



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

- **1.1 Product identifier**  
**PEROXAN HXY-45 P**
- **Trade name:**
- **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:**  
Environment protection / Security of labour  
Qualified person: E-mail: msds@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 Chronic 2   H411 Toxic to aquatic life with long lasting effects.
- **2.2 Label elements**
- **Labelling according to Regulation (EC) No 1272/2008**  
The product is classified and labelled according to the GB CLP regulation.
- **Hazard pictograms**  

GHS02 GHS09
- **Signal word**  
Danger
- **Hazard-determining components of labelling:**  
di-tert-butyl 1,1,4,4-tetramethylbut-2-yn-1,4-ylene diperoxide
- **Hazard statements**  
H242 Heating may cause a fire.  
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 packaging.  
P273     Avoid release to the environment.  
P280     Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.  
P370+P378 In case of fire: Use CO<sub>2</sub>, 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:**  
The substances in the mixture do not meet the PBT/vPvB criteria according to UK REACH, annex XIII.
- **vPvB:**  
The substances in the mixture do not meet the PBT/vPvB criteria according to UK REACH, annex XIII.

## SECTION 3: Composition/information on ingredients

### 3.2 Mixtures

#### Dangerous components:

CAS: 1068-27-5 EINECS: 213-944-5 Reg-No.: 01-2120752828-41	di-tert-butyl 1,1,4,4-tetramethylbut-2-yn-1,4-ylene diperoxide Org. Perox. C, H242; Aquatic Chronic 2, H411	40-50%
CAS: 112926-00-8 Reg-No.: 01-2119379499-16	Silica gel, precipitated Alternative CAS number: 7631-86-9 Substance with a Community workplace exposure limit. Nanoform: Category: Nano moulds.	30-40%

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· **Additional information:** For the wording of the listed hazard phrases refer to section 16.

### 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:** CO<sub>2</sub>, 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, 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.  
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 desensitisation agent to a concentration below 10 % before disposal.  
Pick up mechanically, collect in a suitable receptacle and dispose 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 away from heat and direct sunlight.  
Open and handle receptacle with care.  
Prevent formation of dust.  
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.  
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).

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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.  
Dust can combine with air to form an explosive mixture.  
Substance/product is oxidising when dry.  
Product is not explosive. However, formation of explosive air/dust mixtures are 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 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:** Protect from heat and direct sunlight.  
Protect from contamination.

· **Recommended storage temperature (To maintain quality):** +10 .... +30 °C

· **Storage class:** 5.2

· **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:**

**112926-00-8 Silica gel, precipitated**

WEL (Great Britain) | Long-term value: 6 mg/m<sup>3</sup>

· **DNELs**

**1068-27-5 di-tert-butyl 1,1,4,4-tetramethylbut-2-yn-1,4-ylene diperoxide**

Dermal | DNEL Longterm System | 15 mg/kg bw/day (Worker)

Inhalative | DNEL Longterm System | 10.58 mg/m<sup>3</sup> (Worker)

**112926-00-8 Silica gel, precipitated**

Inhalative | DNEL Longterm System | 4 mg/m<sup>3</sup> (Worker)

· **PNECs**

**1068-27-5 di-tert-butyl 1,1,4,4-tetramethylbut-2-yn-1,4-ylene diperoxide**

PNEC Marinewater sed | 2.534 mg/kg sed dw (-)

PNEC Freshwater | 0.022 mg/l (-)

PNEC Freshwater sed | 25.344 mg/kg sed dw (-)

PNEC Soil | 3.568 mg/kg soil dw (-)

PNEC STP | 100 mg/l (AF 10)

PNEC Marinewater | 0.002 mg/l (-)

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

· **8.2 Exposure controls**

· **Appropriate engineering controls** No further data; see section 7.

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· **Individual protection measures, such as 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.  
Not necessary if room is well-ventilated.

· **Respiratory protection:**



Use suitable respiratory device when it exceed exposure limit and when insufficiently ventilated.



Filter P2

· **Hand protection**

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/face 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**

· <b>Colour:</b>	white - yellowish
· <b>Odour:</b>	Characteristic
· <b>Odour threshold:</b>	Not determined.
· <b>Melting point/freezing point:</b>	Not applicable.
· <b>Boiling point or initial boiling point and boiling range</b>	Not applicable.
· <b>Flammability</b>	May cause fire.
· <b>Lower and upper explosion limit</b>	
· <b>Lower:</b>	Not determined.
· <b>Upper:</b>	Not determined.
· <b>Flash point:</b>	Not applicable.
· <b>Decomposition temperature:</b>	> +80 °C (SADT)
· <b>pH</b>	Not applicable.
· <b>Viscosity:</b>	
· <b>Kinematic viscosity</b>	Not applicable.
· <b>Dynamic:</b>	Not applicable.
· <b>Solubility</b>	
· <b>water:</b>	Undetermined.
· <b>Partition coefficient n-octanol/water (log value)</b>	not determined
· <b>Vapour pressure:</b>	Not applicable.
· <b>Density and/or relative density</b>	
· <b>Density:</b>	Not determined.
· <b>Relative density</b>	Not determined.
· <b>Vapour density</b>	Not applicable.

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<b>9.2 Other information</b>	
· Appearance:	
· Form:	Powder
· Important information on protection of health and environment, and on safety.	
· Ignition temperature:	Product is not selfigniting.
· Explosive properties:	Product is not explosive. However, formation of explosive air/dust mixtures are possible.
· Change in condition	
· Evaporation rate	Not applicable.
<b>Information with regard to physical hazard classes</b>	
· Explosives	Void
· Flammable gases	Void
· 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	4.8 - 5.3 %

## 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

<b>11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008</b>	
· Acute toxicity	Based on available data, the classification criteria are not met.
· Skin corrosion/irritation	Based on available data, the classification criteria are not met.
· 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.
· 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.

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- **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.

## SECTION 12: Ecological information

· **12.1 Toxicity**

· **Aquatic toxicity:**

**1068-27-5 di-tert-butyl 1,1,4,4-tetramethylbut-2-yn-1,4-ylene diperoxide**

EC50 | 6.17 mg/l (algae)

· **12.2 Persistence and degradability**

· **Degree of elimination:**

· **Classification:**

**1068-27-5 di-tert-butyl 1,1,4,4-tetramethylbut-2-yn-1,4-ylene diperoxide**

Degradation | (Not readily biodegradable) (OECD 301 D)

**112926-00-8 Silica gel, precipitated**

Degradation | (The study does not need to be conducted)

· **12.3 Bioaccumulative potential**

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

1068-27-5 | di-tert-butyl 1,1,4,4-tetramethylbut-2-yn-1,4-ylene diperoxide

6,71

8042-47-5 | White mineral oil, petroleum

&gt; 3,5

· **12.4 Mobility in soil**

No further relevant information available.

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

· **PBT:**

The substances in the mixture do not meet the PBT/vPvB criteria according to UK REACH, annex XIII.

· **vPvB:**

The substances in the mixture do not meet the PBT/vPvB criteria according to UK REACH, annex XIII.

· **12.6 Endocrine disrupting properties**

The product does not contain substances with endocrine disrupting properties.

· **12.7 Other adverse effects**

· **Additional ecological information:**

· **General notes:**

Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water  
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

## SECTION 13: Disposal considerations

· **13.1 Waste treatment methods**

· **Recommendation**



After diluting with a suitable inert solid material to 10 %, the product 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**

UN3106

· **14.2 UN proper shipping name**

· **ADR**

UN3106 ORGANIC PEROXIDE TYPE D, SOLID (2,5-DIMETHYL-2,5-DI-(tert-BUTYLPEROXY) HEXYNE-3), ENVIRONMENTALLY HAZARDOUS

· **IMDG**

ORGANIC PEROXIDE TYPE D, SOLID (2,5-DIMETHYL-2,5-DI-(tert-BUTYLPEROXY) HEXYNE-3), MARINE POLLUTANT

· **IATA**

ORGANIC PEROXIDE TYPE D, SOLID (2,5-DIMETHYL-2,5-DI-(tert-BUTYLPEROXY) HEXYNE-3)

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· <b>14.3 Transport hazard class(es)</b>	
· <b>ADR</b>	
· <b>Class</b>	5.2 (P1) Organic peroxides.
· <b>Label</b>	5.2
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· <b>IMDG</b>	
· <b>Class</b>	5.2 Organic peroxides.
· <b>Label</b>	5.2
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· <b>IATA</b>	
· <b>Class</b>	5.2 Organic peroxides.
· <b>Label</b>	5.2
· <b>14.4 Packing group</b>	
· <b>ADR, IMDG, IATA</b>	Void
· <b>14.5 Environmental hazards:</b>	
· <b>Marine pollutant:</b>	No Symbol (fish and tree)
· <b>Special marking (ADR):</b>	Symbol (fish and tree)
· <b>14.6 Special precautions for user</b>	
· <b>Hazard identification number (Kemler code):</b>	Warning: Organic peroxides.
· <b>Stowage Category</b>	-
· <b>Stowage Code</b>	D
· <b>Segregation Code</b>	SW1 Protected from sources of heat. SG35 Stow "separated from" SGG1-acids SG36 Stow "separated from" SGG18-alkalis.
· <b>14.7 Maritime transport in bulk according to IMO instruments</b> Not applicable.	
· <b>Transport/Additional information:</b>	
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· <b>ADR</b>	
· <b>Limited quantities (LQ)</b>	500 g
· <b>Excepted quantities (EQ)</b>	Code: E0 Not permitted as Excepted Quantity
· <b>Transport category</b>	2
· <b>Tunnel restriction code</b>	D
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· <b>RID / GGVSEB:</b>	like ADR
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· <b>IMDG</b>	
· <b>Limited quantities (LQ)</b>	500 g
· <b>Excepted quantities (EQ)</b>	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

#### · Poisons Act

##### · Regulated explosives precursors

None of the ingredients is listed.

##### · Regulated poisons

None of the ingredients is listed.

##### · Reportable explosives precursors

None of the ingredients is listed.

##### · Reportable poisons

None of the ingredients is listed.

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- Directive 2012/18/EU
- Named dangerous substances - ANNEX I None of the ingredients is listed.
- Qualifying quantity (tonnes) for the application of lower-tier requirements 50 t
- Qualifying quantity (tonnes) for the application of upper-tier requirements 200 t

· **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.

· **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.

- **Relevant phrases** H242 Heating may cause a fire.  
H411 Toxic to aquatic life with long lasting effects.
- **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  
ELINCS: European List of Notified 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)  
PBT: Persistent, Bioaccumulative and Toxic  
vPvB: very Persistent and very Bioaccumulative  
Org. Perox. C: Organic peroxides – Type C/D  
Org. Perox. D: Organic peroxides – Type C/D  
Aquatic Chronic 2: Hazardous to the aquatic environment - long-term aquatic hazard – Category 2

· \* **Data compared to the previous version altered.**