

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758



TBPIN-HA-M1

Version	Revision Date:	SDS Number:	Date of last issue: 07.03.2023
2.0	02.02.2024	600000000237	Date of first issue: 05.09.2022

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

1.1 Product identifier

Trade name : TBPIN-HA-M1

1.2 Relevant identified uses of the substance or mixture and uses advised against

Use of the Sub-
stance/Mixture : polymerisation initiators

1.3 Details of the supplier of the safety data sheet

Company : United Initiators GmbH
Dr.-Gustav-Adolph-Str. 3
82049 Pullach

Telephone : +49 / 89 / 74422 – 0

E-mail address of person
responsible for the SDS : contact@united-in.com

1.4 Emergency telephone number

+44 1235 239670

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008) as amended by GB-CLP Regulation, UK SI 2019/720, and UK SI 2020/1567)

Organic peroxides, Type D H242: Heating may cause a fire.

Skin sensitisation, Category 1 H317: May cause an allergic skin reaction.

Short-term (acute) aquatic hazard, Category 1 H400: Very toxic to aquatic life.

Long-term (chronic) aquatic hazard, Category 3 H412: Harmful to aquatic life with long lasting effects.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008) as amended by GB-CLP Regulation, UK SI 2019/720, and UK SI 2020/1567)


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Hazard pictograms	:	
Signal word	:	Danger
Hazard statements	:	H242 Heating may cause a fire. H317 May cause an allergic skin reaction. H410 Very toxic to aquatic life with long lasting effects.
Precautionary statements	:	Prevention: P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P234 Keep only in original packaging. P273 Avoid release to the environment. P280 Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection. Response: P370 + P378 In case of fire: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide to extinguish. P391 Collect spillage.

Hazardous components which must be listed on the label:

tert-butyl 3,5,5-trimethylperoxyhexanoate (CAS-No. 13122-18-4)

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Chemical nature : Organic Peroxide
Liquid mixture

Components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
tert-butyl 3,5,5-trimethylperoxyhexanoate	13122-18-4 236-050-7 01-2119498308-25-	Org. Perox. D; H242 Skin Sens. 1B;	>= 85 - < 90

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	0000	H317 Aquatic Acute 1; H400 Aquatic Chronic 3; H412	
Acetylacetone	123-54-6 204-634-0 606-029-00-0 01-2119458968-15	M-Factor (Acute aquatic toxicity): 1 Flam. Liq. 3; H226 Acute Tox. 4; H302 Acute Tox. 3; H331 Acute Tox. 3; H311	>= 10 - < 15

For explanation of abbreviations see section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

- General advice : Take off contaminated clothing and shoes immediately.
Call a physician immediately.
Never give anything by mouth to an unconscious person.
If unconscious, place in recovery position and seek medical advice.
Move out of dangerous area.
Show this safety data sheet to the doctor in attendance.
Do not leave the victim unattended.
- Protection of first-aiders : First Aid responders should pay attention to self-protection and use the recommended protective clothing
- If inhaled : Administer oxygen if breathing is difficult or cyanosis is observed.
If breathed in, move person into fresh air.
If not breathing, give artificial respiration.
If unconscious, place in recovery position and seek medical advice.
If symptoms persist, call a physician.
- In case of skin contact : If symptoms persist, call a physician.
In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
Wash contaminated clothing before re-use.
If on skin, rinse well with water.
If on clothes, remove clothes.
- In case of eye contact : In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
Remove contact lenses.

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Protect unharmed eye.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.

If swallowed : Call a physician immediately.
Keep respiratory tract clear.
If symptoms persist, call a physician.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms : sensitising effects

Risks : May cause an allergic skin reaction.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : Treat symptomatically and supportively.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Water spray jet
Alcohol-resistant foam
Carbon dioxide (CO₂)
Dry chemical

Unsuitable extinguishing media : High volume water jet

5.2 Special hazards arising from the substance or mixture

Specific hazards during fire-fighting : Risk of explosion if heated under confinement.
Possible emission of gaseous decomposition products may lead to a dangerous pressure build-up.
Avoid confinement.
Contact with incompatible materials or exposure to temperatures exceeding SADT may result in a self-accelerating decomposition reaction with release of flammable vapors which may auto-ignite.
The product burns violently.
Flash back possible over considerable distance.
Do not allow run-off from fire fighting to enter drains or water courses.
Vapours may form explosive mixtures with air.
The product will float on water and can be reignited on surface water.
Cool closed containers exposed to fire with water spray.

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5.3 Advice for firefighters

- Special protective equipment for firefighters : Wear self-contained breathing apparatus for firefighting if necessary. Use personal protective equipment.
- Specific extinguishing methods : Do not use a solid water stream as it may scatter and spread fire.
Remove undamaged containers from fire area if it is safe to do so.
Use water spray to cool unopened containers.
- Further information : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Use a water spray to cool fully closed containers.
Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
-

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

- Personal precautions : Follow safe handling advice and personal protective equipment recommendations.
Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
Use personal protective equipment.
Remove all sources of ignition.
Never return spills in original containers for re-use.
Treat recovered material as described in the section "Disposal considerations".

6.2 Environmental precautions

- Environmental precautions : Prevent product from entering drains.
Prevent further leakage or spillage if safe to do so.
If the product contaminates rivers and lakes or drains inform respective authorities.

6.3 Methods and material for containment and cleaning up

- Methods for cleaning up : Contact with incompatible substances can cause decomposition at or below SADT.
Clear spills immediately.
Suppress (knock down) gases/vapours/mists with a water spray jet.
To clean the floor and all objects contaminated by this material, use plenty of water.
Soak up with inert absorbent material.
Isolate waste and do not reuse.

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Non-sparking tools should be used.
Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable.

6.4 Reference to other sections

See sections: 7, 8, 11, 12 and 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

- | | | |
|---|---|---|
| Technical measures | : | See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section. |
| Advice on safe handling | : | Open drum carefully as content may be under pressure.
Protect from contamination.
Do not breathe vapours/dust.
Avoid exposure - obtain special instructions before use.
Avoid contact with skin and eyes.
Avoid formation of aerosol.
Take precautionary measures against static discharges.
Never return any product to the container from which it was originally removed.
Provide sufficient air exchange and/or exhaust in work rooms.
Avoid confinement.
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Smoking, eating and drinking should be prohibited in the application area.
Wash thoroughly after handling.
For personal protection see section 8.
Persons susceptible to skin sensitisation problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used. |
| Advice on protection against fire and explosion | : | Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapours). Keep away from heat and sources of ignition. Use only explosion-proof equipment. Keep away from open flames, hot surfaces and sources of ignition. Keep away from combustible material. Do not spray on a naked flame or any incandescent material. |
| Hygiene measures | : | Avoid contact with skin, eyes and clothing. Keep away from food and drink. When using do not eat or drink. When using do not smoke. Wash hands before breaks and immediately after handling the product. |

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7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Store in original container. Keep containers tightly closed in a cool, well-ventilated place. Store in cool place. Keep in a well-ventilated place. Contamination may result in dangerous pressure increases - closed containers may rupture. Observe label precautions. Store in accordance with the particular national regulations. Avoid impurities (e.g. rust, dust, ash), risk of decomposition. Electrical installations / working materials must comply with the technological safety standards. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Advice on common storage : Keep away from combustible materials.
Keep away from strong acids, bases, heavy metal salts and other reducing substances.

Recommended storage temperature : < 30 °C

Further information on storage stability : Stable under recommended storage conditions.

7.3 Specific end use(s)

Specific use(s) : For further information, refer to the product technical data sheet.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Contains no substances with occupational exposure limit values.

Derived No Effect Level (DNEL):

Substance name	End Use	Exposure routes	Potential health effects	Value
tert-butyl 3,5,5-trimethylperoxyhexanoate	Workers	Inhalation	Long-term systemic effects	2.5 mg/m ³
	Workers	Skin contact	Long-term systemic effects	7 mg/kg bw/day
Acetylacetone	Workers	Inhalation		84 mg/m ³
	Workers	Skin contact		12 mg/kg bw/day

Predicted No Effect Concentration (PNEC):

Substance name	Environmental Compartment	Value
tert-butyl 3,5,5-trimethylperoxyhexanoate	Fresh water	0.003 mg/l
	Marine water	0.0 mg/l

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	Intermittent use/release	0.005 mg/l
	Sewage treatment plant	2.63 mg/l
	Fresh water sediment	0.497 mg/kg dry weight (d.w.)
	Marine sediment	0.05 mg/kg dry weight (d.w.)
	Soil	0.098 mg/kg dry weight (d.w.)
Acetylacetone	Fresh water	0.026 mg/l
	Marine water	0.0026 mg/l
	Sewage treatment plant	1.32 mg/l
	Fresh water sediment	0.155 mg/kg wet weight
	Marine sediment	0.0155 mg/kg wet weight
	Soil	0.01582 mg/kg wet weight

8.2 Exposure controls

Engineering measures

Minimize workplace exposure concentrations.

Personal protective equipment

Eye/face protection : Ensure that eyewash stations and safety showers are close to the workstation location.
Please follow all applicable local/national requirements when selecting protective measures for a specific workplace.
Always wear eye protection when the potential for inadvertent eye contact with the product cannot be excluded.
Tightly fitting safety goggles
Please wear suitable protective goggles. Also wear face protection if there is a splash hazard.

Hand protection

Material : Nitrile rubber
Break through time : 480 min
Glove thickness : 0.40 mm

Material : butyl-rubber
Break through time : 480 min
Glove thickness : 0.47 mm

Remarks : The data about break through time/strength of material are standard values! The exact break through time/strength of material has to be obtained from the producer of the protective glove. Choose gloves to protect hands against chemicals depending on the concentration and quantity of the hazardous substance and specific to place of work. For special applications, we recommend clarifying the resistance to chemi-

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- icals of the aforementioned protective gloves with the glove manufacturer. Wash hands before breaks and at the end of workday.
- Skin and body protection : Select appropriate protective clothing based on chemical resistance data and an assessment of the local exposure potential.
Additional body garments should be used based upon the task being performed (e.g., sleevelets, apron, gauntlets, disposable suits) to avoid exposed skin surfaces.
Wear as appropriate:
Flame retardant antistatic protective clothing.
- Respiratory protection : In the case of dust or aerosol formation use respirator with an approved filter.
- Filter type : ABEK-filter
- Protective measures : The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

- Appearance : liquid
- Colour : colourless
- Odour : ester-like
- Odour Threshold : not determined
- pH : not determined
- Melting point/range : < -25 °C
- Boiling point/boiling range : Decomposition: Decomposes below the boiling point.
- Flash point : 61 °C
Method: ISO 3679, closed cup
- Flammability (solid, gas) : Not applicable
- Upper explosion limit / Upper flammability limit : Upper explosion limit
11.4 %(V)

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	(for a component of this mixture)
Lower explosion limit / Lower flammability limit	: Lower explosion limit 2.4 %(V) (for a component of this mixture)
Vapour pressure	: 0.03 hPa (30 °C)
Relative vapour density	: not determined
Relative density	: not determined
Density	: 0.90 g/cm ³ (20 °C)
Solubility(ies)	
Water solubility	: 14.2 g/l slightly soluble (20 °C)
Solubility in other solvents	: No data available
Partition coefficient: n-octanol/water	: Not applicable
Auto-ignition temperature	: not determined
Viscosity	
Viscosity, dynamic	: 5 mPa.s (20 °C)
Viscosity, kinematic	: not determined
Explosive properties	: Not explosive In use, may form flammable/explosive vapour-air mixture.
Oxidizing properties	: The substance or mixture is not classified as oxidizing. Organic peroxide

9.2 Other information

Self-Accelerating decomposition temperature (SADT)	: 55 °C Method: UN-Test H.4 SADT-Self Accelerating Decomposition Temperature. Lowest temperature at which the tested package size will undergo a self-accelerating decomposition reaction.
Flammability (liquids)	: Flammable liquid, Organic peroxide
Self-heating substances	: The substance or mixture is not classified as self heating.
Self-ignition	: The substance or mixture is not classified as pyrophoric.

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SECTION 10: Stability and reactivity

10.1 Reactivity

Stable under recommended storage conditions.
Heating may cause a fire or explosion.

10.2 Chemical stability

Stable under recommended storage conditions.
No decomposition if stored normally.

10.3 Possibility of hazardous reactions

Hazardous reactions : Vapours may form explosive mixture with air.

10.4 Conditions to avoid

Conditions to avoid : Protect from contamination.
Contact with incompatible substances can cause decomposition at or below SADT.
Heat, flames and sparks.
Avoid confinement.

10.5 Incompatible materials

Materials to avoid : Accelerators, strong acids and bases, heavy metals and heavy metal salts, reducing agents

10.6 Hazardous decomposition products

Irritant, caustic, flammable, noxious/toxic gases and vapours can develop in the case of fire and decomposition

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Not classified due to lack of data.

Product:

Acute oral toxicity : Acute toxicity estimate: > 2,000 mg/kg
Method: Calculation method

Acute inhalation toxicity : Acute toxicity estimate: > 20 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Method: Calculation method

Acute dermal toxicity : Acute toxicity estimate: > 2,000 mg/kg
Method: Calculation method

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Components:

tert-butyl 3,5,5-trimethylperoxyhexanoate:

Acute oral toxicity : LD50 (Rat): 12,905 mg/kg
Method: OECD Test Guideline 401

Acute inhalation toxicity : LC50 (Rat): > 0.8 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD0 (Rat): > 2,000 mg/kg
Method: OECD Test Guideline 402

Acetylacetone:

Acute oral toxicity : LD50 (Rat): 570 mg/kg

Acute inhalation toxicity : LC50 (Rat): 5.1 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Method: OECD Test Guideline 403

Acute dermal toxicity : LD50 (Rabbit, female): 790 mg/kg

Skin corrosion/irritation

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

Product:

Remarks : May cause skin irritation in susceptible persons.

Components:

tert-butyl 3,5,5-trimethylperoxyhexanoate:

Species : Rabbit
Method : OECD Test Guideline 404
Result : No skin irritation

Acetylacetone:

Species : Rabbit
Result : No skin irritation

Serious eye damage/eye irritation

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

Product:

Remarks : Vapours may cause irritation to the eyes, respiratory system

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and the skin.

Components:

tert-butyl 3,5,5-trimethylperoxyhexanoate:

Species	:	Rabbit
Method	:	OECD Test Guideline 405
Result	:	No eye irritation

Acetylacetone:

Species	:	Rabbit
Result	:	No eye irritation

Respiratory or skin sensitisation

Skin sensitisation

May cause an allergic skin reaction.

Respiratory sensitisation

Not classified due to lack of data.

Product:

Remarks	:	Causes sensitisation.
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Components:

tert-butyl 3,5,5-trimethylperoxyhexanoate:

Exposure routes	:	Skin contact
Species	:	Guinea pig
Method	:	OECD Test Guideline 406
Result	:	The product is a skin sensitiser, sub-category 1B.

Acetylacetone:

Exposure routes	:	Skin contact
Species	:	Mouse
Method	:	OECD Test Guideline 429
Result	:	Does not cause skin sensitisation.

Germ cell mutagenicity

Not classified due to lack of data.

Components:

tert-butyl 3,5,5-trimethylperoxyhexanoate:

Genotoxicity in vitro	:	Test Type: Bacterial reverse mutation assay (AMES) Metabolic activation: Metabolic activation Method: OECD Test Guideline 471 Result: positive
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Test Type: Chromosome aberration test in vitro
Method: OECD Test Guideline 473
Result: positive

Genotoxicity in vivo : Test Type: In vivo micronucleus test
Species: Rat
Application Route: Oral
Method: OECD Test Guideline 474
Result: negative

Acetylacetone:

Genotoxicity in vitro : Method: OECD Test Guideline 471
Result: negative

Method: OECD Test Guideline 479
Result: positive

Method: OECD Test Guideline 473
Result: positive

Method: OECD Test Guideline 476
Result: negative

Genotoxicity in vivo : Method: OECD Test Guideline 474
Result: positive

Method: OECD Test Guideline 483
Result: negative

Method: OECD Test Guideline 475
Result: negative

Method: OECD Test Guideline 478
Result: Equivocal

Test Type: DNA Repair
Species: Rat
Application Route: Oral
Result: negative

Species: Rat
Application Route: inhalation (vapour)
Method: OPPTS 870.5395
Result: negative

Carcinogenicity

Not classified due to lack of data.

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Components:

tert-butyl 3,5,5-trimethylperoxyhexanoate:

Remarks : This information is not available.

Reproductive toxicity

Not classified due to lack of data.

Components:

tert-butyl 3,5,5-trimethylperoxyhexanoate:

Effects on fertility : Test Type: Reproduction/Developmental toxicity screening test

Species: Rat, male and female

Application Route: Oral

General Toxicity - Parent: NOAEL: 160 mg/kg bw/day

General Toxicity F1: NOAEL: 160 mg/kg bw/day

Method: OECD Test Guideline 421

General Toxicity - Parent: NOAEL: 50 mg/kg bw/day

Method: OECD Test Guideline 443

Effects on foetal development : Test Type: Embryo-foetal development

Species: Rat

Application Route: Oral

General Toxicity Maternal: NOAEL: 150 mg/kg body weight

Method: OECD Test Guideline 414

Result: negative

Acetylacetone:

Effects on foetal development

: Species: Rat

Application Route: inhalation (vapour)

Duration of Single Treatment: 13 d

General Toxicity Maternal: NOAEC: 200

Teratogenicity: NOAEC Parent: 400

Embryo-foetal toxicity: NOAEC F1: 50

Method: OECD Test Guideline 414

Species: Rat

Application Route: inhalation (vapour)

Duration of Single Treatment: 13 d

General Toxicity Maternal: LOAEC: 400

Embryo-foetal toxicity: LOAEC F1: 200

Method: OECD Test Guideline 414

STOT - single exposure

Not classified due to lack of data.

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STOT - repeated exposure

Not classified due to lack of data.

Repeated dose toxicity

Components:

tert-butyl 3,5,5-trimethylperoxyhexanoate:

Species : Rat, male and female
NOAEL : 160 mg/kg
Application Route : oral (gavage)
Exposure time : 90 d
Method : OECD Test Guideline 408

Species : Rat, male and female
NOAEL : 50 mg/kg
Application Route : oral (gavage)
Exposure time : 28 d
Method : OECD Test Guideline 407

Acetylacetone:

Species : Rat
NOAEL : 200 mg/kg
LOAEL : 805 mg/kg
Application Route : inhalation (vapour)
Exposure time : 9 d

Species : Rat
NOAEL : 100 mg/kg
Application Route : inhalation (vapour)
Exposure time : 90 d
Method : OECD Test Guideline 413

Species : Rabbit
NOAEL : 244 mg/kg
LOAEL : 975 mg/kg
Application Route : Dermal
Exposure time : 9 d

Aspiration toxicity

Not classified due to lack of data.

Components:

Acetylacetone:

No aspiration toxicity classification

Further information

Product:

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Remarks : No data available

Components:

Acetylacetone:

Remarks : Solvents may degrease the skin.

SECTION 12: Ecological information

12.1 Toxicity

Components:

tert-butyl 3,5,5-trimethylperoxyhexanoate:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 7.03 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

NOEC (Oncorhynchus mykiss (rainbow trout)): 3 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 0.52 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : NOEC (Pseudokirchneriella subcapitata (algae)): 0.125 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

EC50 (Pseudokirchneriella subcapitata (algae)): 0.51 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

M-Factor (Acute aquatic toxicity) : 1

Toxicity to microorganisms : EC50 (Bacteria): 327.02 mg/l
Exposure time: 3 h
Method: OECD Test Guideline 209

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 0.22 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Method: OECD Test Guideline 211

Acetylacetone:

Toxicity to fish : LC50 (Fish): 104 mg/l

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Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 25.9 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : EC50 (Pseudokirchneriella subcapitata (green algae)): 83.22 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

NOEC (Pseudokirchneriella subcapitata (green algae)): 3.2 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

Toxicity to microorganisms : EC50 : 107.6 mg/l
Exposure time: 3 h
Method: OECD Test Guideline 209

EC10 : 13.2 mg/l
Exposure time: 3 h
Method: OECD Test Guideline 209

Toxicity to fish (Chronic toxicity) : NOEC: 10 mg/l
Exposure time: 34 d
Species: Pimephales promelas (fathead minnow)
Method: OECD Test Guideline 210

LOEC: 22 mg/l
Exposure time: 34 d
Species: Pimephales promelas (fathead minnow)
Method: OECD Test Guideline 210

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 18 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Method: OECD Test Guideline 211

12.2 Persistence and degradability

Components:

tert-butyl 3,5,5-trimethylperoxyhexanoate:

Biodegradability	:	Test Type: aerobic Result: Readily biodegradable. Biodegradation: 72 % Exposure time: 28 d Method: OECD Test Guideline 301D
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Acetylacetone:

Biodegradability : Result: Readily biodegradable.
Method: OECD Test Guideline 301C

12.3 Bioaccumulative potential

Components:

tert-butyl 3,5,5-trimethylperoxyhexanoate:

Bioaccumulation : Bioconcentration factor (BCF): 375
Remarks: Calculation

Partition coefficient: n-octanol/water : log Pow: 5.16

Acetylacetone:

Bioaccumulation : Bioconcentration factor (BCF): 3.16
Remarks: Calculation

Partition coefficient: n-octanol/water : log Pow: 0.68 (40 °C)

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

Product:

Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Other adverse effects

Product:

Endocrine disrupting potential : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life.
Harmful to aquatic life with long lasting effects.

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SECTION 13: Disposal considerations

13.1 Waste treatment methods

- Product : Dispose of wastes in an approved waste disposal facility.
The product should not be allowed to enter drains, water courses or the soil.
Do not contaminate ponds, waterways or ditches with chemical or used container.
- Contaminated packaging : Dispose of in accordance with local regulations.
Clean container with water.
Dispose of contents/ container to an approved waste disposal plant.
Empty remaining contents.
Dispose of as unused product.
Do not re-use empty containers.
Do not burn, or use a cutting torch on, the empty drum.

SECTION 14: Transport information

14.1 UN number

- ADR : UN 3105
RID : UN 3105
IMDG : UN 3105
IATA : UN 3105

14.2 UN proper shipping name

- ADR : ORGANIC PEROXIDE TYPE D, LIQUID
(tert-BUTYL PEROXY-3,5,5-TRIMETHYLHEXANOATE)
- RID : ORGANIC PEROXIDE TYPE D, LIQUID
(tert-BUTYL PEROXY-3,5,5-TRIMETHYLHEXANOATE)
- IMDG : ORGANIC PEROXIDE TYPE D, LIQUID
(tert-BUTYL PEROXY-3,5,5-TRIMETHYLHEXANOATE)
- IATA : Organic peroxide type D, liquid
(tert-Butyl peroxy-3,5,5-trimethylhexanoate)

14.3 Transport hazard class(es)

- | | Class | Subsidiary risks |
|------|-------|------------------|
| ADR | : 5.2 | |
| RID | : 5.2 | |
| IMDG | : 5.2 | |
| IATA | : 5.2 | HEAT |

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14.4 Packing group

ADR

Packing group : Not assigned by regulation
Classification Code : P1
Labels : 5.2
Tunnel restriction code : (D)

RID

Packing group : Not assigned by regulation
Classification Code : P1
Hazard Identification Number : 539
Labels : 5.2

IMDG

Packing group : Not assigned by regulation
Labels : 5.2
EmS Code : F-J, S-R

IATA (Cargo)

Packing instruction (cargo aircraft) : 570
Packing group : Not assigned by regulation
Labels : Organic Peroxides, Keep Away From Heat

IATA (Passenger)

Packing instruction (passenger aircraft) : 570
Packing group : Not assigned by regulation
Labels : Organic Peroxides, Keep Away From Heat

14.5 Environmental hazards

ADR

Environmentally hazardous : yes

RID

Environmentally hazardous : yes

IMDG

Marine pollutant : yes

14.6 Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable for product as supplied.

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SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Relevant EU provisions transposed through retained EU law

UK REACH List of restrictions (Annex 17)	:	Conditions of restriction for the following entries should be considered: Number on list 3
UK REACH Candidate list of substances of very high concern (SVHC) for Authorisation	:	Not applicable
The Persistent Organic Pollutants Regulations (retained Regulation (EU) 2019/1021 as amended for Great Britain)	:	Not applicable
Regulation (EC) No 1005/2009 on substances that deplete the ozone layer	:	Not applicable
UK REACH List of substances subject to authorisation (Annex XIV)	:	Not applicable
GB Export and import of hazardous chemicals - Prior Informed Consent (PIC) Regulation	:	Not applicable
Control of Major Accident Hazards Regulations 2015 (COMAH)	P6b	SELF-REACTIVE SUBSTANCES AND MIXTURES and ORGANIC PEROXIDES
	E1	ENVIRONMENTAL HAZARDS

Other regulations:

Gefahrgruppe nach TRGS 741: Ib (German regulatory requirements)

Take note of The Management of Health and Safety at Work Regulations 1999 (requirements relating to protection of young people at work contained in Regulation 19) and of Directive 94/33/EC on the protection of young people at work.

The components of this product are reported in the following inventories:

TCSI (TW)	:	On the inventory, or in compliance with the inventory
TSCA (US)	:	All substances listed as active on the TSCA inventory
AIC (AU)	:	On the inventory, or in compliance with the inventory
DSL (CA)	:	All components of this product are on the Canadian DSL

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ENCS (JP)	:	On the inventory, or in compliance with the inventory
ISHL (JP)	:	On the inventory, or in compliance with the inventory
KECI (KR)	:	On the inventory, or in compliance with the inventory
PICCS (PH)	:	On the inventory, or in compliance with the inventory
IECSC (CN)	:	On the inventory, or in compliance with the inventory
TECI (TH)	:	On the inventory, or in compliance with the inventory

15.2 Chemical safety assessment

This information is not available.

SECTION 16: Other information

Further information

Other information : This safety datasheet only contains information relating to safety and does not replace any product information or product specification.
These safety instructions also apply to empty packaging which may still contain product residues.
The hazards on the label also apply to residues in the container.

Sources of key data used to compile the Safety Data Sheet : Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agency, <http://echa.europa.eu/>

Classification of the mixture:

Org. Perox. D	H242
Skin Sens. 1	H317
Aquatic Acute 1	H400
Aquatic Chronic 3	H412

Classification procedure:

Based on product data or assessment
Calculation method
Calculation method
Calculation method

Full text of H-Statements

H226 : Flammable liquid and vapour.

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H242	: Heating may cause a fire.
H302	: Harmful if swallowed.
H311	: Toxic in contact with skin.
H317	: May cause an allergic skin reaction.
H331	: Toxic if inhaled.
H400	: Very toxic to aquatic life.
H412	: Harmful to aquatic life with long lasting effects.

Full text of other abbreviations

Acute Tox.	: Acute toxicity
Aquatic Acute	: Short-term (acute) aquatic hazard
Aquatic Chronic	: Long-term (chronic) aquatic hazard
Flam. Liq.	: Flammable liquids
Org. Perox.	: Organic peroxides
Skin Sens.	: Skin sensitisation

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of very high concern; TCSI - Taiwan Chemical Substance Inventory; TECl - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

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