Safety data sheet
according to 1907/2006/EC, Article 31

PERGAN
The Peroxide Company

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

· **1.1 Product identifier**

· **Trade name:** **PEROXAN MI-60 KX**

· **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:** Qualified person: E-mail: msds@pergan.com

· **1.4 Emergency telephone number:** - Tel: +49 2871 9902-0

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SECTION 2: Hazards identification

· **2.1 Classification of the substance or mixture**

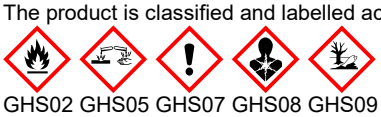
· **Classification according to Regulation (EC) No 1272/2008**

Flam. Liq. 3	H226	Flammable liquid and vapour.
Org. Perox. D	H242	Heating may cause a fire.
Acute Tox. 4	H332	Harmful 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.
Carc. 2	H351	Suspected of causing cancer.
Repr. 2	H361d	Suspected of damaging the unborn child.
Asp. Tox. 1	H304	May be fatal if swallowed and enters airways.
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 CLP regulation.

· **Hazard pictograms**



GHS02 GHS05 GHS07 GHS08 GHS09

· **Signal word** Danger

· **Hazard-determining components of labelling:**
Reaction mass of 4-methylpentane-2,2-diyl dihydroperoxide and 4-methylpentane-2-one and peroxybis-4-methylpentane-2,2-diyl dihydroperoxide
1-isopropyl-2,2-dimethyltrimethylene diisobutyrate
4-methylpentan-2-one
4-hydroxy-4-methylpentan-2-one

· **Hazard statements**
H226 Flammable liquid and vapour.
H242 Heating may cause a fire.
H332 Harmful if inhaled.
H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.
H351 Suspected of causing cancer.
H361d Suspected of damaging the unborn child.
H304 May be fatal if swallowed and enters airways.
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.
P243 Take action to prevent static discharges.
P264 Wash thoroughly after handling.
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.

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P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P405	Store locked up.
P410	Protect from sunlight.
P411+P235	Store at temperatures not exceeding +25°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 REACH, annex XIII.

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

· **Determination of endocrine-disrupting properties** The product does not contain substances with endocrine disrupting properties.

SECTION 3: Composition/information on ingredients

· **3.2 Mixtures**

· **Dangerous components:**

EC number: 942-932-9 Reg-No.: 01-2120103792-63	Reaction mass of 4-methylpentane-2,2-diyl dihydroperoxide and 4-methylpentane-2-one and peroxybis-4-methylpentane-2,2-diyl dihydroperoxide Alternative CAS number: 37206-20-5 Flam. Liq. 3, H226; Org. Perox. D, H242; Asp. Tox. 1, H304; Skin Corr. 1C, H314; Eye Dam. 1, H318; Aquatic Chronic 2, H411; Acute Tox. 4, H302; Acute Tox. 4, H332; Skin Sens. 1, H317	40-50%
CAS: 6846-50-0 EINECS: 229-934-9 Reg-No.: 01-2119451093-47	1-isopropyl-2,2-dimethyltrimethylene diisobutyrate Repr. 2, H361d; Aquatic Chronic 3, H412	25-30%
CAS: 108-10-1 EINECS: 203-550-1 Index number: 606-004-00-4 Reg-No.: 01-2119473980-30	4-methylpentan-2-one Flam. Liq. 2, H225; Carc. 2, H351; Acute Tox. 4, H332; Eye Irrit. 2, H319; STOT SE 3, H336, EUH066 ATE: LC50 / 4h inhalative: 11 mg/l	5-20%
CAS: 123-42-2 EINECS: 204-626-7 Index number: 603-016-00-1 Reg-No.: 01-2119473975-21	4-hydroxy-4-methylpentan-2-one Flam. Liq. 3, H226; Repr. 2, H361d; Eye Irrit. 2, H319; STOT SE 3, H335 Specific concentration limit: Eye Irrit. 2; H319: C ≥ 10 %	5-20%
CAS: 7722-84-1 EINECS: 231-765-0 Index number: 008-003-00-9 Reg-No.: 01-2119485845-22	hydrogen peroxide solution Ox. Liq. 1, H271; Skin Corr. 1A, H314; Acute Tox. 4, H302; Acute Tox. 4, H332; STOT SE 3, H335; Aquatic Chronic 3, H412 Specific concentration limits: Skin Corr. 1A; H314: C ≥ 70 % Skin Corr. 1B; H314: 50 % ≤ C < 70 % Skin Irrit. 2; H315: 35 % ≤ C < 50 % Eye Dam. 1; H318: C ≥ 8 % Eye Irrit. 2; H319: 5 % ≤ C < 8 % STOT SE 3; C ≥ 35 % Ox. Liq. 1; H271: C ≥ 70 % Ox. Liq. 2; H272: 50 % ≤ C < 70 %	1-2,5%
CAS: 102-82-9 EINECS: 203-058-7 Reg-No.: 01-2119474898-14	tributylamine Acute Tox. 3, H311; Acute Tox. 1, H330; Acute Tox. 4, H302; Skin Irrit. 2, H315	0,1-1%

· **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:** 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.

Take care of personal protection for the first aider.

· **After inhalation:** Supply fresh air and to be sure call for a 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.

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· **After swallowing:**	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:**	CO_2, 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:**	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. Large quantities should be diluted with suitable desensitation 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 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). 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.

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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 autorithies 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:**

Keep container tightly sealed.
Protect from heat and direct sunlight.
Protect from contamination.
Store under lock and key and out of the reach of children.

· **Recommended storage temperature (To maintain quality):** +5 .... +25 °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:**

108-10-1 4-methylpentan-2-one	
OEL (Ireland)	Short-term value: 208 mg/m³, 50 ppm Long-term value: 83 mg/m³, 20 ppm Sk, IOELV
IOELV (EU)	Short-term value: 208 mg/m³, 50 ppm Long-term value: 83 mg/m³, 20 ppm
WEL (Great Britain)	Short-term value: 416 mg/m³, 100 ppm Long-term value: 208 mg/m³, 50 ppm Sk, BMGV
123-42-2 4-hydroxy-4-methylpentan-2-one	
OEL (Ireland)	Long-term value: 240 mg/m³, 50 ppm
WEL (Great Britain)	Short-term value: 362 mg/m³, 75 ppm Long-term value: 241 mg/m³, 50 ppm
7722-84-1 hydrogen peroxide solution	
OEL (Ireland)	Short-term value: 3 mg/m³, 2 ppm Long-term value: 1,5 mg/m³, 1 ppm
WEL (Great Britain)	Short-term value: 2,8 mg/m³, 2 ppm Long-term value: 1,4 mg/m³, 1 ppm

· **DNELs**

Reaction mass of 4-methylpentane-2,2-diyl dihydroperoxide and 4-methylpentane-2-one and peroxybis-4-methylpentane-2,2-diyl dihydroperoxide		
Dermal	DNEL Longterm System	1,5 mg/kg bw/day (Worker)
Inhalative	DNEL Longterm System	2,64 mg/m3 (Worker)

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6846-50-0 1-isopropyl-2,2-dimethyltrimethylene diisobutyrate		
Dermal	DNEL Longterm System	5 mg/kg bw/day (Worker)
Inhalative	DNEL Longterm System	17,62 mg/m3 (Worker)
108-10-1 4-methylpentan-2-one		
Dermal	DNEL Longterm System	11,8 mg/kg bw/day (Worker)
Inhalative	DNEL Acute Systemic	208 mg/m3 (Worker)
	DNEL Longterm System	83 mg/m3 (Worker)
123-42-2 4-hydroxy-4-methylpentan-2-one		
Dermal	DNEL Longterm System	467 mg/kg bw/day (Worker)
Inhalative	DNEL Longterm System	32,6 mg/m3 (Worker)
7722-84-1 hydrogen peroxide solution		
Inhalative	DNEL Longterm Local	1,4 mg/m3 (Worker)
102-82-9 tributylamine		
Inhalative	DNEL Acute Systemic	10,6 mg/m3 (Worker)
	DNEL Longterm System	5,3 mg/m3 (Worker)
	DNEL Longterm Local	15,2 mg/m3 (Worker)

· **PNECs**

Reaction mass of 4-methylpentane-2,2-diyl dihydroperoxide and 4-methylpentane-2-one and peroxybis-4-methylpentane-2,2-diyl dihydroperoxide	
PNEC Marinewater sed	0,06 mg/kg sed dw (-)
PNEC Freshwater	0,00133 mg/l (AF 1.000)
PNEC Freshwater sed	0,59 mg/kg sed dw (-)
PNEC Soil	0,118 mg/kg soil dw (-)
PNEC STP	1,28 mg/l (AF 10)
PNEC Marinewater	0,000133 mg/l (AF 10.000)
6846-50-0 1-isopropyl-2,2-dimethyltrimethylene diisobutyrate	
PNEC Marinewater sed	0,529 mg/kg sed dw (-)
PNEC Freshwater	0,014 mg/l (AF 50)
PNEC Freshwater sed	5,29 mg/kg sed dw
PNEC Soil	1,05 mg/kg soil dw
PNEC STP	3 mg/l (AF 10)
PNEC Marinewater	0,001 mg/l (AF 500)
108-10-1 4-methylpentan-2-one	
PNEC Marinewater sed	0,83 mg/kg sed dw (-)
PNEC Freshwater	0,6 mg/l (AF 50)
PNEC Seawater	0,06 mg/l (AF 500)
PNEC Freshwater sed	8,27 mg/kg sed dw (-)
PNEC Soil	1,3 mg/kg soil dw (-)
PNEC STP	27,5 mg/l (AF 10)
123-42-2 4-hydroxy-4-methylpentan-2-one	
PNEC Marinewater sed	0,74 mg/kg sed dw
PNEC Freshwater	2 mg/l (AF 50)
PNEC Freshwater sed	7,4 mg/kg sed dw
PNEC Soil	0,31 mg/kg soil dw
PNEC STP	100 mg/l (AF 10)
PNEC Marinewater	0,2 mg/l (AF 500)
7722-84-1 hydrogen peroxide solution	
PNEC Marinewater sed	0,047 mg/kg sed dw
PNEC Freshwater	0,013 mg/l (AF 50)
PNEC Freshwater sed	0,047 mg/kg sed dw
PNEC Soil	0,002 mg/kg soil dw
PNEC STP	4,66 mg/l (AF 100)
PNEC Marinewater	0,013 mg/l (AF 50)
102-82-9 tributylamine	
PNEC Marinewater sed	3,59 mg/kg sed dw
PNEC Freshwater	0,008 mg/l (AF 1.000)
PNEC Freshwater sed	35,85 mg/kg sed dw

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PNEC Soil	7,17 mg/kg soil dw
PNEC STP	100 mg/l (AF 1)
PNEC Marinewater	0,0008 mg/l (AF 10.000)

· **Ingredients with biological limit values:**

108-10-1 4-methylpentan-2-one

BMGV (Great Britain)	20 µmol/L Medium: urine Sampling time: post shift Parameter: 4-methylpentan-2-one

· **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.
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.

· **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
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**

· **Physical state**	Fluid
· **Colour:**	Colourless
· **Odour:**	Characteristic
· **Odour threshold:**	Not determined.
· **Melting point/freezing point:**	Not applicable.
· **Boiling point or initial boiling point and boiling range**	Not applicable.
· **Flammability**	May cause fire. Flammable.
· **Lower and upper explosion limit**	
· **Lower:**	Not determined.
· **Upper:**	Not determined.

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· **Flash point:**	50 °C
· **Decomposition temperature:**	> +50 °C (SADT)
· **pH**	Mixture is non-soluble (in water).
· **Viscosity:**	
· **Kinematic viscosity**	Not determined.
· **Dynamic at 20 °C:**	13 mPas
· **Solubility**	
· **water:**	Undetermined.
· **Partition coefficient n-octanol/water (log value)**	not determined Not determined.
· **Vapour pressure:**	Not determined.
· **Density and/or relative density**	
· **Density at 20 °C:**	0,98 g/cm³
· **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:**	Product is not selfigniting.
· **Explosive properties:**	Product is not explosive. However, formation of explosive air/vapour mixtures are possible.
· **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**	ca. 8,9 %

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.

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· **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** Harmful if inhaled.

· **LD/LC50 values relevant for classification:**		
Reaction mass of 4-methylpentane-2,2-diyl dihydroperoxide and 4-methylpentane-2-one and peroxybis-4-methylpentane-2,2-diyl dihydroperoxide		
Oral	LD50	1.575 mg/kg (rattus)
Dermal	LD50	>2.000 mg/kg (rattus)
Inhalative	LC50 / 4h	1,5 mg/l (rattus)
6846-50-0 1-isopropyl-2,2-dimethyltrimethylene diisobutyrate		
Oral	LD50	3.200 mg/kg (rattus)
Dermal	LD50	18.900 mg/kg (caviinae)
108-10-1 4-methylpentan-2-one		
Oral	LD50	>2.080 mg/kg (rattus)
Dermal	LD50	>16.000 mg/kg (cuniculosus)
Inhalative	LC50 / 4h	11 mg/l (ATE)
	LC50 / 4h	11 mg/l
123-42-2 4-hydroxy-4-methylpentan-2-one		
Oral	LD50	3.002 mg/kg (rattus)
102-82-9 tributylamine		
Oral	LD50	540 mg/kg (rattus)
Dermal	LD50	250 mg/kg (cuniculosus)

· **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** Based on available data, the classification criteria are not met.
· **Carcinogenicity** Suspected of causing cancer.
· **Reproductive toxicity** Suspected of damaging the unborn child.
· **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** May be fatal if swallowed and enters airways.

· **11.2 Information on other hazards**

· **Endocrine disrupting properties**

None of the ingredients is listed.

SECTION 12: Ecological information

· **12.1 Toxicity**

· **Aquatic toxicity:**	
Reaction mass of 4-methylpentane-2,2-diyl dihydroperoxide and 4-methylpentane-2-one and peroxybis-4-methylpentane-2,2-diyl dihydroperoxide	
EC50 / 72h	1,33 mg/l (alga (Süsswasser))
LC50 / 96h	1,89 mg/l (piscis)
EC50 / 48h	4,48 mg/l (daphnia magna)
108-10-1 4-methylpentan-2-one	
EC50 / 72h	146 mg/l (alga (Süsswasser))
LC50 / 96h	179 mg/l (brachydanio rerio)
EC50 / 48h	200 mg/l (daphnia magna)

· **12.2 Persistence and degradability**

· **Degree of elimination:**

· **Classification:**	
6846-50-0 1-isopropyl-2,2-dimethyltrimethylene diisobutyrate	
Degradation	(Readily biodegradable, failing 10-d wind) (OECD 301 B)

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108-10-1 4-methylpentan-2-one	
Degradation	(Readily biodegradable) (OECD 301 F)
123-42-2 4-hydroxy-4-methylpentan-2-one	
Degradation	(Readily biodegradable) (OECD 301 A)
7722-84-1 hydrogen peroxide solution	
Degradation	(Readily biodegradable)
102-82-9 tributylamine	
Degradation	(Readily biodegradable) (OECD 301 B)

· **12.3 Bioaccumulative potential**

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

108-10-1	4-methylpentan-2-one	1,9
123-42-2	4-hydroxy-4-methylpentan-2-one	-0,09 (20°C)
7722-84-1	hydrogen peroxide solution	-1,57 (20°C)
102-82-9	tributylamine	3,34 (25 °C)

· **Bioconcentration factor (BCF)**

6846-50-0 1-isopropyl-2,2-dimethyltrimethylene diisobutyrate	
BCF	183-194 (piscis)
102-82-9 tributylamine	
BCF	7,3

· **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**

· **Remark:** Toxic for fish

· **Additional ecological information:**

· **General notes:** Also poisonous for fish and plankton in water bodies.
Toxic for aquatic organisms
Must not reach sewage water or drainage ditch undiluted or unneutralised.
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** UN3105

· **14.2 UN proper shipping name**

· **ADR** UN3105 ORGANIC PEROXIDE TYPE D, LIQUID (METHYL ISOBUTYL KETONE PEROXIDE(S)), ENVIRONMENTALLY HAZARDOUS

· **IMDG** ORGANIC PEROXIDE TYPE D, LIQUID (METHYL ISOBUTYL KETONE PEROXIDE(S)), MARINE POLLUTANT

· **IATA** ORGANIC PEROXIDE TYPE D, LIQUID (METHYL ISOBUTYL KETONE PEROXIDE(S))

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· **14.3 Transport hazard class(es)**

· **ADR**

· **Class**	5.2 (P1) Organic peroxides.
· **Label**	5.2

· **IMDG**

· **Class**	5.2 Organic peroxides.
· **Label**	5.2

· **IATA**

· **Class**	5.2 Organic peroxides.
· **Label**	5.2

· **14.4 Packing group**	
· **ADR, IMDG, IATA**	Void
· **14.5 Environmental hazards:**	Product contains environmentally hazardous substances: Reaction mass of 4-methylpentane-2,2-diyl dihydroperoxide and 4-methylpentane-2-one and peroxybis-4-methylpentane-2,2-diyl dihydroperoxide
· **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):**	-
· **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**	None of the ingredients is 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

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· **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**

· **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.

· **Relevant phrases**

H225 Highly flammable liquid and vapour.
H226 Flammable liquid and vapour.
H242 Heating may cause a fire.
H271 May cause fire or explosion; strong oxidiser.
H272 May intensify fire; oxidiser.
H302 Harmful if swallowed.
H304 May be fatal if swallowed and enters airways.
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.
H332 Harmful if inhaled.
H335 May cause respiratory irritation.
H336 May cause drowsiness or dizziness.
H351 Suspected of causing cancer.
H361d Suspected of damaging the unborn child.
H411 Toxic to aquatic life with long lasting effects.
H412 Harmful to aquatic life with long lasting effects.
EUH066 Repeated exposure may cause skin dryness or cracking.

· **Contact:** Tel: +49 2871 9902-0
E-mail: mail@pergan.com

· **Version number of previous version:** 8

· **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
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
ATE: Acute toxicity estimate values
Flam. Liq. 2: Flammable liquids – Category 2
Flam. Liq. 3: Flammable liquids – Category 3
Ox. Liq. 1: Oxidizing liquids – Category 1
Org. Perox. D: Organic peroxides – Type C/D
Acute Tox. 4: Acute toxicity – Category 4
Acute Tox. 3: Acute toxicity – Category 3
Acute Tox. 1: Acute toxicity – Category 1
Skin Corr. 1A: Skin corrosion/irritation – Category 1A
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. 1: Skin sensitisation – Category 1
Carc. 2: Carcinogenicity – Category 2
Repr. 2: Reproductive toxicity – Category 2
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

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Asp. Tox. 1: Aspiration hazard – Category 1
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.**