

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006, as amended by
Commission Regulation (EU) 2020/878



TBPPI-75-AL

Version	Revision Date:	SDS Number:	Date of last issue: 13.03.2023
5.0	01.02.2024	600000000047	Date of first issue: 04.07.2016

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

1.1 Product identifier

Trade name : TBPPI-75-AL

REACH Registration Number : 01-2119961356-32-0000

Substance name : tert-butyl peroxyvalate

EC-No. : 213-147-2

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

Use of the Sub-
stance/Mixture : polymerisation initiators

Recommended restrictions on use : Exposure Scenario is available as separate attachment., For further information see eSDS.

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)

Flammable liquids, Category 3	H226: Flammable liquid and vapour.
Organic peroxides, Type C	H242: Heating may cause a fire.
Skin irritation, Category 2	H315: Causes skin irritation.
Skin sensitisation, Category 1	H317: May cause an allergic skin reaction.

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Specific target organ toxicity - single exposure, Category 3, Respiratory system

H335: May cause respiratory irritation.

Aspiration hazard, Category 1

H304: May be fatal if swallowed and enters airways.

Long-term (chronic) aquatic hazard, Category 2

H411: Toxic to aquatic life with long lasting effects.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms

:



Signal word

:

Danger

Hazard statements

:

H226 Flammable liquid and vapour.
H242 Heating may cause a fire.
H304 May be fatal if swallowed and enters airways.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H335 May cause respiratory irritation.
H411 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:

P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
P331 Do NOT induce vomiting.
P370 + P378 In case of fire: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide to extinguish.
P391 Collect spillage.

Storage:

P411 Store at temperatures not exceeding 0 °C.

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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.

Ecological information: 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.

Toxicological information: 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.

SECTION 3: Composition/information on ingredients

3.1 Substances

Substance name	:	tert-butyl peroxyvalerate
EC-No.	:	213-147-2
Synonyms	:	Propaneperoxoic acid, 2,2-dimethyl-, 1,1-dimethylethyl ester
Chemical nature	:	Organic Peroxide

Components

Chemical name	CAS-No. EC-No.	Concentration (%) w/w)	M-Factor, SCL, ATE
tert-butyl peroxyvalerate	927-07-1 213-147-2	>= 70 - <= 77	
2,2,4,6,6-pentamethylheptane	13475-82-6 236-757-0	>= 23 - <= 30	

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.
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Show this safety data sheet to the doctor in attendance.
Do not leave the victim unattended.
Symptoms of poisoning may appear several hours later.
No artificial respiration, mouth-to-mouth or mouth to nose. Use
suitable instruments/apparatus.

- | | | |
|----------------------------|---|---|
| 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.
Call a physician or poison control centre immediately.
If unconscious, place in recovery position and seek medical advice.
Keep respiratory tract clear. |
| 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.
Protect unharmed eye.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist. |
| If swallowed | : | Call a physician immediately.
Contact a poison control center.
Rinse mouth thoroughly with water.
Keep respiratory tract clear.
Do NOT induce vomiting.
If symptoms persist, call a physician. |

4.2 Most important symptoms and effects, both acute and delayed

- | | | |
|----------|---|---|
| Symptoms | : | sensitising effects |
| Risks | : | May be fatal if swallowed and enters airways.
Causes skin irritation.
May cause an allergic skin reaction.
May cause respiratory irritation. |

4.3 Indication of any immediate medical attention and special treatment needed

- | | | |
|-----------|---|---|
| Treatment | : | Treat symptomatically and supportively. |
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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.

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.

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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.
Ensure adequate ventilation.
Remove all sources of ignition.
Evacuate personnel to safe areas.
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.
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.

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Protect from contamination.
Do not swallow.
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.

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. 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 : -15 - -5 °C

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perature

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) according to Regulation (EC) No. 1907/2006:

Substance name	End Use	Exposure routes	Potential health effects	Value
tert-butyl peroxy-pivalate	Workers	Inhalation	Long-term systemic effects	2.5 mg/m ³
	Workers	Skin contact	Long-term systemic effects	1.4 mg/kg bw/day

Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:

Substance name	Environmental Compartment	Value
tert-butyl peroxy-pivalate	Fresh water	0.006 mg/l
	Marine water	0.001 mg/l
	Sewage treatment plant	10000 mg/l
	Fresh water sediment	0.044 mg/kg dry weight (d.w.)
	Marine sediment	0.004 mg/kg dry weight (d.w.)
	Soil	0.005 mg/kg dry weight (d.w.)

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.

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Equipment should conform to EN 166

Hand protection

Material	: Nitrile rubber
Break through time	: 30 min
Glove thickness	: 0.40 mm

Directive	: Equipment should conform to EN 374
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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 chemicals of the aforementioned protective gloves with the glove manufacturer. Wash hands before breaks and at the end of workday.
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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.
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Respiratory protection	: In the case of dust or aerosol formation use respirator with an approved filter. Respirator with combination filter for vapour/particulate (EN 141) In the case of dust or aerosol formation use respirator with an approved filter.
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Filter type	: ABEK-filter
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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.
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SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	:	liquid
Colour	:	colourless
Odour	:	ester-like
Odour Threshold	:	No data available
Melting point/range	:	< -15 °C
Boiling point/boiling range	:	Decomposition: Decomposes below the boiling point.
Flammability	:	Not applicable
Upper explosion limit / Upper flammability limit	:	4 %(V) (for a component of this mixture)
Lower explosion limit / Lower flammability limit	:	0.5 %(V) (for a component of this mixture)
Flash point	:	44 °C Method: ISO 3679
Auto-ignition temperature	:	not determined
Self-Accelerating decomposition temperature (SADT)	:	25 °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.
pH	:	substance/mixture is non-soluble (in water)
Viscosity Viscosity, dynamic	:	1.7 mPa.s (20 °C)

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Solubility(ies)
Water solubility : 1.49 g/l (20 °C)
practically insoluble

Partition coefficient: n-
octanol/water : log Pow: 3.17 (25 °C)

Vapour pressure : 4.02 hPa (38 °C)

Relative density : not determined

Density : 0.85 g/cm³ (20 °C)

Relative vapour density : No data available

9.2 Other information

Explosives : Not explosive
In use, may form flammable/explosive vapour-air mixture.

Oxidizing properties : The substance or mixture is not classified as oxidizing.
Organic peroxide

Flammability (liquids) : Flammable liquid and vapour., Organic peroxide

Self-ignition : The substance or mixture is not classified as pyrophoric.

Self-heating substances : The substance or mixture is not classified as self heating.

Substances and mixtures,
which in contact with water,
emit flammable gases : The substance or mixture does not emit flammable gases in
contact with water.

Desensitised explosives : Not applicable

Evaporation rate : No data available

Refractive index : 1.414 at 20 °C

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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 hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity

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

Product:

Acute oral toxicity : LD50 (Rat): 4,169 mg/kg
Method: OECD Test Guideline 401

Acute inhalation toxicity : LC50 (Rat): 7.79 mg/l
Exposure time: 4 h

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Test atmosphere: dust/mist
Method: OECD Test Guideline 403

Acute dermal toxicity : LD50 (Rabbit): 2,500 mg/kg
Method: OECD Test Guideline 402

Components:

tert-butyl peroxy-pivalate:

Acute oral toxicity : LD50 (Rat): 4,169 mg/kg
Method: OECD Test Guideline 401

Acute inhalation toxicity : LC50 (Rat): 7.79 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403

Acute dermal toxicity : LD50 (Rabbit, male and female): 2,500 mg/kg
Method: OECD Test Guideline 402

2,2,4,6,6-pentamethylheptane:

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg
Method: OECD Test Guideline 401
Assessment: The substance or mixture has no acute oral toxicity
Remarks: Based on data from similar materials

Acute inhalation toxicity : Remarks: No data available

Acute dermal toxicity : LD50 Dermal (Rabbit): > 5,000 mg/kg
Method: OECD Test Guideline 402

Skin corrosion/irritation

Causes skin irritation.

Product:

Species : Rabbit
Method : OECD Test Guideline 404
Result : Skin irritation

Remarks : May cause skin irritation in susceptible persons.

Components:

tert-butyl peroxy-pivalate:

Species : Rabbit
Method : OECD Test Guideline 404
Result : Skin irritation

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2,2,4,6,6-pentamethylheptane:

Result : Repeated exposure may cause skin dryness or cracking.

Serious eye damage/eye irritation

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

Product:

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

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

Components:

tert-butyl peroxyvalerate:

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

2,2,4,6,6-pentamethylheptane:

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:

Exposure routes : Skin contact
Species : Guinea pig
Method : OECD Test Guideline 406
Result : May cause sensitisation by skin contact.

Remarks : Causes sensitisation.

Components:

tert-butyl peroxyvalerate:

Exposure routes : Skin contact
Species : Guinea pig
Method : OECD Test Guideline 406
Result : May cause sensitisation by skin contact.

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Germ cell mutagenicity

Not classified due to lack of data.

Product:

Genotoxicity in vitro	:	Test Type: Ames test Metabolic activation: Metabolic activation Method: OECD Test Guideline 471 Result: positive Test Type: In vitro mammalian cell gene mutation test Test system: Chinese hamster ovary cells Method: OECD Test Guideline 476 Result: negative
Genotoxicity in vivo	:	Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay) Species: Mouse (male and female) Application Route: Intraperitoneal injection Method: OECD Test Guideline 474 Result: negative

Components:

tert-butyl peroxy-pivalate:

Genotoxicity in vitro	:	Test Type: Ames test Metabolic activation: Metabolic activation Method: OECD Test Guideline 471 Result: positive Test Type: In vitro mammalian cell gene mutation test Test system: Chinese hamster ovary cells Method: OECD Test Guideline 476 Result: negative
Genotoxicity in vivo	:	Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay) Species: Mouse (male and female) Application Route: Intraperitoneal injection Method: OECD Test Guideline 474 Result: negative Test Type: In vivo mammalian alkaline comet assay Species: Rat (males) Application Route: Oral Method: OECD Test Guideline 489 Result: negative

2,2,4,6,6-pentamethylheptane:

Germ cell mutagenicity- Assessment	:	No known effect.
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Carcinogenicity

Not classified due to lack of data.

Product:

Remarks : This information is not available.

Components:

tert-butyl peroxyvalerate:

Remarks : This information is not available.

2,2,4,6,6-pentamethylheptane:

Carcinogenicity - Assessment : No known effect.

Reproductive toxicity

Not classified due to lack of data.

Product:

Effects on fertility : Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test
Species: Rat, male and female
Application Route: oral (gavage)
General Toxicity - Parent: NOAEL: 150 mg/kg body weight
Method: OECD Test Guideline 422

Components:

tert-butyl peroxyvalerate:

Effects on fertility : Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test
Species: Rat, male and female
Application Route: oral (gavage)
Dose: 0, 50, 150, 310 milligram per kilogram
General Toxicity - Parent: NOAEL: 150 mg/kg body weight
General Toxicity F1: NOAEL: 150 mg/kg bw/day
Fertility: NOAEL Parent: 310 mg/kg bw/day
Method: OECD Test Guideline 422
GLP: yes

Effects on foetal development : Species: Rat, male and female
Strain: wistar
Application Route: Oral
Dose: 0, 50, 150, 450 milligram per kilogram
General Toxicity Maternal: NOAEL: 50 mg/kg bw/day
Developmental Toxicity: NOAEL: 150 mg/kg bw/day
Method: OECD Test Guideline 414

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GLP: yes

2,2,4,6,6-pentamethylheptane:

Reproductive toxicity - Assessment : No known effect.

STOT - single exposure

May cause respiratory irritation.

Product:

Exposure routes : Inhalation
Target Organs : Respiratory Tract
Assessment : May cause respiratory irritation.

Components:

tert-butyl peroxyvalerate:

Exposure routes : Inhalation
Target Organs : Respiratory Tract
Assessment : May cause respiratory irritation.

STOT - repeated exposure

Not classified due to lack of data.

Product:

Remarks : No data available

Components:

tert-butyl peroxyvalerate:

Remarks : No data available

Repeated dose toxicity

Product:

Species : Rat
NOAEL : 150 mg/kg
Application Route : oral (gavage)
Exposure time : 28 d
Method : OECD Test Guideline 422

Species : Rat
NOAEL : 160 mg/kg
Application Route : oral (gavage)
Exposure time : 90 d
Method : OECD Test Guideline 408
Remarks : Based on data from similar materials

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Components:

tert-butyl peroxyvalerate:

Species	: Rat
NOAEL	: 150 mg/kg
Application Route	: oral (gavage)
Exposure time	: 28 d
Method	: OECD Test Guideline 422

Species	: Rat
NOAEL	: 160 mg/kg
Application Route	: oral (gavage)
Exposure time	: 90 d
Method	: OECD Test Guideline 408
Remarks	: Based on data from similar materials

Aspiration toxicity

May be fatal if swallowed and enters airways.

Product:

May be fatal if swallowed and enters airways.

Components:

tert-butyl peroxyvalerate:

May be fatal if swallowed and enters airways.

2,2,4,6,6-pentamethylheptane:

May be fatal if swallowed and enters airways.

11.2 Information on other hazards

Endocrine disrupting properties

Product:

Assessment	: 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.
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Further information

Product:

Remarks	: Solvents may degrease the skin.
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Components:

2,2,4,6,6-pentamethylheptane:

Remarks : May cause headache and dizziness.

SECTION 12: Ecological information

12.1 Toxicity

Product:

Toxicity to fish	:	LC50 (Brachydanio rerio (zebrafish)): 18.85 mg/l Exposure time: 96 h Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 6.99 mg/l Exposure time: 48 h Method: OECD Test Guideline 202 NOEC (Daphnia magna (Water flea)): 2.94 mg/l Exposure time: 48 h Method: OECD Test Guideline 202
Toxicity to algae/aquatic plants	:	EC50 (Pseudokirchneriella subcapitata (green algae)): 1,417 mg/l End point: Growth rate Exposure time: 72 h Method: OECD Test Guideline 201 NOEC (Pseudokirchneriella subcapitata (green algae)): 0.096 mg/l End point: Growth rate Method: OECD Test Guideline 201
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC: 0.22 mg/l End point: reproduction rate Exposure time: 21 d Species: Daphnia magna (Water flea) Test Type: semi-static test Remarks: Based on data from similar materials
Toxicity to microorganisms	:	EC10 (Pseudomonas putida): > 10,000 mg/l

Components:

tert-butyl peroxyvalerate:

Toxicity to fish	:	LC50 (Brachydanio rerio (zebrafish)): 18.85 mg/l Exposure time: 96 h Method: OECD Test Guideline 203
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Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 6.99 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202

NOEC (Daphnia magna (Water flea)): 2.94 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : EC50 (Pseudokirchneriella subcapitata (green algae)): 1,417 mg/l
End point: Growth rate
Exposure time: 72 h
Method: OECD Test Guideline 201

NOEC (Pseudokirchneriella subcapitata (green algae)): 0.096 mg/l
End point: Growth rate
Method: OECD Test Guideline 201

Toxicity to microorganisms : EC10 (Pseudomonas putida): > 10,000 mg/l

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 0.22 mg/l
End point: reproduction rate
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Test Type: semi-static test
Remarks: Based on data from similar materials

2,2,4,6,6-pentamethylheptane:

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia (water flea)): > 0.04 mg/l
Exposure time: 48 h
Remarks: Information given is based on data obtained from similar substances.

Toxicity to algae/aquatic plants : IC50 (algae): > 0.04 mg/l
Exposure time: 72 h
Remarks: Information given is based on data obtained from similar substances.

Ecotoxicology Assessment

Acute aquatic toxicity : This product has no known ecotoxicological effects.

Chronic aquatic toxicity : May cause long lasting harmful effects to aquatic life.

12.2 Persistence and degradability

Product:

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

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Components:

tert-butyl peroxy-pivalate:

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

2,2,4,6,6-pentamethylheptane:

Biodegradability : Result: Not readily biodegradable.

12.3 Bioaccumulative potential

Components:

tert-butyl peroxy-pivalate:

Partition coefficient: n-octanol/water : log Pow: 3.17 (25 °C)

2,2,4,6,6-pentamethylheptane:

Partition coefficient: n-octanol/water : log Pow: 5.94 - 6.16 (20 °C)
Remarks: The value is calculated

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 Endocrine disrupting properties

Product:

Assessment : 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.

12.7 Other adverse effects

Product:

Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

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Toxic to aquatic life with long lasting effects.

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.

According to the European Waste Catalogue, Waste Codes are not product specific, but application specific.
Waste codes should be assigned by the user, preferably in discussion with the waste disposal authorities.

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 or ID number

ADR	:	UN 3113
RID	:	UN 3113 Not permitted for transport
IMDG	:	UN 3113
IATA	:	UN 3113 Not permitted for transport

14.2 UN proper shipping name

ADR	:	ORGANIC PEROXIDE TYPE C, LIQUID, TEMPERATURE CONTROLLED (tert-BUTYL PEROXYPIVALATE)
RID	:	ORGANIC PEROXIDE TYPE C, LIQUID, TEMPERATURE CONTROLLED Not permitted for transport

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IMDG : ORGANIC PEROXIDE TYPE C, LIQUID, TEMPERATURE CONTROLLED
(tert-BUTYL PEROXYPIVALATE)

IATA : ORGANIC PEROXIDE TYPE C, LIQUID, TEMPERATURE CONTROLLED
Not permitted for transport

14.3 Transport hazard class(es)

	Class	Subsidiary risks
ADR	: 5.2	
RID	: Not permitted for transport	
IMDG	: 5.2	
IATA	: Not permitted for transport	

14.4 Packing group

ADR
Packing group : Not assigned by regulation
Classification Code : P2
Labels : 5.2
Tunnel restriction code : (D)

RID : Not permitted for transport

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

IATA (Cargo) : Not permitted for transport

IATA (Passenger) : Not permitted for transport

14.5 Environmental hazards

ADR
Environmentally hazardous : yes

RID : Not permitted for transport

IMDG
Marine pollutant : yes

14.6 Special precautions for user

Additional advice

Temperature controlled transport.:
Control temperature : 0 °C
Emergency temperature : 10 °C

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

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Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

14.7 Maritime transport in bulk according to IMO instruments

Not applicable for product as supplied.

SECTION 15: Regulatory information

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

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII)	:	Conditions of restriction for the following entries should be considered: Number on list 40, 3
REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59).	:	Not applicable
Regulation (EC) No 1005/2009 on substances that deplete the ozone layer	:	Not applicable
Regulation (EU) 2019/1021 on persistent organic pollutants (recast)	:	Not applicable
Regulation (EC) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals	:	Not applicable
REACH - List of substances subject to authorisation (Annex XIV)	:	Not applicable

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.	P6b	SELF-REACTIVE SUBSTANCES AND MIXTURES and ORGANIC PEROXIDES
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E2 ENVIRONMENTAL HAZARDS

Other regulations:

Gefahrgruppe nach TRGS 741: Ib, S+ (German regulatory requirements)

Produkt unterliegt dem Sprengstoffgesetz (SprengG; Stoffgruppe C). (German regulatory requirements)

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Take note of Directive 94/33/EC on the protection of young people at work or stricter national regulations, where applicable.

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

TCSI (TW)	:	On the inventory, or in compliance with the inventory
DSL (CA)	:	All components of this product are on the Canadian DSL
ENCS (JP)	:	On the inventory, or in compliance with the inventory
ISHL (JP)	:	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

A Chemical Safety Assessment has been carried out for this substance.
For further information see eSDS.

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/
EUH066	:	Repeated exposure may cause skin dryness or cracking.

Full text of other abbreviations

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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; TECI - Thailand Existing Chemicals Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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