Trade name: **PEROXAN OHP**

(Contd. of page 5)

- **10.3 Possibility of hazardous reactions** No decomposition if used and stored according to specifications. To avoid thermal decomposition do not overheat.
- **10.4 Conditions to avoid** Self-accelerating decomposition at SADT.
- **10.5 Incompatible materials:** No further relevant information available.
- **10.6 Hazardous decomposition products:** Rapid decomposition by dirt, rust, chemicals in particular concentrated acids, alkalis and accelerators (e. g. heavy-metal compounds and amines).
Hydrocarbons, carbondioxide and -monoxid.
- **Additional information:** No hazardous decomposition products if used and stored according to specifications.
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** Harmful if swallowed.
Toxic if inhaled.
- **Primary irritant effect:**
- **Skin corrosion/irritation** Causes severe skin burns and eye damage.
- **Serious eye damage/irritation** Causes serious eye damage.
- **Respiratory or skin sensitisation** May cause an allergic skin reaction.
- **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**
- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
- **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** Based on available data, the classification criteria are not met.
- **STOT-repeated exposure** Based on available data, the classification criteria are not met.
- **Aspiration hazard** Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

- **12.1 Toxicity**

- **Aquatic toxicity:**

5809-08-5 1,1,3,3-tetramethylbutyl hydroperoxide

| | |
|------------|--------------------|
| LC50 / 96h | 11.3 mg/l (piscis) |
| EC50 / 48h | 6.7 mg/l (daphnia) |

- **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.

- **Ecotoxicological effects:**

- **Remark:**

Toxic for fish

- **Additional ecological information:**

- **General notes:**

Must not reach sewage water or drainage ditch undiluted or unneutralised.

Also poisonous for fish and plankton in water bodies.

Toxic for aquatic organisms

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

Do not allow product to reach ground water, water course or sewage system.

Danger to drinking water if even small quantities leak into the ground.

- **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**



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.

Must not be disposed together with household garbage. Do not allow product to reach sewage system.

- **Waste disposal key:**

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




(Contd. on page 7)

Trade name: **PEROXAN OHP**

(Contd. of page 6)

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

SECTION 14: Transport information

| | |
|---|--|
| · 14.1 UN-Number · ADR, IMDG, IATA | UN3105 |
| · 14.2 UN proper shipping name · ADR · IMDG · IATA | UN3105 ORGANIC PEROXIDE TYPE D, LIQUID (1,1,3,3-TETRAMETHYLBUTYL HYDROPEROXIDE), ENVIRONMENTALLY HAZARDOUS ORGANIC PEROXIDE TYPE D, LIQUID (1,1,3,3-TETRAMETHYLBUTYL HYDROPEROXIDE), MARINE POLLUTANT ORGANIC PEROXIDE TYPE D, LIQUID (1,1,3,3-TETRAMETHYLBUTYL HYDROPEROXIDE) |
| · 14.3 Transport hazard class(es) · ADR  · Class · Label | 5.2 (P1) Organic peroxides. 5.2 |
| · IMDG  · Class · Label | 5.2 Organic peroxides. 5.2 |
| · IATA  · Class · Label | 5.2 Organic peroxides. 5.2 |
| · 14.4 Packing group · ADR, IMDG, IATA | Void |
| · 14.5 Environmental hazards: · Marine pollutant: · Special marking (ADR): | Symbol (fish and tree) Symbol (fish and tree) |
| · 14.6 Special precautions for user · Danger code (Kemler): · Stowage Category · Stowage Code · Segregation Code | Warning: Organic peroxides. - D SW1 Protected from sources of heat. 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) · Excepted quantities (EQ) · Transport category · Tunnel restriction code | 125 ml Code: E0 Not permitted as Excepted Quantity 2 D |
| · RID / GGVSEB: | like ADR |
| · IMDG · Limited quantities (LQ) | 125 ml |

(Contd. on page 8)
GB

Trade name: **PEROXAN OHP**

(Contd. of page 7)

· **Exempted quantities (EQ)**Code: E0
Not permitted as Exempted Quantity**SECTION 15: Regulatory information**

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Directive 2012/18/EU**
- **Named dangerous substances**
 - **ANNEX I** Substance is not 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:**
- **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.

- **Contact:** Tel: +49 2871 9902-0
E-mail: mail@pergan.com
- **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
 - 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)
 - PBT: Persistent, Bioaccumulative and Toxic
 - vPvB: very Persistent and very Bioaccumulative
 - Flam. Liq. 3: Flammable liquids – Category 3
 - Org. Perox. D: Organic peroxides – Type C/D
 - Acute Tox. 4: Acute toxicity – Category 4
 - Acute Tox. 3: Acute toxicity – Category 3
 - Skin Corr. 1B: Skin corrosion/irritation – Category 1B
 - Eye Dam. 1: Serious eye damage/eye irritation – Category 1
 - Skin Sens. 1: Skin sensitisation – Category 1
 - Aquatic Chronic 2: Hazardous to the aquatic environment - long-term aquatic hazard – Category 2
- *** Data compared to the previous version altered.**