

## Safety Data Sheet

According to Regulation (EC) No. 1272/2008 (CLP), as amended by Commission Regulation (EU) 2019/521 and Commission Delegated Regulation (EU) 2020/217, and (EC) No. 1907/2006 (REACH)

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**Tough 2000**

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

#### 1.1 Product identifier

**Product Name:** Tough 2000

**Product code:** FLTO2001

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

**Relevant identified uses:** : For use in Formlabs SLA Printers

**Uses advised against:** Not determined or not applicable.

**Reasons why uses advised against:** Not determined or not applicable.

#### 1.3 Details of the manufacturer/supplier of the safety data sheet

**Manufacturer:**

**United States**

Formlabs, Inc  
35 Medford St  
Suite 201 Somerville, MA 02143  
+1 617 855 0762  
sds@formlabs.com

**Supplier:**

**Germany**

Formlabs GmbH  
Nalepastr. 18  
Berlin, . 12459  
+49 30 555 795 880

#### 1.4 Emergency telephone number:

**United States**

CHEMTREC

1-800-424-9300 (24/7)

### SECTION 2: Hazard(s) identification

#### 2.1 Classification of the substance or mixture:

**Classification according to Regulation (EC) No. 1272/2008 (CLP):**

Skin irritation, category 2

Eye Irritation, category 2

Skin sensitization, category 1

Specific target organ toxicity - single exposure, category 3, respiratory tract irritation

Chronic aquatic hazard, category 2

**Hazard-determining components of labeling:**

7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxa-5,12-diazahexadecane-1,16-diyl bismethacrylate

Methacrylic acid, monoester with propane-1,2-diol

Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl methacrylate

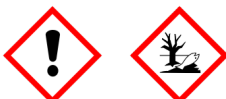
Phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide

**Additional Information:** None

#### 2.2 Label elements

**Labelling according to Regulation (EC) No 1272/2008 (CLP)**

**Hazard pictograms:**



**Signal Word:** Warning

**Hazard statements:**

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H315 Causes skin irritation  
H319 Causes serious eye irritation  
H317 May cause an allergic skin reaction  
H335 May cause respiratory irritation  
H411 Toxic to aquatic life with long lasting effects

#### Precautionary statements:

P264 Wash hands thoroughly after handling.  
P280 Wear protective gloves, protective clothing, eye protection and face protection.  
P261 Avoid breathing dust/fume/gas/mist/vapours/spray  
P272 Contaminated work clothing should not be allowed out of the workplace  
P271 Use only outdoors or in a well-ventilated area  
P273 Avoid release to the environment  
P302+P352 IF ON SKIN: Wash with plenty of soap and water  
P321 Specific treatment (see ... on this label)  
P332+P313 If skin irritation occurs: Get medical advice/attention  
P362 Take off contaminated clothing  
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
P337+P313 If eye irritation persists: Get medical advice/attention  
P333+P313 If skin irritation or rash occurs: Get medical attention.  
P363 Wash contaminated clothing before reuse  
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing  
P391 Collect spillage  
P403+P233 Store in a well-ventilated place. Keep container tightly closed  
P405 Store locked up  
P501 Dispose of contents/container in accordance with local/regional/national regulations

2.3 Other hazards: None known

### SECTION 3: Composition/information on ingredients

3.1 Substance: Not applicable.

3.2 Mixture:

Identification	EU REACH Registration No.	Name	Classification according to Regulation (EC) No. 1272/2008 (CLP)	Weight %
CAS number: 72869-86-4 EC number: 276-957-5	-	7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxo-5,12-diazahehexadecane-1,16-diyl bismethacrylate	Skin Sens. 1; H317 Aquatic Chronic 2; H411	45-65
CAS number: 27813-02-1 EC number: 248-666-3	-	Methacrylic acid, monoester with propane-1,2-diol	Skin Sens. 1; H317 Eye Irrit. 2; H319	15-25
CAS number: 7534-94-3 EC number: 231-403-1	-	Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl methacrylate	Skin Irrit. 2; H315 STOT SE 3 (RI); H335 Aquatic Chronic 3; H412 Eye Irrit. 2; H319	10-20
CAS number: 162881-26-7 EC number: 423-340-5	-	Phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide	Aquatic Chronic 4; H413 Skin Sens. 1A; H317	<0.6

Additional information: None

Full Text of H and EUH statements: See section 16

### SECTION 4: First aid measures

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#### 4.1 Description of first aid measures

##### General notes:

Show this Safety Data Sheet to the doctor in attendance.

##### Following inhalation:

If inhaled, remove person to fresh air and place in a position comfortable for breathing. Keep person at rest. If breathing is difficult, administer oxygen. If breathing has stopped, provide artificial respiration. If experiencing respiratory symptoms, seek medical advice/attention.

##### Following skin contact:

Remove contaminated clothing and shoes. Rinse skin with copious amounts of water [shower] for several minutes. Launder contaminated clothing before reuse. If symptoms develop or persist, seek medical advice/attention.

Wash affected area with plenty of soap and water. Remove contaminated clothing and launder before reuse. If skin irritation develops or persists, seek medical advice/attention.

##### Following eye contact:

Immediately rinse eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 15 minutes. If eye irritation develops or persists, seek medical advice/attention.

##### Following ingestion:

If swallowed, DO NOT induce vomiting unless told to do so by a physician or poison control center. Rinse mouth with water. Never give anything by mouth to an unconscious person. If spontaneous vomiting occurs, place on the left side with head down to prevent aspiration of liquid into the lungs. If symptoms develop or persist, seek medical advice/attention.

##### Self-Protection of the first aider:

Not determined or not available.

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

##### Acute symptoms and effects:

Skin contact may result in redness, pain, burning and inflammation.

Eye contact may result in irritation, redness, pain, inflammation, itching, burning and tearing.

Dermal exposure may cause an allergic skin reaction. Symptoms may include irritation, redness, pain, rash, inflammation, itching, burning and dermatitis.

Inhalation may have adverse effects on the respiratory tract. Symptoms may include cough, breathing difficulties, sore throat and inflammation of the mucous membrane lining the respiratory tract.

##### Delayed symptoms and effects:

Effects are dependent on exposure (dose, concentration, contact time).

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

##### Specific treatment:

If respiratory symptoms persist, seek medical attention.

##### Notes for the doctor:

Treat symptomatically.

### SECTION 5: Firefighting measures

#### 5.1 Extinguishing media

##### Suitable extinguishing media:

Water mist/fog, carbon dioxide, dry chemical or alcohol resistant foam.

##### Unsuitable extinguishing media:

Do not use water jet.

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

Thermal decomposition may produce irritating/toxic fumes/gases.

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#### 5.3 Advice for firefighters

##### Personal protection equipment:

Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full-face piece operated in positive pressure mode.

##### Special precautions:

Avoid contact with skin, eyes, hair and clothing. Do not breathe fumes/gas/mists/aerosols/vapors/dusts. Move containers from fire area if safe to do so. Use water spray/fog for cooling fire exposed containers. Avoid unnecessary run-off of extinguishing media which may cause pollution.

### SECTION 6: Accidental release measures

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

Evacuate unnecessary personnel. Ventilate area. Extinguish any sources of ignition. Wear recommended personal protective equipment (see Section 8). Avoid contact with skin, eyes and clothing. Avoid breathing mist, vapor, dust, fume and spray. Do not walk through spilled material. Wash thoroughly after handling.

#### 6.2 Environmental precautions:

Prevent further leakage or spillage if safe to do so. Prevent from reaching drains, sewers and waterways. Discharge into the environment must be avoided.

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

Do not touch damaged containers or spilled material unless wearing appropriate personal protective clothing. Stop leak if you can do it without risk. Contain and collect spillage and place in suitable container for future disposal. Dispose of in accordance with all applicable regulations (see Section 13).

#### 6.4 Reference to other sections:

For personal protective equipment see Section 8. For disposal see Section 13.

### SECTION 7: Handling and storage

#### 7.1 Precautions for safe handling:

Use appropriate personal protective equipment (see Section 8). Use only with adequate ventilation. Avoid breathing mist/vapor/spray/dust. Do not eat, drink, smoke, or use personal products when handling chemical substances. Avoid contact with skin, eyes and clothing. Wash affected areas thoroughly after handling. Keep away from incompatible materials (See Section 10). Keep containers tightly closed when not in use.

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

Store in cool, dry, well-ventilated location out of direct sunlight. Keep away from food and beverages. Protect from freezing and physical damage. Store away from heat, open flames and other sources of ignition. Keep container tightly sealed. Store away from incompatible materials (See Section 10).

#### 7.3 Specific end use(s):

Refer to Section 1 (Recommended Use).

### SECTION 8: Exposure controls/personal protection

#### 8.1 Control parameters

Only those substances with limit values have been included below.

##### Occupational Exposure limit values:

No occupational exposure limits noted for the ingredient(s).

##### Biological limit values:

No biological exposure limits noted for the ingredient(s).

##### Derived No Effect Level (DNEL):

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**Ingredient Name:** 7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxa-5,12-diazahexadecane-1,16-diyl bismethacrylate

**CAS #:** 72869-86-4

Workers - Systemic Effects	Acute - Oral	Not determined or not applicable.
	Acute - Inhalation	No exposure expected
	Acute - Dermal	No hazard identified
	Chronic - Oral	Not determined or not applicable.
	Chronic - Inhalation	3.3 mg/m <sup>3</sup>
	Chronic - Dermal	1.3 mg/kg bw/day
Workers - Local Effects	Acute - Oral	Not determined or not applicable.
	Acute - Inhalation	No exposure expected
	Acute - Dermal	Hazard identified but no DNEL available
	Chronic - Oral	Not determined or not applicable.
	Chronic - Inhalation	No exposure expected
	Chronic - Dermal	Hazard identified but no DNEL available
General Population - Systemic Effects	Acute - Oral	No hazard identified
	Acute - Inhalation	No exposure expected
	Acute - Dermal	No hazard identified
	Chronic - Oral	0.3 mg/kg bw/day
	Chronic - Inhalation	0.6 mg/m <sup>3</sup>
	Chronic - Dermal	0.7 mg/kg bw/day
General Population - Local Effect	Acute - Oral	Not determined or not applicable.
	Acute - Inhalation	No exposure expected
	Acute - Dermal	No exposure expected
	Chronic - Oral	Not determined or not applicable.
	Chronic - Inhalation	No exposure expected
	Chronic - Dermal	Hazard identified but no DNEL available

**Ingredient Name:** Methacrylic acid, monoester with propane-1,2-diol

**CAS #:** 27813-02-1

Workers - Systemic Effects	Acute - Oral	Not determined or not applicable.
	Acute - Inhalation	No hazard identified
	Acute - Dermal	No hazard identified
	Chronic - Oral	Not determined or not applicable.
	Chronic - Inhalation	14.7 mg/m <sup>3</sup>
	Chronic - Dermal	4.2 mg/kg bw/day
Workers - Local Effects	Acute - Oral	Not determined or not applicable.
	Acute - Inhalation	No hazard identified
	Acute - Dermal	No hazard identified
	Chronic - Oral	Not determined or not applicable.
	Chronic - Inhalation	No hazard identified
	Chronic - Dermal	Hazard identified but no DNEL available

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General Population - Systemic Effects	Acute - Oral	No hazard identified
	Acute - Inhalation	No hazard identified
	Acute - Dermal	No hazard identified
	Chronic - Oral	2.5 mg/kg bw/day
	Chronic - Inhalation	8.8 mg/m <sup>3</sup>
	Chronic - Dermal	2.5 mg/kg bw/day
General Population - Local Effect	Acute - Oral	Not determined or not applicable.
	Acute - Inhalation	No hazard identified
	Acute - Dermal	No hazard identified
	Chronic - Oral	Not determined or not applicable.
	Chronic - Inhalation	No hazard identified
	Chronic - Dermal	Hazard identified but no DNEL available

**Ingredient Name:** Phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide

**CAS #:** 162881-26-7

Workers - Systemic Effects	Acute - Oral	Not determined or not applicable.
	Acute - Inhalation	No hazard identified; 7.84 mg/m <sup>3</sup> ; 16.46 mg/m <sup>3</sup>
	Acute - Dermal	No hazard identified; 3.33 mg/kg bw/day; 4.67 mg/kg bw/day
	Chronic - Oral	Not determined or not applicable.
	Chronic - Inhalation	7.84 mg/m <sup>3</sup> ; 11.75 mg/m <sup>3</sup> ; 16.46 mg/m <sup>3</sup> ; 21 mg/m <sup>3</sup>
	Chronic - Dermal	3 mg/kg bw/day; 3.33 mg/kg bw/day; 4.67 mg/kg bw/day
Workers - Local Effects	Acute - Oral	Not determined or not applicable.
	Acute - Inhalation	No hazard identified; Hazard identified but no DNEL available
	Acute - Dermal	Hazard identified but no DNEL available; No hazard identified
	Chronic - Oral	Not determined or not applicable.
	Chronic - Inhalation	No hazard identified; Hazard identified but no DNEL available
	Chronic - Dermal	Hazard identified but no DNEL available; No hazard identified
General Population - Systemic Effects	Acute - Oral	No hazard identified; 1.67 mg/kg bw/day; Hazard identified but no DNEL available
	Acute - Inhalation	3.92 mg/m <sup>3</sup> ; Hazard identified but no DNEL available; 1.93 mg/m <sup>3</sup> ; 2.92 mg/m <sup>3</sup> ; 3.92 mg/m <sup>3</sup>
	Acute - Dermal	No hazard identified; 1.67 mg/kg bw/day
	Chronic - Oral	No hazard identified; 1.5 mg/kg bw/day; 1.67 mg/kg bw/day
	Chronic - Inhalation	1.93 mg/m <sup>3</sup> ; 2.9 mg/m <sup>3</sup> ; 2.92 mg/m <sup>3</sup> ; 3.92 mg/m <sup>3</sup> ; 5.2 mg/m <sup>3</sup> ; 1.67 mg/kg bw/day
	Chronic - Dermal	1.5 mg/kg bw/day
General Population - Local Effect	Acute - Oral	Not determined or not applicable.
	Acute - Inhalation	Hazard identified but no DNEL available; No hazard identified
	Acute - Dermal	Hazard identified but no DNEL available; No hazard identified
	Chronic - Oral	Not determined or not applicable.
	Chronic - Inhalation	No hazard identified; Hazard identified but no DNEL available
	Chronic - Dermal	Hazard identified but no DNEL available; No hazard identified

**Predicted No Effect Concentration (PNEC):**

**Ingredient Name:** 7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxo-5,12-diazahexadecane-1,16-diyl bismethacrylate

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**CAS #:** 72869-86-4

Environmental Protection Target	PNEC
Fresh water	0.01 mg/L
Freshwater sediments	4.56 mg/kg sediment dw
Marine water	0.001 mg/L
Marine sediments	0.46 mg/kg sediment dw
Microorganisms in sewage treatment	3.61 mg/L
Soil (agricultural)	0.91 mg/kg soil dw
Air	No hazard identified
Oral (Secondary Poisoning)	No exposure expected

**Ingredient Name:** Methacrylic acid, monoester with propane-1,2-diol

**CAS #:** 27813-02-1

Environmental Protection Target	PNEC
Fresh water	0.904 mg/L
Freshwater sediments	6.28 mg/kg
Marine water	0.904 mg/L
Marine sediments	6.28 mg/kg
Microorganisms in sewage treatment	10 mg/L
Soil (agricultural)	0.727 mg/kg
Air	No hazard identified

**Ingredient Name:** Phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide

**CAS #:** 162881-26-7

Environmental Protection Target	PNEC
Fresh water	0.8 µg/L
Freshwater sediments	0.712 mg/kg
Marine water	0.8 µg/L; 1 µg/L; 1 µg/L
Marine sediments	0.712 mg/kg
Microorganisms in sewage treatment	1 mg/L
Soil (agricultural)	Not determined or not available.
Air	No hazard identified

### Information on monitoring procedures:

Not determined or not applicable.

## 8.2 Exposure controls

### Appropriate engineering controls:

Emergency eye wash stations and safety showers should be available in the immediate vicinity of use or handling. Provide adequate ventilation to maintain the airborne concentrations of vapor, mists, and/or dusts below the applicable workplace exposure limits, while observing recognized national standards (or equivalent).

### Personal protection equipment

#### Eye and face protection:

Safety glasses or goggles. Use eye protection equipment that has been tested and approved by recognized national standards (or equivalent).

#### Skin and body protection:

Chemical resistant, impervious gloves approved by the appropriate standards. Gloves must be inspected prior to use. Avoid skin contact with used gloves. Appropriate techniques should be used to remove used gloves and contaminated clothing. Personal protective equipment for the body should



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be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Ensure that all personal protective equipment is approved by recognized national standards (or equivalent).

#### Respiratory protection:

If engineering controls do not maintain airborne concentrations below the applicable workplace exposure limits, or to an acceptable level (if exposure limits have not been established), a respirator approved by recognized national standards (or equivalent) must be worn.

#### General hygienic measures:

When handling chemical products, do not eat, drink or smoke. Wash hands after handling, before breaks, and at the end of the workday. Avoid contact with skin, eyes and clothing. Wash contaminated clothing before reuse. Perform routine housekeeping.

#### Environmental exposure controls:

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation.

Product (substance / mixture) related measures to prevent exposure:	Not determined or not applicable.
Instruction measures to prevent exposure:	Not determined or not applicable.
Organisational measures to prevent exposure:	Not determined or not applicable.
Technical measures to prevent exposure:	Not determined or not applicable.

#### Risk management measures to control exposure:

Not determined or not applicable.

### SECTION 9: Physical and chemical properties

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

Appearance	Grey Liquid
Odor	Characteristic acrylate
Odor threshold	Not determined or not available.
pH	Not determined or not available.
Melting point/freezing point	Not determined or not available.
Initial boiling point/range	> 100°C
Flash point (closed cup)	Not determined or not available.
Evaporation rate	Not determined or not available.
Flammability (solid, gas)	Not determined or not available.
Upper flammability/explosive limit	Not determined or not available.
Lower flammability/explosive limit	Not determined or not available.
Vapor pressure	Not determined or not available.
Vapor density	Not determined or not available.
Density	1.11 g/cm <sup>3</sup> @ 25°C
Relative density	Not determined or not available.
Solubilities	Not determined or not available.
Partition coefficient (n-octanol/water)	Not determined or not available.
Auto/Self-ignition temperature	Not determined or not available.
Decomposition temperature	Not determined or not available.
Dynamic viscosity	Not determined or not available.
Kinematic viscosity	1600 cps @ 25°C



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<b>Explosive properties</b>	Not determined or not available.
<b>Oxidizing properties</b>	Not determined or not available.

#### 9.2 Other information

None.

### SECTION 10: Stability and reactivity

#### 10.1 Reactivity:

Not reactive under recommended handling and storage conditions.

#### 10.2 Chemical stability:

Stable under recommended handling and storage conditions.

#### 10.3 Possibility of hazardous reactions:

Hazardous reactions are not anticipated under recommended conditions of handling and storage.  
Stable under recommended handling and storage conditions.

#### 10.4 Conditions to avoid:

Avoid storage >38°C (100°F) and exposure to light/direct sunlight and heat.

#### 10.5 Incompatible materials:

Strong oxidizing agents. Polymerization initiators, including peroxides, alcohols, copper, copper alloys, carbon steel, iron, rust, and strong bases.

#### 10.6 Hazardous decomposition products:

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

### SECTION 11: Toxicological information

#### 11.1 Information on toxicological effects

##### Acute toxicity

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

**Product data:** No data available.

##### Substance data:

Name	Route	Result
7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxo-5,12-diazahexadecane-1,16-diyl bismethacrylate	oral	LD50 Rat: >5000 mg/kg
	dermal	LD50 Rat: >2000 mg/kg
Methacrylic acid, monoester with propane-1,2-diol	oral	LD50 Rat: >2000 mg/kg
	dermal	LD50 Rabbit: >5000 mg/kg
Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl methacrylate	oral	LD50 Rat: >2000 mg/kg
	dermal	LD50 Rabbit: >3000 mg/kg

##### Skin corrosion/irritation

##### Assessment:

Causes skin irritation.

##### Product data:

No data available.

##### Substance data:

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Name	Result
Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl methacrylate	Causes skin irritation

### Serious eye damage/irritation

**Assessment:**

Causes serious eye irritation.

**Product data:**

No data available.

**Substance data:**

Name	Result
Methacrylic acid, monoester with propane-1,2-diol	Causes serious eye irritation.
Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl methacrylate	Causes serious eye irritation

### Respiratory or skin sensitization

**Assessment:**

May cause an allergic skin reaction.

**Product data:**

No data available.

**Substance data:**

Name	Result
7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxo-5,12-diazahexadecane-1,16-diyl bismethacrylate	May cause an allergic skin reaction.
Methacrylic acid, monoester with propane-1,2-diol	May cause an allergic skin reaction.
Phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide	May cause an allergic skin reaction.

### Carcinogenicity

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

**Product data:** No data available.

**Substance data:** No data available.

**International Agency for Research on Cancer (IARC):**

Name	Classification
7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxo-5,12-diazahexadecane-1,16-diyl bismethacrylate	Not Applicable
Methacrylic acid, monoester with propane-1,2-diol	Not Applicable

**National Toxicology Program (NTP):** None of the ingredients are listed.

### Germ cell mutagenicity

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

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**Product data:** No data available.

**Substance data:** No data available.

#### Reproductive Toxicity

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

**Product data:**

No data available.

**Substance data:** No data available.

#### Specific target organ toxicity (single exposure)

**Assessment:**

May cause respiratory irritation.

**Product data:**

No data available.

**Substance data:**

Name	Result
Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl methacrylate	May cause respiratory irritation

#### Specific target organ toxicity (repeated exposure)

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

**Product data:**

No data available.

**Substance data:** No data available.

#### Aspiration toxicity

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

**Product data:**

No data available.

**Substance data:** No data available.

#### Information on likely routes of exposure:

No data available.

#### Symptoms related to the physical, chemical and toxicological characteristics:

No data available.

**Other information:**

No data available.

### SECTION 12: Ecological information

#### 12.1 Toxicity

##### Acute (short-term) toxicity

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

**Product data:** No data available.

**Substance data:**

Name	Result
7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxo-5,12-diazahexadecane-1,16-diyl bismethacrylate	Fish LC50 Danio rerio: 10.1 mg/L (96 hr)
	Aquatic Invertebrates EC50 Daphnia magna: > 1.2 mg/L (48 hr)
Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl methacrylate	Fish LC50 Danio rerio: 1.79 mg/L (96 hours)
	Aquatic Invertebrates EC50 Daphnia magna: 2.57 mg/L (48 hours)

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#### Chronic (long-term) toxicity

##### Assessment:

Toxic to aquatic life with long lasting effects.

**Product data:** No data available.

##### Substance data:

Name	Result
7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxa-5,12-diazahexadecane-1,16-diyl bismethacrylate	Aquatic Plants NOEC <i>Desmodesmus subspicatus</i> : 0.21 mg/L (72 hr)
Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl methacrylate	Aquatic Invertebrates NOEC <i>Daphnia magna</i> : 0.233 mg/L (21 days)
Phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide	Bacteria EC50 Activated sludge: 100 mg/L

#### 12.2 Persistence and degradability

**Product data:** No data available.

##### Substance data:

Name	Result
7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxa-5,12-diazahexadecane-1,16-diyl bismethacrylate	The substance is not readily biodegradable (22% degradation in 28 days).
Methacrylic acid, monoester with propane-1,2-diol	Readily biodegradable (94% in 28 days).
Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl methacrylate	Readily biodegradable
Phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide	This substance is not readily biodegradable.

#### 12.3 Bioaccumulative potential

**Product data:** No data available.

##### Substance data:

Name	Result
Methacrylic acid, monoester with propane-1,2-diol	Low potential to bioaccumulate (BCF: 3.2; Log <i>K</i> <sub>ow</sub> : 1.21)
Phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide	Bioaccumulation in organisms is not to be expected.

#### 12.4 Mobility in soil

**Product data:** No data available.

##### Substance data:

Name	Result
7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxa-5,12-diazahexadecane-1,16-diyl bismethacrylate	The substance has moderate potential to adsorb to organic soil and sediment particles (log <i>K</i> <sub>oc</sub> : 3.66 dimensionless).

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Name	Result
Phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide	Based upon the log Koc of 3.85 an adsorption to the soil is expected.

#### 12.5 Results of PBT and vPvB assessment

##### Product data:

**PBT assessment:** This product does not contain any substances that are assessed to be a PBT.

**vPvB assessment:** This product does not contain any substances that are assessed to be a vPvB.

##### Substance data:

###### PBT assessment:

7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxo-5,12-diazahexadecane-1,16-diyl bismethacrylate	This substance is not PBT.
Methacrylic acid, monoester with propane-1,2-diol	This substance is not PBT.
Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl methacrylate	This substance is not PBT.
Phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide	This substance is not PBT.

###### vPvB assessment:

7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxo-5,12-diazahexadecane-1,16-diyl bismethacrylate	This substance is not vPvB.
Methacrylic acid, monoester with propane-1,2-diol	This substance is not vPvB.
Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl methacrylate	This substance is not vPvB.
Phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide	This substance is not vPvB.

**12.6 Other adverse effects:** No data available.

#### 12.7 Hazard to the ozone layer

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

**Product data:** No data available.

**Substance data:** No data available.

### SECTION 13: Disposal considerations

#### 13.1 Waste treatment methods

##### 13.1.1 Product / Packaging disposal:

Dispose contaminated packages in a safe manner in accordance with local and national regulations. Do not allow the product to be released into the environment.

**Waste codes / waste designations according to LoW:**

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Not determined or not available.

#### 13.1.2 Waste treatment-relevant information:

Not determined or not available.

#### 13.1.3 Sewage disposal-relevant information:

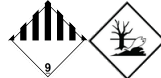
Not determined or not available.

#### 13.1.4 Other disposal recommendations:


Do not discharge into public wastewater or surface waters. It is the responsibility of the waste generator to properly characterize all waste materials according to applicable regulatory entities.

### SECTION 14: Transport information


#### International Carriage of Dangerous Goods by Road/Rail (ADR/RID)

UN number	UN 3082
UN proper shipping name	Environmentally hazardous liquid, N.O.S. Methacrylate Polymer
UN transport hazard class(es)	9 
Packing group	III
Environmental hazards	Marine Pollutant
Special precautions for user	None.
Additional Information	This product is not regulated as a dangerous good when transported in sizes of <5L or <5 kg provided the packaging meets the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8

#### International Carriage of Dangerous Goods by Inland Waterways (ADN)

UN number	UN 3082
UN proper shipping name	Environmentally hazardous liquid, N.O.S. Methacrylate Polymer
UN transport hazard class(es)	9 
Packing group	III
Environmental hazards	Marine Pollutant
Special precautions for user	None.
Additional Information	This product is not regulated as a dangerous good when transported in sizes of ≤5L or ≤5 kg provided the packaging meets the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8.

#### International Maritime Dangerous Goods (IMDG)

UN number	UN 3082
UN proper shipping name	Environmentally hazardous liquid, N.O.S. Methacrylate Polymer
UN transport hazard class(es)	9 
Packing group	III
Environmental hazards	Marine Pollutant
Special precautions for user	None.

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<b>Additional Information</b>	This product is not regulated as a dangerous good when transported in sizes of <5L or <5 kg provided the packaging meets the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8
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### International Air Transport Association Dangerous Goods Regulations (IATA-DGR)

<b>UN number</b>	UN 3082
<b>UN proper shipping name</b>	Environmentally hazardous liquid, N.O.S. Methacrylate Polymer
<b>UN transport hazard class(es)</b>	9 
<b>Packing group</b>	III
<b>Environmental hazards</b>	Marine Pollutant
<b>Special precautions for user</b>	None.
<b>Additional Information</b>	This product is not regulated as a dangerous good when transported in sizes of ≤5L or 5≤ kg provided the packaging meet the general provisions of 5.0.2.4.1, 5.0.2.6.1 and 5.0.2.8

<b>Transport in bulk according to Annex II of MARPOL and the IBC Code</b>	
<b>Bulk Name</b>	None
<b>Ship type</b>	None
<b>Pollution category</b>	None

### SECTION 15: Regulatory information

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

##### European regulations

##### Inventory listing (EINECS):

72869-86-4	7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxa-5,12-diazahexadecane-1,16-diyl bismethacrylate	Listed
27813-02-1	Methacrylic acid, monoester with propane-1,2-diol	Listed
7534-94-3	Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl methacrylate	Listed
162881-26-7	Phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide	Not Listed

**REACH SVHC candidate list:** None of the ingredients are listed.

**REACH SVHC Authorizations:** None of the ingredients are listed.

**REACH Restriction:** None of the ingredients are listed.

**Water hazard class (WGK) (Product):** Not determined.

##### Water hazard class (WGK) (Substance):

Ingredient Name	CAS	Class
7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxa-5,12-diazahexadecane-1,16-diyl bismethacrylate	72869-86-4	Water hazard class 1: slightly hazardous to water
Methacrylic acid, monoester with propane-1,2-diol	27813-02-1	Water hazard class 1: slightly hazardous to water



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Ingredient Name	CAS	Class
Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl methacrylate	7534-94-3	Water hazard class 1: slightly hazardous to water
Phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide	162881-26-7	Water hazard class 1: slightly hazardous to water

#### Other regulations

**Germany TA Luft:** None of the ingredients are listed.

**Additional information:** Not determined.

#### 15.2 Chemical Safety Assessment

No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.

### SECTION 16: Other information

**Abbreviations and Acronyms:** None

#### Classification procedure:

Classification according to Regulation (EC) No. 1272/2008 (CLP)	Method Used
Skin irritation, category 2	Calculation method
Eye Irritation, category 2	Calculation method
Skin sensitization, category 1	Calculation method
Specific target organ toxicity - single exposure, category 3, respiratory tract irritation	Calculation method
Chronic aquatic hazard, category 2	Calculation method

#### Summary of classification(s) in section 3:

Skin Sens. 1	Skin sensitization, category 1
Aquatic Chronic 2	Chronic aquatic hazard, category 2
Eye Irrit. 2	Eye Irritation, category 2
Skin Irrit. 2	Skin irritation, category 2
STOT SE 3 (RI)	Specific target organ toxicity - single exposure, category 3, respiratory tract irritation
Aquatic Chronic 3	Chronic aquatic hazard, category 3
Aquatic Chronic 4	Chronic aquatic hazard, category 4
Skin Sens. 1A	Skin sensitization, category 1A

#### Summary of hazard statements in section 3:

H317	May cause an allergic skin reaction
H411	Toxic to aquatic life with long lasting effects
H319	Causes serious eye irritation
H315	Causes skin irritation
H335	May cause respiratory irritation
H412	Harmful to aquatic life with long lasting effects
H413	May cause long lasting harmful effects to aquatic life

#### Disclaimer:

This product has been classified in accordance with EC No. 1272/2008 (CLP), as amended by Commission Regulation (EU) 2019/521 and Commission Delegated Regulation (EU) 2020/217, and EC No. 1907/2006 (REACH). The information provided in this SDS is correct, to the best of our knowledge, based on

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information available. The information given is designed only as a guidance for safe handling, use, storage, transportation, and disposal 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, unless specified in the text. The responsibility to provide a safe workplace remains with the user.

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**End of Safety Data Sheet**