

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

## NOROX® PD-40 FRED



Version	Revision Date:	SDS Number:	Date of last issue: 07.06.2018
3.0	10.08.2020	600000000298	Date of first issue: 11.04.2016

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

#### 1.1 Product identifier

Trade name : NOROX® PD-40 FRED

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

Use of the Sub-  
stance/Mixture : Hardener

#### 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

+49 / 89 / 74422 – 0 (24 h)

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### SECTION 2: Hazards identification

#### 2.1 Classification of the substance or mixture

##### Classification (REGULATION (EC) No 1272/2008)

Organic peroxides, Type D	H242: Heating may cause a fire.
Eye irritation, Category 2	H319: Causes serious eye irritation.
Skin sensitisation, Category 1	H317: May cause an allergic skin reaction.
Reproductive toxicity, Category 2	H361: Suspected of damaging fertility or the un-born child.
Specific target organ toxicity - single exposure, Category 3, Respiratory system	H335: May cause respiratory irritation.

#### 2.2 Label elements

##### Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :



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Signal word	:	Danger
Hazard statements	:	H242 Heating may cause a fire. H317 May cause an allergic skin reaction. H319 Causes serious eye irritation. H335 May cause respiratory irritation. H361 Suspected of damaging fertility or the unborn child.
Precautionary statements	:	<b>Prevention:</b> P220 Keep/Store away from clothing/ strong acids, bases, heavy metal salts and other reducing substances /combustible materials. P233 Keep container tightly closed. P235 Keep cool. P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray. P262 Do not get in eyes, on skin, or on clothing. P280 Wear protective gloves/ protective clothing/ eye protection/ face protection. <b>Response:</b> P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P308 + P313 IF exposed or concerned: Get medical advice/ attention. P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention. P337 + P313 If eye irritation persists: Get medical advice/ attention. P362 + P364 Take off contaminated clothing and wash it before reuse. P370 + P378 In case of fire: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide to extinguish. <b>Disposal:</b> P501 Dispose of contents/ container to an approved waste disposal plant.

Hazardous components which must be listed on the label:

3,5-dimethyl-1,2-dioxolane-3,5-diol (CAS-No. 13784-51-5)  
Diacetone alcohol (CAS-No. 123-42-2)

### 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.

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## SECTION 3: Composition/information on ingredients

### 3.2 Mixtures

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Chemical nature : Organic Peroxide  
Liquid mixture

### Components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
3,5-dimethyl-1,2-dioxolane-3,5-diol	13784-51-5 237-438-9 01-2119965139-28-0005	Org. Perox. D; H242 Eye Irrit. 2; H319 Skin Sens. 1; H317	>= 30 - < 35
Diacetone alcohol	123-42-2 204-626-7 603-016-00-1 01-2119473975-21	Eye Irrit. 2; H319 Repr. 2; H361 STOT SE 3; H335	>= 30 - < 35
Acetylacetone	123-54-6 204-634-0 606-029-00-0 01-2119458968-15	Flam. Liq. 3; H226 Acute Tox. 4; H302 Acute Tox. 3; H331 Acute Tox. 3; H311	>= 1 - < 5

For explanation of abbreviations see section 16.

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

- General advice : Move out of dangerous area.  
Show this safety data sheet to the doctor in attendance.  
Do not leave the victim unattended.  
Symptoms of poisoning may appear several hours later.  
Call a physician immediately.
- Protection of first-aiders : First Aid responders should pay attention to self-protection and use the recommended protective clothing
- If inhaled : If unconscious, place in recovery position and seek medical advice.  
Keep respiratory tract clear.  
If symptoms persist, call a physician.  
If breathed in, move person into fresh air.
- In case of skin contact : 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.  
If symptoms persist, call a physician.
- In case of eye contact : In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

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

If swallowed : Keep respiratory tract clear.  
Call a physician immediately.  
Rinse mouth thoroughly with water.

### 4.2 Most important symptoms and effects, both acute and delayed

Risks : May cause an allergic skin reaction.  
Causes serious eye irritation.  
May cause respiratory irritation.  
Suspected of damaging fertility or the unborn child.

### 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 (CO<sub>2</sub>)  
Dry chemical

Unsuitable extinguishing media : High volume water jet

### 5.2 Special hazards arising from the substance or mixture

Specific hazards during fire-fighting : 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.  
Vapours may form explosive mixtures with air.  
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.

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Further information : 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.  
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

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### SECTION 6: Accidental release measures

#### 6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Use personal protective equipment.  
Remove all sources of ignition.  
Follow safe handling advice and personal protective equipment recommendations.  
Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low 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

For personal protection see section 8.

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### 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 : 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.  
Protect from contamination.
- Advice on protection against fire and explosion : Keep away from heat and sources of ignition. Use only explosion-proof equipment. Keep away from combustible material.
- Hygiene measures : 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 : 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. Store in original container. Keep containers tightly closed in a cool, well-ventilated place. Store in accordance with the particular national regulations.
- Advice on common storage : Keep away from strong acids, bases, heavy metal salts and other reducing substances.
- Recommended storage temperature : 10 - 25 °C
- Further information on storage : No decomposition if stored normally.

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age stability

### 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

#### Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
Diacetone alcohol	123-42-2	OELV - 8 hrs (TWA)	50 ppm 240 mg/m <sup>3</sup>	IE OEL
Further information	Where no specific short-term exposure limit is listed, a figure three times the long-term exposure limit value should be used			
Acetylacetone	123-54-6	OELV - 8 hrs (TWA)	25 ppm	IE OEL
Further information	Where no specific short-term exposure limit is listed, a figure three times the long-term exposure limit value should be used			

#### Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

Substance name	End Use	Exposure routes	Potential health effects	Value
3,5-dimethyl-1,2-dioxolane-3,5-diol	Workers	Inhalation	Long-term systemic effects	11.75 mg/m <sup>3</sup>
	Workers	Skin contact	Long-term systemic effects	13.33 mg/kg bw/day
Diacetone alcohol	Workers	Inhalation	Acute local effects	240 mg/m <sup>3</sup>
	Workers	Skin contact	Long-term systemic effects	9.4 mg/kg bw/day
	Workers	Inhalation	Long-term systemic effects	66.4 mg/m <sup>3</sup>
	Workers	Inhalation	Long-term local effects	66.4 mg/m <sup>3</sup>
Acetylacetone	Workers	Inhalation		84 mg/m <sup>3</sup>
	Workers	Skin contact		12 mg/kg bw/day

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

Substance name	Environmental Compartment	Value
3,5-dimethyl-1,2-dioxolane-3,5-diol	Fresh water	0.054 mg/l
	Marine water	0.0054 mg/l
	Intermittent use/release	0.054 mg/l
	Fresh water sediment	0.48 mg/kg
	Marine sediment	0.048 mg/kg
	Sewage treatment plant	6.2 mg/l
	Soil	0.065 mg/kg

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Diacetone alcohol	Fresh water	2 mg/l
	Marine water	0.2 mg/l
	Sewage treatment plant	82 mg/l
	Fresh water sediment	9.06 mg/kg dry weight (d.w.)
	Marine sediment	0.91 mg/kg dry weight (d.w.)
	Soil	0.63 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 protection : Tightly fitting safety goggles  
Please wear suitable protective goggles. Also wear face protection if there is a splash hazard.  
Ensure that eyewash stations and safety showers are close to the workstation location.

#### Hand protection

Material : Nitrile rubber  
Break through time : < 30 min  
Glove thickness : 0.4 mm

Material : butyl-rubber  
Break through time : <= 480 min  
Glove thickness : 0.5 mm

Remarks : 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.

Skin and body protection : Select appropriate protective clothing based on chemical resistance data and an assessment of the local exposure potential.

Respiratory protection : In the case of dust or aerosol formation use respirator with an



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approved filter.  
Filter type : ABEK-filter

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### SECTION 9: Physical and chemical properties

#### 9.1 Information on basic physical and chemical properties

Appearance	:	liquid
Colour	:	red
Odour	:	slight
pH	:	No data available
Melting point/range	:	No data available
Boiling point/boiling range	:	Decomposition: Decomposes below the boiling point.
Flash point	:	68 °C Method: ISO 3679
Flammability (solid, gas)	:	Not applicable
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Vapour pressure	:	No data available
Density	:	ca. 1.1 g/cm <sup>3</sup> (20 °C)
Solubility(ies)		
Water solubility	:	No data available
Solubility in other solvents	:	Solvent: Alcohol Description: completely miscible  Solvent: Phthalates Description: completely miscible
Partition coefficient: n-octanol/water	:	No data available
Viscosity		
Viscosity, dynamic	:	ca. 38 mPa.s (20 °C)
Explosive properties	:	Not explosive

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

### 9.2 Other information

Self-Accelerating decomposition temperature (SADT) : 60 °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.

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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

Stable under recommended storage conditions.

### 10.2 Chemical stability

Stable under recommended storage conditions.

### 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

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## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

Not classified based on available information.

#### Product:

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

Acute inhalation toxicity : Acute toxicity estimate: > 20 mg/l

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Exposure time: 4 h  
Test atmosphere: vapour  
Method: Calculation method

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

### Components:

#### **3,5-dimethyl-1,2-dioxolane-3,5-diol:**

Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg  
Method: OECD Test Guideline 401

Acute inhalation toxicity : LC50 (Rat, male): > 13.1 mg/l  
Exposure time: 1 h  
Test atmosphere: dust/mist  
Method: Expert judgement  
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg  
Method: Expert judgement  
Assessment: The substance or mixture has no acute dermal toxicity

#### **Diacetone alcohol:**

Acute oral toxicity : LD50 (Rat): 3,002 mg/kg  
Method: OECD Test Guideline 401

Acute inhalation toxicity : LC0 (Rat, male and female): >= 7.6 mg/l  
Exposure time: 4 h  
Test atmosphere: vapour  
Method: OECD Test Guideline 403  
Assessment: The substance or mixture has no acute inhalation toxicity  
Remarks: No mortality observed at this dose.

Acute dermal toxicity : LD0 (Rat): > 1,875 mg/kg  
Method: OECD Test Guideline 402  
Assessment: The substance or mixture has no acute dermal toxicity  
Remarks: No mortality observed at this dose.

#### **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

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

### **Skin corrosion/irritation**

Not classified based on available information.

#### **Product:**

Remarks : May cause skin irritation in susceptible persons.

#### **Components:**

##### **3,5-dimethyl-1,2-dioxolane-3,5-diol:**

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

##### **Diacetone alcohol:**

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

##### **Acetylacetone:**

Species : Rabbit  
Result : No skin irritation

### **Serious eye damage/eye irritation**

Causes serious eye irritation.

#### **Product:**

Remarks : May cause irreversible eye damage.

#### **Components:**

##### **3,5-dimethyl-1,2-dioxolane-3,5-diol:**

Species : Rabbit  
Method : OECD Test Guideline 405  
Result : Eye irritation

##### **Diacetone alcohol:**

Species : Rabbit  
Method : OECD Test Guideline 405  
Result : Irritation to eyes, reversing within 21 days

##### **Acetylacetone:**

Species : Rabbit  
Result : No eye irritation

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### Respiratory or skin sensitisation

#### Skin sensitisation

May cause an allergic skin reaction.

#### Respiratory sensitisation

Not classified based on available information.

#### Product:

Remarks : Causes sensitisation.

#### Components:

##### **3,5-dimethyl-1,2-dioxolane-3,5-diol:**

Test Type : Maximisation Test  
Exposure routes : Skin contact  
Species : Guinea pig  
Method : OECD Test Guideline 406  
Result : Probability or evidence of skin sensitisation in humans

Remarks : Causes sensitisation.

##### **Diacetone alcohol:**

Species : Guinea pig  
Method : OECD Test Guideline 406  
Result : Does not cause skin sensitisation.

##### **Acetylacetone:**

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

### Germ cell mutagenicity

Not classified based on available information.

#### Components:

##### **3,5-dimethyl-1,2-dioxolane-3,5-diol:**

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)  
Method: OECD Test Guideline 471  
Result: positive

Test Type: In vitro mammalian cell gene mutation test  
Method: OECD Test Guideline 476  
Result: negative

Genotoxicity in vivo : Test Type: In vivo micronucleus test  
Species: Mouse (male and female)  
Application Route: Intraperitoneal injection  
Method: OECD Test Guideline 474

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Result: negative

### **Diacetone alcohol:**

Genotoxicity in vitro

: Method: OECD Test Guideline 476  
Result: negative

Method: OECD Test Guideline 471  
Result: negative

Method: OECD Test Guideline 473  
Result: negative

Genotoxicity in vivo

: Remarks: Not classified due to data which are conclusive although insufficient for classification.

Germ cell mutagenicity- Assessment

: Tests on bacterial or mammalian cell cultures did not show mutagenic effects.

### **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

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### **Carcinogenicity**

Not classified based on available information.

### **Components:**

#### **3,5-dimethyl-1,2-dioxolane-3,5-diol:**

Remarks : This information is not available.

#### **Diacetone alcohol:**

Carcinogenicity - Assessment : Weight of evidence does not support classification as a carcinogen

### **Reproductive toxicity**

Suspected of damaging fertility or the unborn child.

### **Components:**

#### **3,5-dimethyl-1,2-dioxolane-3,5-diol:**

Effects on fertility : Remarks: No data available

Effects on foetal development : Remarks: No data available

#### **Diacetone alcohol:**

Effects on fertility : Species: Rat  
Application Route: oral (gavage)  
General Toxicity - Parent: NOAEL: 300 mg/kg body weight  
General Toxicity F1: NOAEL: 300 mg/kg body weight  
Method: OECD Test Guideline 422

Effects on foetal development : Species: Rat  
Application Route: inhalation (vapour)  
General Toxicity Maternal: NOAEL: 4,106  
Embryo-foetal toxicity: NOAEL: 12,292  
Method: OECD Test Guideline 414

Reproductive toxicity - Assessment : Some evidence of adverse effects on sexual function and fertility, and/or on development, based on animal experiments.

#### **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

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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

May cause respiratory irritation.

#### Components:

##### **Diacetone alcohol:**

Target Organs : Respiratory system  
Assessment : May cause respiratory irritation.

### STOT - repeated exposure

Not classified based on available information.

#### **Repeated dose toxicity**

#### Components:

##### **Diacetone alcohol:**

Species : Rat  
NOAEL : 1.04 mg/l  
LOAEL : 4.685 mg/l  
Application Route : inhalation (vapour)  
Exposure time : 6 w  
Method : OECD Test Guideline 412

Species : Rat  
NOAEL : 100 mg/kg  
Application Route : oral (gavage)  
Method : OECD Test Guideline 422

##### **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



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Exposure time : 9 d

### Aspiration toxicity

Not classified based on available information.

### Components:

#### Acetylacetone:

No aspiration toxicity classification

### Further information

#### Product:

Remarks : No data available

### Components:

#### 3,5-dimethyl-1,2-dioxolane-3,5-diol:

Remarks : No data available

#### Acetylacetone:

Remarks : Solvents may degrease the skin.

---

## SECTION 12: Ecological information

### 12.1 Toxicity

#### Components:

#### 3,5-dimethyl-1,2-dioxolane-3,5-diol:

Toxicity to fish : LC50 (Danio rerio (zebra fish)): > 67.6 mg/l  
Exposure time: 96 h  
Test Type: semi-static test  
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 7.05 mg/l  
Exposure time: 48 h  
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : EC50 (Pseudokirchneriella subcapitata (green algae)): 5.36 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201

Toxicity to microorganisms : EC50 : 614 mg/l  
Exposure time: 3 h  
Method: OECD Test Guideline 209

#### Diacetone alcohol:

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Toxicity to fish : LC50 (Oryzias latipes (Orange-red killifish)): > 100 mg/l  
Exposure time: 96 h  
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 1,000 mg/l  
Exposure time: 48 h  
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : EbC50 (Pseudokirchneriella subcapitata (green algae)): > 1,000 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201

NOEC (Pseudokirchneriella subcapitata (green algae)): 1,000 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201

### Acetylacetone:

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

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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:

##### **3,5-dimethyl-1,2-dioxolane-3,5-diol:**

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

##### **Diacetone alcohol:**

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

##### **Acetylacetone:**

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

### 12.3 Bioaccumulative potential

#### Components:

##### **3,5-dimethyl-1,2-dioxolane-3,5-diol:**

Partition coefficient: n-octanol/water : log Pow: 1.1 (25 °C)  
Method: OECD Test Guideline 117

##### **Diacetone alcohol:**

Partition coefficient: n-octanol/water : log Pow: -0.09 (20 °C)

##### **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

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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:

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

#### Components:

##### **3,5-dimethyl-1,2-dioxolane-3,5-diol:**

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

##### **Acetylacetone:**

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

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## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

Product : 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.  
Dispose of wastes in an approved waste disposal facility.

Contaminated packaging : 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.  
Dispose of in accordance with local regulations.

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## SECTION 14: Transport information

### 14.1 UN number

ADN : UN 3105  
ADR : UN 3105  
RID : UN 3105  
IMDG : UN 3105

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**IATA** : UN 3105

### 14.2 UN proper shipping name

**ADN** : ORGANIC PEROXIDE TYPE D, LIQUID  
(ACETYL ACETONE PEROXIDE)

**ADR** : ORGANIC PEROXIDE TYPE D, LIQUID  
(ACETYL ACETONE PEROXIDE)

**RID** : ORGANIC PEROXIDE TYPE D, LIQUID  
(ACETYL ACETONE PEROXIDE)

**IMDG** : ORGANIC PEROXIDE TYPE D, LIQUID  
(ACETYL ACETONE PEROXIDE)

**IATA** : Organic peroxide type D, liquid  
(Acetyl acetone peroxide)

### 14.3 Transport hazard class(es)

**ADN** : 5.2

**ADR** : 5.2

**RID** : 5.2

**IMDG** : 5.2

**IATA** : 5.2

### 14.4 Packing group

**ADN**  
Packing group : Not assigned by regulation  
Classification Code : P1  
Labels : 5.2

**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 : Division 5.2 - Organic peroxides, Handling Label - Keep Away

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From Heat

### IATA (Passenger)

Packing instruction (passenger aircraft)	: 570
Packing group	: Not assigned by regulation
Labels	: Division 5.2 - Organic peroxides, Handling Label - Keep Away From Heat

### 14.5 Environmental hazards

#### ADN

Environmentally hazardous : no

#### ADR

Environmentally hazardous : no

#### RID

Environmentally hazardous : no

#### IMDG

Marine pollutant : no

### 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

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59) : Not applicable

REACH - List of substances subject to authorisation (Annex XIV) : Not applicable

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer : Not applicable

Regulation (EC) No 850/2004 on persistent organic pollutants : Not applicable

Regulation (EC) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals : Not applicable

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REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII) : Conditions of restriction for the following entries should be considered: Number on list 3

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	Quantity 1 50 t	Quantity 2 200 t
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### Other regulations:

Gefahrgruppe nach § 3 BGV B4: II (German regulatory requirements)

Take note of Directive 92/85/EEC regarding maternity protection or stricter national regulations, where applicable.

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

TSCA (US) : All substances listed as active on the TSCA inventory

AICS (AU) : On the inventory, or in compliance with the inventory

DSL (CA) : All components of this product are on the Canadian DSL

KECI (KR) : On the inventory, or in compliance with the inventory

### 15.2 Chemical safety assessment

This information is not available.

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## 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.

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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
Eye Irrit. 2	H319
Skin Sens. 1	H317
Repr. 2	H361
STOT SE 3	H335

### Classification procedure:

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

### Full text of H-Statements

H226	: Flammable liquid and vapour.
H242	: Heating may cause a fire.
H302	: Harmful if swallowed.
H311	: Toxic in contact with skin.
H317	: May cause an allergic skin reaction.
H319	: Causes serious eye irritation.
H331	: Toxic if inhaled.
H335	: May cause respiratory irritation.
H361	: Suspected of damaging fertility or the unborn child.

### Full text of other abbreviations

Acute Tox.	: Acute toxicity
Eye Irrit.	: Eye irritation
Flam. Liq.	: Flammable liquids
Org. Perox.	: Organic peroxides
Repr.	: Reproductive toxicity
Skin Sens.	: Skin sensitisation
STOT SE	: Specific target organ toxicity - single exposure
IE OEL	: Ireland. List of Chemical Agents and Occupational Exposure Limit Values - Schedule 1
IE OEL / OELV - 8 hrs (TWA)	: Occupational exposure limit value (8-hour reference period)

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; AICS - Australian Inventory of Chemical Substances; 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 Organisa-



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tion 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; 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

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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