

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

### 1.1. Product identifier

# UCAN PRINT BASE

**UFI** 0P10-552P-VT3Y-2YC7

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

**Relevant identified uses:** 3D printing  
**Uses advised against:** Private households (= general public). Observe instructions for use.

### 1.3. Details of the supplier of the safety data sheet

#### Manufacturer

pro3dure medical GmbH

**Telephone** +49 (0)2374 920050-10

Am Burgberg 13  
D 58642 Iserlohn

#### Supplier

Candulor AG  
Boulevard Lilienthal 8  
CH 8152 Glattpark (Opfikon)

**Telephone** +41 (0)44 805 90 00  
**Telefax:** +41 (0)44 805 90 90

#### Information contact

pro3dure medical GmbH

**Information telephone** +49 (0)2374 920050-10  
**Information telefax**  
**E-mail (competent person)** info@pro3dure.com  
**Website** www.pro3dure.com

### 1.4. Emergency telephone number

pro3dure medical GmbH  
This number is serviced during office hours.

**Telephone** +49 (0)2374 920050-10

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

Regulation (EC) No 1272/2008:  
Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1/1A/1B, H317; STOT SE 3, H335; Aquatic Chronic 3, H412

### 2.2. Label elements

Classification according to Regulation (EC) No 1272/2008 [CLP]

Hazard pictograms



**Signal word:** GHS07  
Warning

**Hazard statements:**

- H315 Causes skin irritation.  
H317 May cause an allergic skin reaction.  
H319 Causes serious eye irritation.  
H335 May cause respiratory irritation.  
H412 Harmful to aquatic life with long lasting effects.

**Precautionary statements:**

- P233 Keep container tightly closed.  
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.  
P271 Use only outdoors or in a well-ventilated area.  
P272 Contaminated work clothing should not be allowed out of the workplace.  
P273 Avoid release to the environment.  
P280 Wear protective gloves/protective clothing/eye protection/face protection.  
P302+352.1 IF ON SKIN: Wash with plenty of soap and water.  
P304+340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P305+351+338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P332+313 If skin irritation occurs: Get medical advice/attention.  
P333+313 If skin irritation or rash occurs: Get medical advice/attention.  
P337+313 If eye irritation persists: Get medical advice/attention.  
P362+364 Take off contaminated clothing and wash it before reuse.  
P370+378.5 In case of fire: Use sand, earth, extinguishing powder or foam to extinguish.  
P403+233 Store in a well-ventilated place. Keep container tightly closed.  
P405 Store locked up.  
P410+403 Protect from sunlight. Store in a well-ventilated place.  
P501 Dispose of contents/container in accordance with local and national regulations.

**Special labelling of particular preparations:**

Provide fresh air. Seek medical attention if problems persist.

**2.3. Other hazards**

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.  
No endocrine-disrupting properties known (see section 12)  
Annex XVII, entry : 75, 78 not relevant  
Contains: SVHC substance.  
CA Proposition 65 : Substance(s) not listed.

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**SECTION 3: Composition / information on ingredients**

**3.1. Substances**

not applicable

**3.2. Mixtures**

Mixture with, among others, the following ingredients and other non-hazardous admixtures

**Composition/information on ingredients**

Substance:	CAS-No.:	REACH-no.:	Concentration:	Classification: EC 1272/2008 (CLP):	M, ATE, Note
Esterification products of 4,4'-isopropylidenediphenol, ethoxylated and 2-methylprop-2-enoic acid	41637-38-1	01-2119980659-17-XXXX	50-70 %	Skin Irrit. 2, H315; Skin Sens. 1/1A/1B, H317; Eye Irrit. 2, H319; STOT SE 3, H335; Aquatic Chronic 4, H413	M = 0 ATE (dermal) = >2000 mg/kg bw ATE (oral) = >2000 mg/kg bw ATE (inhalativ) = -
7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxo-5,12-diazahexadecane-1,16-diyl bismethacrylate	72869-86-4	01-2120751202-68-XXXX	20-30 %	Skin Sens. 1, H317; Aquatic Chronic 2, H411	M = 0 ATE (dermal) = >2000 mg/kg bw ATE (oral) = >5000 mg/kg bw ATE (inhalativ) = -
3,6,9-trioxaundecamethylene dimethacrylate	109-17-1	pre-registered	10-20 %	Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1B, H317; STOT SE 3, H335	M = 0 ATE (dermal) = >3000 mg/kg bw ATE (oral) = >5000 mg/kg bw ATE (inhalativ) = -
Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide	75980-60-8	01-2119972295-29-xxxx	< 02 %	Skin Sens. 1B, H317; Repr. 2, H361f; Aquatic Chronic 2, H411	M = 0 ATE (dermal) = > 2000 mg/kg bw ATE (oral) = > 5000 mg/kg bw ATE (inhalativ) = -

(Full text of H- and EUH-statements: see section 16.)

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

- General information:** In case of accident or unwellness, seek medical advice immediately Remove contaminated, saturated clothing immediately. Medical attention is required if symptoms clearly result from contact with the product on skin, eyes, or from inhalation of vapors.
- In case of inhalation:** Provide fresh air. Seek medical attention if problems persist.
- Following skin contact:** After contact with skin, wash immediately with plenty of water and soap. In case of skin irritation, consult a physician.
- After eye contact:** In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist.
- After ingestion:** Rinse mouth immediately and drink plenty of water. Do NOT induce vomiting. Seek medical attention if problems persist. Seek medical attention if problems persist.

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

Possible harmful effect(s) on human beings and possible symptom(s): Skin sensitisation Irritation to respiratory tract Skin and eye irritation Skin and eye irritation

### 4.3. Indication of any immediate medical attention and special treatment needed

First Aid, decontamination, treatment of symptoms.

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

- Suitable extinguishing media** ABC-powder BC-powder alcohol resistant foam Carbon dioxide (CO2)
- Unsuitable extinguishing media** Water spray jet . Full water jet . Excess water .

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

In case of fire may be liberated: Carbon dioxide (CO2) . Carbon monoxide .

### 5.3. Advice for firefighters

### General information

Move undamaged containers from immediate hazard area if it can be done safely. Use water spray jet to protect personnel and to cool endangered containers. Do not allow water used to extinguish fire to enter drains or waterways.

### Special protective equipment for fire-fighters:

In case of fire: Wear self-contained breathing apparatus. Wear chemical resistant suit.

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## SECTION 6: Accidental release measures

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

Provide adequate ventilation. Remove all sources of ignition. Remove persons to safety. Wear personal protection equipment. Special danger of slipping by leaking/spilling product. See protective measures under point 7 and 8.

### 6.2. Environmental precautions

Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil.

### 6.3. Methods and material for containment and cleaning up

Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents). Treat the recovered material as prescribed in the section on waste disposal.

### 6.4. Reference to other sections

Safe handling: see section 7 Personal protection equipment: see section 8 Disposal: see section 13

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## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

#### Advices on safe handling

Keep container tightly closed. When using do not eat, drink, smoke, sniff. Use only in well-ventilated areas. All work processes must always be designed so that the following is as low as possible: Inhalation Avoid contact with skin, eyes and clothes.

#### Precautions against fire and explosion:

Always close containers tightly after the removal of product. Use only in well-ventilated areas.

### 7.2. Conditions for safe storage, including any incompatibilities

#### Requirements for storage rooms and vessels

Keep container tightly closed in a cool, well-ventilated place. Protect against: UV-radiation/sunlight Only use the material in places where open light, fire and other flammable sources can be kept away.

#### Hints on joint storage

Do not store together with: Oxidizing agent . Organic peroxides . Keep away from food, drink and animal feedingstuffs.

### 7.3. Specific end use(s)

Observe instructions for use.

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## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

### occupational exposure limit value

Substance:	CAS-No.:	Source:	Occupational exposure limit value:[ppm]	Occupational exposure limit value:[mg/m <sup>3</sup> ]	Limitation of exposure peaks:	Remark:

### Substance with a common (EC) occupational exposure limit value.

Substance:	CAS-No.:	Source:	Occupational exposure limit value:[ppm]	Occupational exposure limit value:[mg/m <sup>3</sup> ]	Limitation of exposure peaks:	Remark:

### DNEL-/PNEC-values

#### DNEL value

Substance:	CAS-No.:	DNEL/DMEL
7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxo-5,12-diazahexadecane-1,16-diyl bismethacrylate	72869-86-4	worker inhalative long-term, systemic 3,3 mg/m <sup>3</sup> worker dermal long-term, systemic 1,3 mg/kg bw/day population inhalative long-term, systemic 0,6 mg/m <sup>3</sup> population dermal long-term, systemic 0,7 mg/kg bw/day population oral long-term, systemic 0,3 mg/kg bw/day
3,6,9-trioxaundecamethylene dimethacrylate	109-17-1	worker inhalative long-term, systemic 48,5 mg/m <sup>3</sup> worker dermal long-term, systemic 13,9 mg/kg bw/day population inhalative long-term, systemic 14,5 mg/m <sup>3</sup> population dermal long-term, systemic 8,33 mg/kg bw/day population oral long-term, systemic 8,33 mg/kg bw/day
Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide	75980-60-8	worker inhalative long-term, systemic 0,822 mg/m <sup>3</sup> worker dermal long-term, systemic 0,233 mg/kg bw/day population inhalative long-term, systemic 0,145 mg/m <sup>3</sup> population dermal long-term, systemic 0,0833 mg/kg bw/day population oral long-term, systemic 0,0833 mg/kg bw/day
Esterification products of 4,4'-isopropylidenediphenol, ethoxylated and 2-methylprop-2-enoic acid	41637-38-1	worker inhalative short-term, systemic 3,52 mg/m <sup>3</sup> worker dermal short-term, systemic 2 mg/kg bw/day population inhalative short-term, systemic 870 µg/m <sup>3</sup> population dermal short-term, systemic 1 mg/kg bw/day population oral long-term, systemic 5 mg/kg bw/day

#### PNEC Value

Substance:	CAS-No.:	PNEC
7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxo-5,12-diazahexadecane-1,16-diyl bismethacrylate	72869-86-4	aquatic, freshwater 0,01 µg/l aquatic, marine water 0,001 µg/l sewage treatment plant 3,61 µg/l sediment, freshwater 4,56 µg/kg dw sediment, marine water 0,46 µg/kg dw soil 0,91 mg/kg dw
Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide	75980-60-8	aquatic, freshwater 1,4 µg/l aquatic, marine water 0,14 µg/l sediment, freshwater 115 µg/kg dw sediment, marine water 11,5 µg/kg dw soil 22,2 µg/kg dw

#### Additional information

none

## 8.2. Exposure controls

#### Occupational exposure controls:

Provide adequate ventilation as well as local exhaustion at critical locations. Technical measures and the application of suitable work processes have priority over personal protection equipment.

#### General protection and hygiene measures:

When using do not eat, drink, smoke, sniff. Wash hands before breaks and after work. Apply skin care products after work. Wash contaminated clothing prior to re-use. Wear suitable protective clothing, gloves and eye/face protection.

#### Personal protection equipment

Only wear fitting, comfortable and clean protective clothing. Further remarks: Minimum standard for preventive measures while handling with working materials are specified in the TRGS 500.

#### Respiratory protection

In case of inadequate ventilation wear respiratory protection. Wear breathing apparatus if exposed to vapours/dusts/aerosols. Suitable respiratory protection apparatus: Combination filter device (DIN EN 141). With correct and proper use, and under normal conditions, breathing protection is not required.

**Hand protection**

Tested protective gloves are to be worn: DIN-/EN-Norms: EN ISO 374 Suitable material: Butyl caoutchouc (butyl rubber) , NBR (Nitrile rubber). NBR (Nitrile rubber).

**Eye/face protection**

Eye glasses with side protection

**Body protection:**

Personal protection equipment . lab coat . Only wear fitting, comfortable and clean protective clothing. Barrier creams are not substitutes for body protection.

**Environmental exposure controls**

refer to chapter 7. No further action is necessary.

**Consumer exposure controls**

refer to chapter 7. No further action is necessary.

**Exposure Scenario:**

Skin contact Inhalation

**SECTION 9: Physical and chemical properties**

**9.1. Information on basic physical and chemical properties**

**Appearance**

**Physical state:** Liquid  
**Colour:** According to the product specification  
**Odour:** fruity  
**Odour threshold:** No data available

**Safety relevant basis data**

	parameter	Value	unit	Remark
<b>Melting point/freezing point:</b>				not determined
<b>Initial boiling point and boiling range:</b>				not determined
<b>Flammability:</b>				not determined
<b>lower flammability or explosive limits:</b>				not determined
<b>Upper flammability or explosive limits:</b>				not determined
<b>Flash point:</b>		>150-200	°C	Based on data of the components
<b>Ignition temperature:</b>				not determined
<b>Decomposition temperature:</b>				not determined
<b>pH:</b>				not determined
<b>Kinematic viscosity:</b>	°C	500	Pa*s	at 20°C.
<b>Water solubility (g/L):</b>				
<b>Partition coefficient: n-octanol/water:</b>	Log KOW	1.39, 3.39, 5,3~5,62		Based on data of the components :
<b>Vapour pressure:</b>				not determined
<b>Density:</b>		1.1	g/mL	at 20°C.
<b>Relative density:</b>				not determined
<b>Particle properties:</b>				not determined

**9.2. Other information**

none

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

Can polymerise exothermically if heated, exposed to air, sunlight or by addition of free radical initiators.

### 10.2. Chemical stability

The substance is chemically stable under recommended conditions of storage, use and temperature.

### 10.3. Possibility of hazardous reactions

Polymerization.

### 10.4. Conditions to avoid

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. UV-radiation/sunlight UV-radiation/sunlight

### 10.5. Incompatible materials

Polymerization with heat evolution may occur in the presence of radical forming substances (e.g. peroxides), reducing substances, and/or heavy metal ions. Can polymerise exothermically if heated, exposed to air, sunlight or by addition of free radical initiators. Can polymerise exothermically if heated, exposed to air, sunlight or by addition of free radical initiators.

### 10.6. Hazardous decomposition products

In case of fire may be liberated: Carbon dioxide (CO<sub>2</sub>) . Carbon monoxide .

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

There are no data available on the preparation/mixture itself. Data apply to the component with the highest toxicological risk.

**M-factor:** - **Acute toxicity (dermal):** 2000 mg/kg  
**Acute toxicity (oral):** 2000 mg/kg **Acute toxicity (inhalative):** -

#### Acute toxicity

Substance:	CAS-No.:	Toxicological information
Esterification products of 4,4'-isopropylidenediphenol, ethoxylated and 2-methylprop-2-enoic acid	41637-38-1	LD50 oral (rat) > 2000 mg/kg LD50 dermal (rat) > 2000 mg/kg NOAEL Repr.-Tox. (Rat) 1000 mg/kg bw/Tag NOAEL STOT-RE (rat) 300 mg/kg/d
Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide	75980-60-8	LC50 inhalation (Rat) 2000 mg/ kg bw LD50 oral (rat) > 5000 mg/kg bw LD50 dermal (rat) > 2000 mg/kg bw NOAEL (rat) 50 mg/kg bw/Tag NOAEL Repr.-Tox. (Rat) 60 mg/kg bw/Tag
3,6,9-trioxaundecamethylene dimethacrylate	109-17-1	LD50 dermal (rat) > 3000 mg/kg LD50 oral (rat) > 5000 mg/kg
7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxa-5,12-diazahexadecane-1,16-diyl bismethacrylate	72869-86-4	LD50 oral (rat) > 5000 mg/kg LD50 dermal (rat) > 2000 mg/kg NOAEL Repr.-Tox. (Rat) 1000 mg/kg/d NOAEL STOT-RE (rat) 100 mg/kg/d

#### Skin corrosion/irritation:

Frequently or prolonged contact with skin may cause dermal irritation.

#### Serious eye damage/irritation:

irritant.

#### Respiratory or skin sensitisation:

May cause sensitization by skin contact. May cause sensitisation especially in sensitive humans. (based on the components)

### CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)

#### Carcinogenicity:

There are no data available on the preparation/mixture itself. Based on available data, the classification criteria are not met. (based on the components)

#### Germ cell mutagenicity:

No experimental indications of genotoxicity in-vitro exist. No experimental indications of mutagenicity in-vitro exist. (based on the components)

#### Reproductive toxicity:

Based on data of the components : CAS-No.: 41637-38-1, 72869-86-4 NOAEL: 1000 mg/kg bw/day oral Rat . ; Evidence for reproductive toxicity in experimental animals. CAS-No.: 75980-60-8 NOAEL: 60 mg/kg bw/day oral Rat . .

### STOT-single exposure:

Based on available data, the classification criteria are not met. (based on the components)

### STOT-repeated exposure:

CAS-No.: 75980-60-8, 72869-86-4, 41637-38-1 NOAEL: 60-300 mg/kg bw/day

### Aspiration hazard:

The inhalation of dust/mist or aerosols causes irritation of the respiratory tract.

## SECTION 12: Ecological information

### 12.1. Toxicity

There are no data available on the preparation/mixture itself.

#### Ecotoxicity

Substance:	CAS-No.:	Ecotoxicity
Esterification products of 4,4'-isopropylidenediphenol, ethoxylated and 2-methylprop-2-enoic acid	41637-38-1	LC50 (fish, 96 h) > 100 mg/l LC50 (crustaceans, 48h) 6 mg/l EC50 (algae, 72 h) 100 mg/l EC50 (Daphnia, 48 h) > 100 mg/L
Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide	75980-60-8	EC50 (Daphnia, 48 h) 3,53 mg/L EC50 (algae, 72 h) > 2,01 mg/L EC50 (microorganisms, 3h) > 1000 mg/kg
3,6,9-trioxaundecamethylene dimethacrylate	109-17-1	EC50 (Daphnia, 48 h) 391 mg/L EC50 (algae, 72 h) 68 mg/L
7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxa-5,12-diazahexadecane-1,16-diyl bismethacrylate	72869-86-4	LC50 (Daphnia) > 1,2 mg/L EC50 (algae, 72 h) > 0,68 mg/l LC50 (fish, 96 h) 10,1 mg/L EC50 (Daphnia, 48 h) > 12 mg/L NOEC (algae , 72h) 21 mg/l

### 12.2. Persistence and degradability

There are no data available on the preparation/mixture itself. Not readily biodegradable (according to OECD criteria) (based on the components)

### 12.3. Bioaccumulative potential

There are no data available on the mixture itself. Based on data of the components : CAS-No.: 109-17-1, 72869-86-4, 41637-38-1: Log KOW : 1.39, 3.39, 5,3~5,62

### 12.4. Mobility in soil

There are no data available on the mixture itself. Based on data of the components : CAS-No.: 41637-38-1, 72869-86-4: log Koc: 3,69~3.88, 4516 @20 °C

### 12.5. Results of PBT and vPvB assessment

There are no data available on the mixture itself. The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII. (based on the components)



Special provisions: - Limited quantity (LQ): -

**Sea transport (IMDG)**

EmS-No: -

Special provisions: - Limited quantity (LQ): -

**14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**

Remark No transport as bulk according to IBC Code.

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**SECTION 15: Regulatory information**

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

**EU legislation**

**Information on Regulation (EC) No 166/2006 establishing a European Pollutant Release and Transfer Register:**

not applicable , Substance / mixture / product / ingredients not listed

**Regulation (EC) No. 1005/2009 on substances that lead to the depletion of the ozone layer:**

not applicable , Substance / mixture / product / ingredients not listed

**Regulation (EC) No. 648/2004 (Detergents regulation)**

not applicable

**Regulation (EC) No 850/2004 [POP-Regulation]:**

REGULATION (EU) 2019/102: Substance / mixture / product / ingredients not listed

**Regulation (EU) No 649/2012 on the export and import of dangerous chemicals:**

Substance / mixture / product / ingredients not listed

**Use restriction according to REACH annex XVII, no.:**

Use restriction according to REACH annex XVII, no.: 75 CAS No. 75980-60-8 not relevant

**National regulations**

Observe in addition any national regulations!

**Restrictions of occupation**

Observe restrictions to employment for juvenils according to the 'juvenile work protection guideline' (94/33/EC). Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.

**Other regulations, restrictions and prohibition regulations**

This mixture contains the following substances of very high concern (SVHC) which are included in the Candidate List according to Article 59 of REACH: CAS No. 75980-60-8 ; Annex XVII, entry 75 CAS No. 75980-60-8 not applicable ; CA Proposition 65 : Substance(s) not listed. Directive 2011/65/EU : not relevant

**15.2. Chemical Safety Assessment**

**For this preparation a chemical safety assessment has been carried out.** non

For this substance a chemical safety assessment has not been carried out.

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**SECTION 16: Other information**

**Relevant H- and EUH-phrases (Number and full text):**

**Hazard statements**

H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H412	Harmful to aquatic life with long lasting effects.

#### Training advice

Reserved for industrial and professional use. According to directive 94/33/EC, juveniles are only allowed to handle this product as long as all effects of dangerous substances are prevented. Do not use for private purposes (household). refer to chapter 1.

#### Recommended restrictions of use:

refer to chapter 1.

#### Further remarks:

The information provided in this Safety Data Sheet is based on our current knowledge at the time of publication. It is intended to offer guidance for the safe handling of the product mentioned herein during storage, processing, transport, and disposal. These details are not transferable to other products. If the product is blended, mixed, or processed with other materials, or subjected to any treatment, the information in this Safety Data Sheet may not apply to the resulting new material, unless explicitly stated otherwise.

#### Documentation of changes:

Changes compared to version 5.3:

All SECTIONS revised.

Changes compared to version 5.2:

Changes compared to version 5.1:

12.6 information added.

Changes compared to version 5.1:

1.1 UFI-code added.

Changes compared to version 5:

1.1 UFI-code removed.

Changes compared to version 4:

- 1.1 UFI-code added.
- 1.4 Company name added.
- 2.2 Classification revised.
- 3.2 Composition further broken down.
- 4.2 Symptoms added.
- 5.1 Extinguishing media revised.
- 7.2 Storage instructions expanded.
- 8.1 Extended according to 3.2.
- 11.1 Extended according to 3.2.
- 12.1 Extended according to 3.2.
- 16 Documentation of changes introduced.

#### Key literature references and sources for data

Data arise from reference works and literature.

#### Abbreviations and acronyms

AC: Article category  
ACGIH: American Conference of Governmental Industrial Hygienists  
ADN: European agreement concerning the international carriage of dangerous goods by inland waterways (Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures)  
ADR: European agreement concerning the international carriage of dangerous goods by road (Accord européen relatif au transport international des marchandises dangereuses par route)  
AGW: Occupational exposure limit  
AOX: Adsorbable organically bound halogens  
bw: Body weight  
CAS: Chemical Abstracts Service  
CMR: Substances classified as carcinogenic, mutagenic or toxic for reproduction  
CSR: Chemical safety report  
DIN: German Institute for Standardization (Deutsches Institut für Normung)  
DNEL: Derived no-effect level  
DPD: Dangerous Preparations Directive (Richtlinie 1999/45/EC)  
DSD: Dangerous Substances Directive (Richtlinie 67/548/EWG)  
DU: Downstream user  
EC50: Effective concentration 50%  
ECHA: European Chemicals Agency  
EN: European standard  
EWC/EWL: European Waste Catalogue  
GHS: Globally harmonized system of classification and labelling of chemicals  
IATA: International Air Transport Association  
IBC: Intermediate bulk container  
ICAO: International Civil Aviation Organization  
IMDG Code: International Maritime Dangerous Goods Code  
IMO: International Maritime Organization  
ISO: International Organization for Standardization  
LC50: Lethal concentration 50%  
LD50: Lethal dose 50%  
LEV: Local exhaust ventilation  
LOAEL: Lowest observed adverse effect level  
LOEL: Lowest observed effect level  
MAK: Maximum workplace concentration (Maximale Arbeitsplatzkonzentration – DFG)  
n.a.: Not applicable  
n.b.: Not determined  
NOAEC: No observed adverse effect concentration  
NOAEL: No observed adverse effect level  
NOEC: No observed effect concentration  
OEL: Occupational exposure limit  
PBT: Persistent, bioaccumulative and toxic  
PNEC: Predicted no-effect concentration  
POP: Persistent organic pollutant  
PPE/PSA: Personal protective equipment  
REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals  
RID: Regulations concerning the international carriage of dangerous goods by rail (Règlement international concernant le transport des marchandises dangereuses par chemin de fer)  
STEL: Short-term exposure limit  
SVHC: Substance of very high concern  
TLV: Threshold limit value  
UN: United Nations  
VOC: Volatile organic compounds  
vPvB: Very persistent and very bioaccumulative  
dw: Dry weight