

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

- **1.1 Product identifier**
- **Trade name:** PEROXAN BHP-70
- **CAS Number:** 75-91-2
- **EC number:** 200-915-7
- **Registration number:** 01-2119446670-40
- **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. 3 H226 Flammable liquid and vapour.
- Org. Perox. F H242 Heating may cause a fire.
- Acute Tox. 4 H302 Harmful if swallowed.
- Acute Tox. 3 H311 Toxic in contact with skin.
- Acute Tox. 2 H330 Fatal if inhaled.
- Skin Corr. 1C 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.
- Muta. 2 H341 Suspected of causing genetic defects.
- Carc. 2 H351 Suspected of causing cancer.
- STOT SE 3 H335 May cause respiratory irritation.
- 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 GHS08 GHS09

- **Signal word**
- **Hazard-determining components of labelling:**
- **Hazard statements**

Danger

tert-butyl hydroperoxide
H226 Flammable liquid and vapour.
H242 Heating may cause a fire.
H302 Harmful if swallowed.
H311 Toxic in contact with skin.
H330 Fatal if inhaled.
H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.
H341 Suspected of causing genetic defects.
H351 Suspected of causing cancer.
H335 May cause respiratory irritation.
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.
P234 Keep only in original packaging.
P243 Take action to prevent static discharges.
P264 Wash thoroughly after handling.
P273 Avoid release to the environment.

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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.
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.
P403+P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.
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 REACH, Annex XIII.
· **vPvB:** This substance does not meet the PBT/vPvB criteria of REACH, Annex XIII.

· **Determination of endocrine-disrupting properties**

The product does not contain substances with endocrine disrupting properties.

SECTION 3: Composition/information on ingredients

· **3.1 Substances**

· **CAS No. Description** 75-91-2 tert-butyl hydroperoxide
· **Identification number(s)**
· **EC number:** 200-915-7
· **Additional information:** tert-butyl hydroperoxide 70%ig in water

· **Impurities and stabilising additives:**

CAS: 7732-18-5	water
EINECS: 231-791-2	

· **Specific concentration limits** Eye Dam. 1; H318: C ≥ 1 %
Skin Sens. 1; H317: C ≥ 0,1 %
STOT SE 3; H335: C ≥ 5 %

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.
Remove breathing equipment only after contaminated clothing have been completely removed.
In case of irregular breathing or respiratory arrest provide artificial respiration.



Take care of personal protection for the first aider.

· **After inhalation:**

Supply fresh air or oxygen; call for 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, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

· **For safety reasons unsuitable extinguishing agents:** Water with full jet

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- **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!

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 section 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.
Keep respiratory protective device available.
Use explosion-proof apparatus / fittings and spark-proof tools.

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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 under lock and key and with access restricted to technical experts or their assistants only.
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 +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:** Not required.

· DNELs

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

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.

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· Respiratory protection:	<p>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. 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.</p>
· Hand protection	<p> 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.</p> <p> Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation</p>
· Material of gloves	<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.</p> <p>Butyl rubber, BR Fluorocarbon rubber (Viton) Nitrile rubber, NBR Neoprene</p>
· Penetration time of glove material	<p>The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.</p>
· Eye/face protection	<p> Tightly sealed goggles</p>
· Body protection:	<p> Protective work clothing</p>

SECTION 9: Physical and chemical properties

· 9.1 Information on basic physical and chemical properties

· General Information

· Colour:	Colourless
· Odour:	Pungent
· Odour threshold:	Not determined.
· Melting point/freezing point:	Not applicable.
· Boiling point or initial boiling point and boiling range	96 °C
· Flammability	Not applicable.
· Lower and upper explosion limit	
· Lower:	Not determined.
· Upper:	Not determined.
· Flash point:	38 °C
· Decomposition temperature:	+80 °C (SADT)
· pH	4,3
· Viscosity:	
· Kinematic viscosity	Not determined.
· Dynamic:	Not determined.
· Solubility	
· water:	Undetermined.
· Partition coefficient n-octanol/water (log value)	not determined
· Vapour pressure at 25 °C:	50,8 hPa
· Density and/or relative density	
· Density at 25 °C:	0,93 g/cm ³
· Relative density	Not determined.
· Vapour density	Not determined.

· 9.2 Other information

· Appearance:	
· Form:	Fluid
· Important information on protection of health and environment, and on safety.	
· Ignition temperature:	Not determined.
· Explosive properties:	Product does not present an explosion hazard.

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· Change in condition	
· Evaporation rate	Not determined.
· Information with regard to physical hazard classes	
· Explosives	Void
· Flammable gases	Void
· Aerosols	Void
· Oxidising gases	Void
· Gases under pressure	Void
· Flammable liquids	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
· Other safety characteristics	
· Active oxygen	12,2 - 12,5 %

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. 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 -monoxide. 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 plan in place.

SECTION 11: Toxicological information

· 11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

· Acute toxicity	Harmful if swallowed. Toxic in contact with skin. Fatal if inhaled.
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· LD/LC50 values relevant for classification:

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	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.
· Germ cell mutagenicity	Suspected of causing genetic defects.
· Carcinogenicity	Suspected of causing cancer.
· Reproductive toxicity	Based on available data, the classification criteria are not met.
· STOT-single exposure	May cause respiratory irritation.

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- **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:**

75-91-2 tert-butyl hydroperoxide

Degradation (Not readily biodegradable) (OECD 301 D)

· **12.3 Bioaccumulative potential**

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

75-91-2 tert-butyl hydroperoxide	0,85 (30 °C)
110-05-4 di-tert-butyl peroxide	3,2 (22°C)

· **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 REACH, Annex XIII.

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

· **12.6 Endocrine disrupting properties**

The product does not contain substances with endocrine disrupting properties.

· **12.7 Other adverse effects**

· **Remark:** Toxic for fish

· **Additional ecological information:**

· **General notes:** Toxic for aquatic organisms
Must not reach sewage water or drainage ditch undiluted or unneutralised.
Also poisonous for fish and plankton in water bodies.
Water hazard class 3 (German Regulation) (Assessment by list): extremely hazardous for water
Do not allow product to reach ground water, water course or sewage system, even in small quantities.
Danger to drinking water if even extremely 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** UN3109

· **14.2 UN proper shipping name**




· **ADR** UN3109 ORGANIC PEROXIDE TYPE F, LIQUID (tert-BUTYL HYDROPEROXIDE), ENVIRONMENTALLY HAZARDOUS

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· IMDG	ORGANIC PEROXIDE TYPE F, LIQUID (tert-BUTYL HYDROPEROXIDE), MARINE POLLUTANT
· IATA	ORGANIC PEROXIDE TYPE F, LIQUID (tert-BUTYL HYDROPEROXIDE)
· 14.3 Transport hazard class(es)	
· ADR	
	
· Class	5.2 (P1) Organic peroxides.
· Label	5.2+8
· IMDG	
	
· Class	5.2 Organic peroxides.
· Label	5.2/8
· IATA	
	
· Class	5.2 Organic peroxides.
· Label	5.2 (8)
· 14.4 Packing group	
· ADR, IMDG, IATA	Void
· 14.5 Environmental hazards:	Product contains environmentally hazardous substances: tert-BUTYL HYDROPEROXIDE
· Marine pollutant:	Symbol (fish and tree)
· Special marking (ADR):	Symbol (fish and tree)
· 14.6 Special precautions for user	Warning: Organic peroxides.
· Hazard identification number (Kemler code):	539
· 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

· 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

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- **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:** 11

· **Abbreviations and acronyms:** 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 (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. 3: Flammable liquids – Category 3
 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

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