

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

1.1 Product identifier

· Trade name:	PEROXAN BEC
· CAS Number:	34443-12-4
· EC number:	252-029-5
· Registration number:	01-2119964023-44

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
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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 Wiltling, e-mail: c.wiltling@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

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

Aquatic Acute 1 H400 Very toxic to aquatic life.

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 GB CLP regulation.

Hazard pictograms



GHS02 GHS09

Signal word

Danger

Hazard-determining components of labelling:

OO-tert-butyl O-(2-ethylhexyl) peroxydicarbonate

Hazard statements

H242 Heating may cause a fire.

H410 Very 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 packaging.
P264	Wash thoroughly after handling.
P280	Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
P370+P378	In case of fire: Use CO ₂ , powder or water spray to extinguish.
P410	Protect from sunlight.
P411+P235	Store at temperatures not exceeding +30°C. Keep cool.
P420	Store separately.
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

2.3 Other hazards

Results of PBT and vPvB assessment

· PBT: This substance does not meet the PBT/vPvB criteria of UK REACH, Annex XIII.

· vPvB: This substance does not meet the PBT/vPvB criteria of UK REACH, Annex XIII.


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SECTION 3: Composition/information on ingredients

- **3.1 Substances**
- **CAS No. Description** 34443-12-4 OO-tert-butyl O-(2-ethylhexyl) peroxy carbonate
- **Identification number(s)**
- **EC number:** 252-029-5


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.
- **5.2 Special hazards arising from the substance or mixture** Under certain fire conditions, traces of other toxic gases cannot be excluded. Hydrocarbons, carbon dioxide 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. 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:** Ensure adequate ventilation. Large quantities should be diluted with suitable desensitization 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. 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.

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Restrict the quantity stored at the work place.
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).
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.
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.
Storage in a collecting room is required.

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

max.: +30°C

· **7.3 Specific end use(s)**

No further relevant information available.

SECTION 8: Exposure controls/personal protection

· **8.1 Control parameters**

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

Not required.

· **DNELs**

34443-12-4 OO-tert-butyl O-(2-ethylhexyl) peroxy carbonate

Dermal	DNEL Longterm System	84 mg/kg bw/day (Worker)
Inhalative	DNEL Longterm System	59.2 mg/m ³ (Worker)

· **PNECs**





34443-12-4 OO-tert-butyl O-(2-ethylhexyl) peroxy carbonate

PNEC Marinewater sed	12.968 mg/kg sed dw
PNEC Freshwater	0.000214 mg/l (AF 1.000)
PNEC Freshwater sed	0.12968 mg/kg sed dw
PNEC Soil	25.747 mg/kg soil dw (-)
PNEC STP	3.16 mg/l (AF 10)
PNEC Marinewater	0.000021 mg/l (AF 10.000)

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<ul style="list-style-type: none"> · Additional information: · 8.2 Exposure controls · Appropriate engineering controls · Individual protection measures, such as personal protective equipment · General protective and hygienic measures: · Respiratory protection: · Hand protection · Material of gloves · Penetration time of glove material · Eye/face protection · Body protection: 	<p>The lists valid during the making were used as basis.</p> <p>No further data; see section 7.</p> <p>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. Not necessary if room is well-ventilated. Use suitable respiratory device when it exceed exposure limit and when insufficiently ventilated.</p> <p> Filter A2</p> <p>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</p> <p>Protective gloves</p> <p>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</p> <p>The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.</p> <p> Tightly sealed goggles</p> <p> Protective work clothing</p>
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SECTION 9: Physical and chemical properties

· 9.1 Information on basic physical and chemical properties

· General Information	
· Colour:	Colourless
· Odour:	Characteristic
· Melting point/freezing point:	Not applicable.
· Boiling point or initial boiling point and boiling range	Not applicable.
· Flash point:	> SADT
· Decomposition temperature:	+60 °C (SADT)
· Viscosity:	
· Dynamic at 20 °C:	7 mPas
· Solubility	
· water:	Undetermined.
· Partition coefficient n-octanol/water (log value)	not determined
· Density and/or relative density	
· Density at 20 °C:	0.93 g/cm ³

· 9.2 Other information

· Appearance:	
· Form:	Fluid
· Important information on protection of health and environment, and on safety.	
· Explosive properties:	Product is not explosive. However, formation of explosive air/vapour mixtures are possible.

· Information with regard to physical hazard classes

· Explosives	Void
· Flammable gases	Void

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· Aerosols	Void
· Oxidising gases	Void
· Gases under pressure	Void
· Flammable liquids	Void
· Flammable solids	Void
· Self-reactive substances and mixtures	Void
· Pyrophoric liquids	Void
· Pyrophoric solids	Void
· Self-heating substances and mixtures	Void
· Substances and mixtures, which emit flammable gases in contact with water	Void
· Oxidising liquids	Void
· Oxidising solids	Void
· Organic peroxides	Heating may cause a fire.
· Corrosive to metals	Void
· Desensitised explosives	Void
· Other safety characteristics	
· Active oxygen	> 6.3 %

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 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, carbon dioxide and -monoxid.
No hazardous decomposition products if used and stored according to specifications.
- **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 hazard classes as defined in Regulation (EC) No 1272/2008**
- **Acute toxicity** Based on available data, the classification criteria are not met.

- **LD/LC50 values relevant for classification:**

34443-12-4 OO-tert-butyl O-(2-ethylhexyl) peroxy carbonate

Oral | LD50 | >5,000 mg/kg (rattus)

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

- **Endocrine disrupting properties**

None of the ingredients is listed.

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SECTION 12: Ecological information· **12.1 Toxicity**· **Aquatic toxicity:****34443-12-4 OO-tert-butyl O-(2-ethylhexyl) peroxy carbonate**

LC50 / 96h | 100 mg/l (piscis)

· **12.2 Persistence and degradability**· **Degree of elimination:**· **Classification:****34443-12-4 OO-tert-butyl O-(2-ethylhexyl) peroxy carbonate**

Degradation | (Readily biodegradable) (OECD 301 D)

· **12.3 Bioaccumulative potential**· **Partition coefficient: nOctanol/water: [Log Kow]**

34443-12-4	OO-tert-butyl O-(2-ethylhexyl) peroxy carbonate	5,2 (25°C)
75-91-2	tert-butyl hydroperoxide	0,85 (30 °C)
104-76-7	2-Ethyl-1-hexanol	2,9 (25 °C)

· **Bioconcentration factor (BCF)****34443-12-4 OO-tert-butyl O-(2-ethylhexyl) peroxy carbonate**

BCF | 1,253

· **12.4 Mobility in soil**

No further relevant information available.

· **12.5 Results of PBT and vPvB assessment**· **PBT:**

This substance does not meet the PBT/vPvB criteria of UK REACH, Annex XIII.

· **vPvB:**

This substance does not meet the PBT/vPvB criteria of UK REACH, Annex XIII.

· **12.6 Endocrine disrupting properties**

The product does not contain substances with endocrine disrupting properties.

· **12.7 Other adverse effects**· **Remark:**

Harmful to fish

· **Additional ecological information:**· **General notes:**

Harmful to 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.

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.

· **Uncleaned packaging:**· **Recommendation:**

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

SECTION 14: Transport information· **14.1 UN number or ID number**· **ADR, IMDG, IATA**

UN3105

· **14.2 UN proper shipping name**· **ADR**

UN3105 ORGANIC PEROXIDE TYPE D, LIQUID (tert.-BUTYL PEROXY-2-ETHYLHEXYLCARBONATE), ENVIRONMENTALLY HAZARDOUS ORGANIC PEROXIDE TYPE D, LIQUID (tert.-BUTYL PEROXY-2-ETHYLHEXYLCARBONATE), MARINE POLLUTANT

· **IMDG**· **IATA**

ORGANIC PEROXIDE TYPE D, LIQUID (tert.-BUTYL PEROXY-2-ETHYLHEXYLCARBONATE)

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

· IMDG	
· Class	5.2 Organic peroxides.
· Label	5.2

· IATA	
· Class	5.2 Organic peroxides.
· Label	5.2

· 14.4 Packing group	
· ADR, IMDG, IATA	
Void	
· 14.5 Environmental hazards:	
Product contains environmentally hazardous substances: tert.-BUTYL PEROXY-2-ETHYLHEXYLCARBONATE	
· Marine pollutant:	Yes
· Special marking (ADR):	Symbol (fish and tree)
	Symbol (fish and tree)

· 14.6 Special precautions for user	
· Hazard identification number (Kemler code):	
-	
· Stowage Category	
D	
· Stowage Code	
SW1 Protected from sources of heat.	
· Segregation Code	
SG35 Stow "separated from" SGG1-acids	
SG36 Stow "separated from" SGG18-alkalis.	
SG72 See 7.2.6.3.2.	

· 14.7 Maritime transport in bulk according to IMO instruments	
Not applicable.	

· Transport/Additional information:	

· ADR	
· Limited quantities (LQ)	125 ml
· Excepted quantities (EQ)	Code: E0
	Not permitted as Excepted Quantity
· Transport category	2
· Tunnel restriction code	D

· RID / GGVSEB:	
like ADR	

· IMDG	
· Limited quantities (LQ)	125 ml
· Excepted quantities (EQ)	Code: E0
	Not permitted as Excepted Quantity

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

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· DIRECTIVE 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment – Annex II
None of the ingredients is listed.
· Annex I - RESTRICTED EXPLOSIVES PRECURSORS (Upper limit value for the purpose of licensing under Article 5(3))
None of the ingredients is listed.
· Annex II - REPORTABLE EXPLOSIVES PRECURSORS
None of the ingredients is listed.
· Regulation (EC) No 273/2004 on drug precursors
None of the ingredients is listed.
· Regulation (EC) No 111/2005 laying down rules for the monitoring of trade between the Community and third countries in drug precursors
None of the ingredients is listed.
· 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 relatif au transport international 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 (UK REACH) PNEC: Predicted No-Effect Concentration (UK REACH) LC50: Lethal concentration, 50 percent LD50: Lethal dose, 50 percent PBT: Persistent, Bioaccumulative and Toxic vPvB: very Persistent and very Bioaccumulative Org. Perox. D: Organic peroxides – Type C/D Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard – Category 1 Aquatic Chronic 3: Hazardous to the aquatic environment - long-term aquatic hazard – Category 3

· * Data compared to the previous version altered.