


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

- **1.1 Product identifier**
 - Trade name: **PEROXAN BU**
 - CAS Number: 3457-61-2
 - EC number: 222-389-8
 - Index number: 617-007-00-5
 - Registration number: 01-2119969063-35
- **1.2 Relevant identified uses of the substance or mixture and uses advised against**
 - No further relevant information available.
- **Application of the substance / the mixture**
 - Reaction initiator
 - For industrial use
- **1.3 Details of the supplier of the safety data sheet**
 - **Manufacturer/Supplier:** PERGAN GmbH
Hilfsstoffe für industrielle Prozesse
Schlavenhorst 71
D-46395 Bocholt
Tel: +49 2871 9902-0
Fax: +49 2871 9902-50
- **Further information obtainable from:**
 - Competent person:
 - * Sales Manager Germany: Mr. Ansgar Pappenheim, e-mail: a.pappenheim@pergan.com
 - * Export Sales Manager: Mr. Dr. Thomas Philipps, e-mail: dr.philipps@pergan.com
 - * Environment protection / : Mr. Christoph Wilting, e-mail: c.wilting@pergan.com
 - Security of labour
- **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. F H242 Heating may cause a fire.
 - Skin Irrit. 2 H315 Causes skin 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 GHS07 GHS09
 - **Signal word**
 - Warning
 - **Hazard-determining components of labelling:**
 - tert-butyl alpha,alpha-dimethylbenzyl peroxide
 - **Hazard statements**
 - H242 Heating may cause a fire.
 - H315 Causes skin 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.
 - 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.
 - 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 for extinction: CO₂, powder or water spray.
 - P410 Protect from sunlight.
 - P411+P235 Store at temperatures not exceeding +30°C. Keep cool.
 - P420 Do not mix with peroxide-accelerators or reducing agents.
 - P501 Dispose of contents/container in accordance with local/regional/national/international regulations.
- **2.3 Other hazards**
 - **Results of PBT and vPvB assessment**
 - **PBT:** Not applicable.
 - **vPvB:** Not applicable.

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SECTION 3: Composition/information on ingredients**3.1 Chemical characterisation: Substances**

- **CAS No. Description** 3457-61-2 tert-butyl alpha,alpha-dimethylbenzyl peroxide
- **Identification number(s)**
- **EC number:** 222-389-8
- **Index number:** 617-007-00-5

Dangerous components:

CAS: 3457-61-2 EINECS: 222-389-8 Index number: 617-007-00-5 Reg-No.: 01-2119969063-35	tert-butyl alpha,alpha-dimethylbenzyl peroxide Flam. Liq. 3, H226; Org. Perox. E, H242; Aquatic Chronic 2, H411; Skin Irrit. 2, H315	90-100%
CAS: 98-83-9 EINECS: 202-705-0 Index number: 601-027-00-6	2-phenylpropene Flam. Liq. 3, H226; Aquatic Chronic 2, H411; Eye Irrit. 2, H319; STOT SE 3, H335	1-2,5%
CAS: 98-86-2 EINECS: 202-708-7 Index number: 606-042-00-1	acetophenone Acute Tox. 4, H302; Eye Irrit. 2, H319	1-2,5%
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; Skin Corr. 1C, H314; Eye Dam. 1, H318; Aquatic Chronic 2, H411; Acute Tox. 4, H302; Skin Sens. 1A, H317	0,1-1%

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:

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.

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, 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.




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- **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.
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).
 - While using do not eat, drink or smoke.
 - Avoid shock and friction.
-  Do not smoke.
- **Information about fire - and explosion protection:**
 - Protect from heat.
 - Prevent impact and friction.
 - Fumes can combine with air to form an explosive mixture.
 -  Wear shoes with conductive soles.
 -  Avoid open flames, sparks, direct sunlight and other sources of ignition.
- **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):** +15 +30 °C
- **Storage class:** 5.2
- **7.3 Specific end use(s)** No further relevant information available.

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*** SECTION 8: Exposure controls/personal protection**

· **Additional information about design of technical facilities:** No further data; see item 7.

· **8.1 Control parameters**

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

98-83-9 2-phenylpropene

OEL (Ireland)	Short-term value: 492 mg/m ³ , 100 ppm Long-term value: 246 mg/m ³ , 50 ppm IOELV
IOELV (EU)	Short-term value: 492 mg/m ³ , 100 ppm Long-term value: 246 mg/m ³ , 50 ppm
WEL (Great Britain)	Short-term value: 491 mg/m ³ , 100 ppm Long-term value: 246 mg/m ³ , 50 ppm

98-86-2 acetophenone

OEL (Ireland)	Long-term value: 49 mg/m ³ , 10 ppm
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· **DNELs**

98-86-2 acetophenone

Dermal	DNEL Longterm System	6,3 mg/kg bw/day (Worker)
Inhalative	DNEL Longterm System	22 mg/m ³ (Worker)

75-91-2 tert-butyl hydroperoxide

Oral	DNEL Longterm System	0,26 mg/kg bw/day (Comsumer)
Dermal	DNEL Longterm System	12,5 mg/kg bw/day (Worker) 7,5 mg/kg bw/day (Comsumer)
Inhalative	DNEL Acute Systemic	10,4 mg/m ³ (Worker)
		3,2 mg/m ³ (Comsumer)
	DNEL Acute Local	21,3 mg/m ³ (Worker)
		12,8 mg/m ³ (Comsumer)
	DNEL Longterm System	3,1 mg/m ³ (Worker)
		0,91 mg/m ³ (Comsumer)
DNEL Longterm Local		0,83 mg/m ³ (Worker)
		0,75 mg/m ³ (Comsumer)

· **PNECs**

98-86-2 acetophenone

PNEC Marinewater sed	0,018 mg/kg sed dw (-)
PNEC Freshwater	0,086 mg/l (AF 1.000)
PNEC Freshwater sed	0,178 mg/kg sed dw (-)
PNEC Soil	0,155 mg/kg soil dw (-)
PNEC STP	10 mg/l (AF 100)
PNEC Marinewater	0,009 mg/l (AF 10.000)

75-91-2 tert-butyl hydroperoxide

PNEC Freshwater	0,0015 mg/l (AF 1.000)
PNEC Seawater	0,00015 mg/l (AF 10.000)
PNEC Water	0,015 mg/l (AF 100)
PNEC Freshwater sed	0,00621 mg/kg sed dw (-)

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

· **8.2 Exposure controls**

· **Personal protective equipment:**

· **General protective and**





hygienic measures:

The usual precautionary measures are to be adhered to when handling chemicals.
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing
Wash hands before breaks and at the end of work.
Store protective clothing separately.
Avoid close or long term contact with the skin.
Avoid contact with the eyes and skin.
Do not eat, drink, smoke or sniff while working.
Use skin protection cream for skin protection.
Be sure to clean skin thoroughly after work and before breaks.

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- **Respiratory protection:** In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.
Use suitable respiratory device when it exceed exposure limit and when insufficiently ventilated.
 Filter A2
- **Protection of hands:** Only use chemical-protective gloves with CE-labelling of category III.
 Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
Protective gloves
- **Material of gloves** The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
Butyl rubber, BR
Fluorocarbon rubber (Viton)
Nitrile rubber, NBR
Neoprene
- **Penetration time of glove material** The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Eye protection:**  Tightly sealed goggles
- **Body protection:**  Protective work clothing

SECTION 9: Physical and chemical properties

· 9.1 Information on basic physical and chemical properties	
· General Information	
· Appearance:	
· Form:	Fluid
· Colour:	Light yellow
· Odour:	Aromatic
· Odour threshold:	Not determined.
· pH-value:	Not determined.
· Change in condition	
· Melting point/freezing point:	<15 °C Not applicable.
· Initial boiling point and boiling range:	Not applicable.
· Flash point:	Not determined.
· Flammability (solid, gas):	Not applicable.
· Decomposition temperature:	ca. +90 °C (SADT)
· Auto-ignition temperature:	Not determined.
· Explosive properties:	Product is not explosive. However, formation of explosive air/vapour mixtures are possible.
· Explosion limits:	
· Lower:	Not determined.
· Upper:	Not determined.
· Vapour pressure:	Not determined.
· Density at 20 °C:	0,94 g/cm ³
· Relative density	Not determined.
· Vapour density	Not determined.
· Evaporation rate	Not determined.
· Solubility in / Miscibility with	
· water:	Undetermined.
· Partition coefficient: n-octanol/water:	not determined
· Viscosity:	
· Dynamic at 20 °C:	4 mPas
· Kinematic:	Not determined.
· 9.2 Other information	No further relevant information available.

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· Active oxygen	> 6,9 %
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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, carbondioxide 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 toxicological effects**
- **Acute toxicity** Based on available data, the classification criteria are not met.

· **LD/LC50 values relevant for classification:****3457-61-2 tert-butyl alpha,alpha-dimethylbenzyl peroxide**

Oral	LD50	4.700 mg/kg (rattus)
Dermal	LD50	>2.000 mg/kg (rattus)
Inhalative	LC50	>1,2 mg/l (rattus)

98-83-9 2-phenylpropene

Oral	LD50	4.900 mg/kg (rattus)
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98-86-2 acetophenone

Oral	LD50	815 mg/kg (rattus)
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75-91-2 tert-butyl hydroperoxide

Oral	LD50	560 mg/kg (rattus)
Dermal	LD50	440 mg/kg (cuniculosus)
Inhalative	LC50 / 4h	1,85 mg/l (rattus)

- **Primary irritant effect:**
- **Skin corrosion/irritation** Causes skin irritation.
- **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.
- **CMR effects (carcinogenity, mutagenicity and toxicity for reproduction)**
- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
- **Carcinogenicity** Based on available data, the classification criteria are not met.
- **Reproductive toxicity** Based on available data, the classification criteria are not met.
- **STOT-single exposure** Based on available data, the classification criteria are not met.
- **STOT-repeated exposure** Based on available data, the classification criteria are not met.
- **Aspiration hazard** Based on available data, the classification criteria are not met.

*** SECTION 12: Ecological information**· **12.1 Toxicity**· **Aquatic toxicity:****75-91-2 tert-butyl hydroperoxide**

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

- **12.2 Persistence and degradability** No further relevant information available.
- **12.3 Bioaccumulative potential** No further relevant information available.
- **12.4 Mobility in soil** No further relevant information available.
- **Ecotoxicological effects:**
- **Remark:** Toxic for fish
- **Additional ecological information:**
- **General notes:** Also poisonous for fish and plankton in water bodies.
Toxic for aquatic organisms
Water hazard class 2 (German Regulation) (Assessment by list): hazardous for water
Do not allow product to reach ground water, water course or sewage system.
Danger to drinking water if even small quantities leak into the ground.
- **12.5 Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **12.6 Other adverse effects** No further relevant information available.

SECTION 13: Disposal considerations

- **13.1 Waste treatment methods**
- **Recommendation**  After diluting with a suitable 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

- | | |
|---|---|
| <ul style="list-style-type: none"> · 14.1 UN-Number · ADR, IMDG, IATA | UN3109 |
| <ul style="list-style-type: none"> · 14.2 UN proper shipping name · ADR · IMDG · IATA | UN3109 ORGANIC PEROXIDE TYPE F, LIQUID (tert-BUTYL CUMYL PEROXIDE), ENVIRONMENTALLY HAZARDOUS ORGANIC PEROXIDE TYPE F, LIQUID (tert-BUTYL CUMYL PEROXIDE), MARINE POLLUTANT ORGANIC PEROXIDE TYPE F, LIQUID (tert-BUTYL CUMYL PEROXIDE) |
| <ul style="list-style-type: none"> · 14.3 Transport hazard class(es) · ADR | <div style="display: flex; align-items: center;">   </div> |
| <ul style="list-style-type: none"> · Class · Label | 5.2 (P1) Organic peroxides.
5.2 |
| <ul style="list-style-type: none"> · IMDG | <div style="display: flex; align-items: center;">   </div> |
| <ul style="list-style-type: none"> · Class · Label | 5.2 Organic peroxides.
5.2 |
| <ul style="list-style-type: none"> · IATA | <div style="display: flex; align-items: center;">  </div> |
| <ul style="list-style-type: none"> · Class | 5.2 Organic peroxides. |

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· Label	5.2
· 14.4 Packing group · ADR, IMDG	Void
· 14.5 Environmental hazards: · Marine pollutant: · Special marking (ADR):	Symbol (fish and tree) Symbol (fish and tree)
· 14.6 Special precautions for user · Hazard identification number (Kemler code): · EMS Number: · Stowage Category · Stowage Code · Segregation Code	Warning: Organic peroxides. - F-J,S-R D SW1 Protected from sources of heat. SG35 Stow "separated from" SGG1-acids SG36 Stow "separated from" SGG18-alkalis. SG72 See 7.2.6.3.2.
· 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code	Not applicable.
· Transport/Additional information:	
· ADR · Limited quantities (LQ) · Excepted quantities (EQ)	125 ml Code: E0 Not permitted as Excepted Quantity
· Transport category · Tunnel restriction code	2 D
· RID / GGVSEB:	like ADR
· IMDG · Limited quantities (LQ) · Excepted quantities (EQ)	125 ml 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 P6b SELF-REACTIVE SUBSTANCES AND MIXTURES and ORGANIC PEROXIDES
E2 Hazardous to the Aquatic Environment
- Qualifying quantity (tonnes) for the application of lower-tier requirements 50 t
- Qualifying quantity (tonnes) for the application of upper-tier requirements 200 t
- REGULATION (EC) No 1907/2006 ANNEX XVII Conditions of restriction: 3

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
 - H226 Flammable liquid and vapour.
 - H242 Heating may cause a fire.
 - H302 Harmful if swallowed.
 - H311 Toxic in contact with skin.
 - H314 Causes severe skin burns and eye damage.
 - H315 Causes skin irritation.
 - H317 May cause an allergic skin reaction.
 - H318 Causes serious eye damage.
 - H319 Causes serious eye irritation.
 - H330 Fatal if inhaled.
 - H335 May cause respiratory irritation.
 - H341 Suspected of causing genetic defects.
 - H411 Toxic to aquatic life with long lasting effects.

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Trade name: **PEROXAN BU**

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- **Contact:** Tel: +49 2871 9902-0
E-mail: mail@pergan.com
- **Abbreviations and acronyms:** ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified 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. E: Organic peroxides – Type E/F
Org. Perox. F: Organic peroxides – Type E/F
Acute Tox. 4: Acute toxicity - oral – Category 4
Acute Tox. 3: Acute toxicity - dermal – Category 3
Acute Tox. 2: Acute toxicity - inhalation – Category 2
Skin Corr. 1C: Skin corrosion/irritation – Category 1C
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Dam. 1: Serious eye damage/eye irritation – Category 1
Eye Irrit. 2: Serious eye damage/eye irritation – Category 2
Skin Sens. 1A: Skin sensitisation – Category 1A
Muta. 2: Germ cell mutagenicity – 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.**