

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

- **1.1 Product identifier**
- **Trade name:** PEROXAN DB-50 W
- **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**

Flam. Liq. 2	H225 Highly flammable liquid and vapour.
Org. Perox. F	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 product is classified and labelled according to the CLP regulation.
- **Hazard pictograms**

GHS02 GHS08
- **Signal word** Danger
- **Hazard-determining components of labelling:** di-tert-butyl peroxide
- **Hazard statements**

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 packaging.
P243	Take action to prevent static discharges.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
P403+P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P410	Protect from sunlight.
P411	Store at temperatures not exceeding +40°C.
P420	Store separately.
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.
- **Additional information:** Contains tert-butyl hydroperoxide. May produce an allergic reaction.
- **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 REACH, annex XIII.
- **vPvB:** The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

Trade name: **PEROXAN DB-50 W**

(Contd. of page 1)

· **Determination of endocrine-disrupting properties**

The product does not contain substances with endocrine disrupting properties.

SECTION 3: Composition/information on ingredients

· **3.2 Mixtures**

· **Dangerous components:**

CAS: 110-05-4 EINECS: 203-733-6 Index number: 617-001-00-2 Reg-No.: 01-2119513335-48	di-tert-butyl peroxide Flam. Liq. 2, H225; Org. Perox. E, H242; Muta. 2, H341; Aquatic Chronic 3, H412	40-50%
CAS: 75-91-2 EINECS: 200-915-7 Reg-No.: 01-2119446670-40	tert-butyl hydroperoxide Flam. Liq. 3, H226; Org. Perox. F, H242; Acute Tox. 3, H311; Acute Tox. 2, H330; Muta. 2, H341; Carc. 2, H351; Skin Corr. 1C, H314; Eye Dam. 1, H318; Aquatic Chronic 2, H411; Acute Tox. 4, H302; Skin Sens. 1, H317; STOT SE 3, H335 Specific concentration limits: Eye Dam. 1; H318: C ≥ 1 % Skin Sens. 1; H317: C ≥ 0,1 % STOT SE 3; H335: C ≥ 5 %	≤0,1%

· **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. If symptoms persist, consult a doctor.

· **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.
Wear protective equipment. Keep unprotected persons away.

· **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 section 13.
Ensure adequate ventilation.

(Contd. on page 3)

— MT —

Trade name: **PEROXAN DB-50 W**

(Contd. of page 2)

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** 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).
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.

· Recommended storage temperature (To maintain quality):

max.: +40°C

· Storage class:

5.2

· 7.3 Specific end use(s)

No further relevant information available.

Trade name: **PEROXAN DB-50 W**

(Contd. of page 3)

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with limit values that require monitoring at the workplace:

The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

· DNELs

110-05-4 di-tert-butyl peroxide

Dermal	DNEL Longterm System	3 mg/kg bw/day (Worker)
Inhalative	DNEL Longterm System	20 mg/m3 (Worker)

75-91-2 tert-butyl hydroperoxide

Dermal	DNEL Longterm System	0,21 mg/kg bw/day (Worker)
Inhalative	DNEL Acute Systemic	85,2 mg/m3 (Worker)
	DNEL Acute Local	28,4 mg/m3 (Worker)
	DNEL Longterm System	2,2 mg/m3 (Worker)
	DNEL Longterm Local	0,58 mg/m3 (Worker)

· PNECs

110-05-4 di-tert-butyl peroxide

PNEC Marinewater sed	1,5 mg/kg sed dw (-)
PNEC Freshwater	0,144 mg/l (AF 50)
PNEC Freshwater sed	15 mg/kg sed dw (-)
PNEC Soil	2,94 mg/kg soil dw (-)
PNEC STP	10 mg/l (AF 100)
PNEC Marinewater	0,014 mg/l (AF 500)

75-91-2 tert-butyl hydroperoxide

PNEC Marinewater sed	0,001 mg/kg sed dw
PNEC Freshwater	0,002 mg/l (AF 1.000)
PNEC Seawater	0 mg/l (AF 10.000)
PNEC Freshwater sed	0,006 mg/kg sed dw (-)
PNEC Soil	0,166 mg/kg soil dw (AF 1.000)
PNEC STP	0,17 mg/l (AF 100)

· **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.

· 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 inhale gases / fumes / aerosols.
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

· 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

(Contd. on page 5)

— MT —

Trade name: **PEROXAN DB-50 W**

(Contd. of page 4)

· **Penetration time of glove material**

Neoprene

The exact break through 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

· Colour:	Colourless
· Odour:	Characteristic
· Melting point/freezing point:	Undetermined.
· Boiling point or initial boiling point and boiling range	Undetermined.
· Flash point:	+5 °C
· Decomposition temperature:	> +80 °C (SADT)
· Viscosity:	
· Dynamic at 20 °C:	ca. 6 mPas
· Solubility	
· water:	Not miscible or difficult to mix.
· Partition coefficient n-octanol/water (log value)	not determined
· Density and/or relative density	
· Density at 20 °C:	ca. 0,83 g/cm ³

· 9.2 Other information

· Appearance:	
· Form:	Fluid
· 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/vapour mixtures are possible.

· Information with regard to physical hazard classes

· Explosives	Void
· Flammable gases	Void
· Aerosols	Void
· Oxidising gases	Void
· Gases under pressure	Void
· Flammable liquids	Highly flammable liquid and vapour.
· 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

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.

(Contd. on page 6)

MT

Trade name: **PEROXAN DB-50 W**

(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.

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:**

110-05-4 di-tert-butyl peroxide

Oral	LD50	>25.000 mg/kg (rattus)
Dermal	LD50	>19.000 mg/kg (mouse)
Inhalative	LC50 / 4h	>24,5 mg/l (rattus)

75-91-2 tert-butyl hydroperoxide

Oral	LD50	805 mg/kg /(70%) (rattus)
Dermal	LD50	633 mg/kg /(70%) (rabbit)
Inhalative	LC50 / 4h	1,2 mg/l /(70%) (rattus)

· **Skin corrosion/irritation** Based on available data, the classification criteria are not met.

· **Serious eye damage/irritation** Low irritant effect

· **Respiratory or skin sensitisation**

Based on available data, the classification criteria are not met.

· **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**

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:**

75-91-2 tert-butyl hydroperoxide

EC50 / 72h	2,1 mg/l /(70%) (selenastrum capricornutum)
LC50 / 96h	42,3 mg/l /(70%) (pimephales promelas)
EC50	24,3 mg/l /(70%) (activa sludge)
EC50 / 48h	20 mg/l /(70%) (daphnia)

· **12.2 Persistence and degradability**

· **Degree of elimination:**

· **Classification:**

110-05-4 di-tert-butyl peroxide

Degradation (Not readily biodegradable) (OECD 301 D)

75-91-2 tert-butyl hydroperoxide

Degradation (Not readily biodegradable) (OECD 301 D)

· **12.3 Bioaccumulative potential**

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

110-05-4	di-tert-butyl peroxide	3,2 (22°C)
8042-47-5	White mineral oil, petroleum	> 3,5


(Contd. on page 7)

MT



Trade name: **PEROXAN DB-50 W**

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75-65-0	2-methylpropan-2-ol	0,32 (20°C)
75-91-2	tert-butyl hydroperoxide	0,85 (30 °C)
· 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 REACH, annex XIII.	
· vPvB:	The substances in the mixture do not meet the PBT/vPvB criteria according to 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 desentisation 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	UN3109
· 14.2 UN proper shipping name	
· ADR	UN3109 ORGANIC PEROXIDE TYPE F, LIQUID (DI-tert-BUTYL PEROXIDE)
· IMDG, IATA	ORGANIC PEROXIDE TYPE F, 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	Warning: Organic peroxides.
· 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.

Trade name: **PEROXAN DB-50 W**

(Contd. of page 7)

· 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**
- **Named dangerous substances**
 - **ANNEX I** None of the ingredients is listed.
- **Seveso category** P6b SELF-REACTIVE SUBSTANCES AND MIXTURES and ORGANIC PEROXIDES
- **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

· **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 (EU) 2019/1148**

· **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.

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
- **Version number of previous version:** 8
- **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)
IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)
ICAO: International Civil Aviation Organisation
ICAO-TI: Technical Instructions by the "International Civil Aviation Organisation" (ICAO)
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 (REACH)

(Contd. on page 9)

MT

Trade name: **PEROXAN DB-50 W**

(Contd. of page 8)

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
Flam. Liq. 3: Flammable liquids – Category 3
Org. Perox. E: Organic peroxides – Type E/F
Org. Perox. F: Organic peroxides – Type E/F
Acute Tox. 4: Acute toxicity – Category 4
Acute Tox. 3: Acute toxicity – Category 3
Acute Tox. 2: Acute toxicity – Category 2
Skin Corr. 1C: Skin corrosion/irritation – Category 1C
Eye Dam. 1: Serious eye damage/eye irritation – Category 1
Skin Sens. 1: Skin sensitisation – Category 1
Muta. 2: Germ cell mutagenicity – Category 2
Carc. 2: Carcinogenicity – Category 2
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
Aquatic Chronic 2: Hazardous to the aquatic environment - long-term aquatic hazard – Category 2
Aquatic Chronic 3: Hazardous to the aquatic environment - long-term aquatic hazard – Category 3

* Data compared to the
previous version altered.

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