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 Commission Delegated Regulation (EU) 2023/707, and (EC) No. 1907/2006 (REACH), as amended by Commission Regulation (EU) 2020/878.

Initial preparation date: 2021-12-03

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ESD Resin

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

1.1 Product identifier

Product Name: ESD Resin

Product code: FLESDS01

UFI: CP20-V05R-E006-AUFR

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
Mühlenstraße 15
Floor 1
Berlin
+44 8081 341875

1.4 Emergency telephone number:

European Union
CHEMTREC (EMEA)
+44 20 3885 0382 (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:

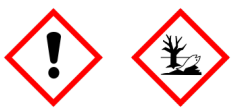
Urethane dimethacrylate
Methacrylate Monomer(s)
Phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide
Methacrylate Monomer(s)

Additional Information: None

2.2 Label elements

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

Hazard pictograms:



Signal Word: Warning

Hazard statements:

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 skin thoroughly after handling
P280 Wear protective gloves/protective clothing/eye protection/face protection
P261 Avoid breathing dust/fume/gas/mist/vapours/spray
P272 Contaminated work clothing should not be allowed out of the workplace
P273 Avoid release to the environment
P271 Use only outdoors or in a well-ventilated area
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 advice/attention
P363 Wash contaminated clothing before reuse
P391 Collect spillage
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing
P312 Call a POISON CENTER/doctor if you feel unwell
P403+P233 Store in a well-ventilated place. Keep container tightly closed
P405 Store locked up
P501 Dispose of contents and container in accordance with local, regional, national, and international 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	–	Urethane dimethacrylate	Aquatic Chronic 2; H411 Skin Sens. 1B; H317	55-75
CAS number: Trade Secret EC number: Trade Secret	–	Methacrylate Monomer(s)	Skin Sens. 1; H317 Eye Irrit. 2; H319	15-25

CAS number: Trade Secret EC number: Trade Secret	–	Methacrylate Monomer(s)	Skin Irrit. 2; H315 STOT SE 3 (RI); H335 Aquatic Chronic 3; H412 Eye Irrit. 2; H319	10-20
CAS number: 162881-26-7	–	Phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide	Aquatic Chronic 4; H413 Skin Sens. 1A; H317	<1

Additional information:

This product contains bound nanoparticles at less than 0.1%.

Full Text of H and EUH statements: See section 16

SECTION 4: First aid measures

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. If respiratory symptoms develop or persist, seek medical advice/attention.

Following skin contact:

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:

Rinse eyes with plenty of water for several minutes. Remove contact lenses if present and easy to do so. Protect unexposed eye. If symptoms develop or persist, 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:

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.

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):

Ingredient Name: Methacrylate Monomer(s)
CAS #: Trade Secret

Workers - Systemic Effects	Acute - Oral	Not determined or not applicable.
	Acute - Inhalation	No hazard identified; No hazard identified
	Acute - Dermal	No hazard identified; No hazard identified
	Chronic - Oral	Not determined or not applicable.
	Chronic - Inhalation	14.7 mg/m³; 1.22 mg/m³
	Chronic - Dermal	4.2 mg/kg bw/day; 0.35 mg/kg bw/day
Workers - Local Effects	Acute - Oral	Not determined or not applicable.
	Acute - Inhalation	No hazard identified; No hazard identified
	Acute - Dermal	No hazard identified; No hazard identified
	Chronic - Oral	Not determined or not applicable.
	Chronic - Inhalation	No hazard identified; No hazard identified
	Chronic - Dermal	No hazard identified; No hazard identified
General Population - Systemic Effects	Acute - Oral	No hazard identified; No hazard identified
	Acute - Inhalation	No hazard identified; No hazard identified
	Acute - Dermal	No hazard identified; No hazard identified
	Chronic - Oral	2.5 mg/kg bw/day; 0.21 mg/kg bw/day
	Chronic - Inhalation	4.35 mg/m³; 0.36 mg/m³
	Chronic - Dermal	2.5 mg/kg bw/day; 0.21 mg/kg bw/day
General Population - Local Effect	Acute - Oral	Not determined or not applicable.
	Acute - Inhalation	No hazard identified; No hazard identified
	Acute - Dermal	No hazard identified; No hazard identified
	Chronic - Oral	Not determined or not applicable.
	Chronic - Inhalation	No hazard identified; No hazard identified
	Chronic - Dermal	No hazard identified; No hazard identified

Ingredient Name: Urethane dimethacrylate
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/m³
	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/m³
	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: Phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide
CAS #: 162881-26-7

Workers - Systemic Effects	Acute - Oral	Not determined or not applicable.
	Acute - Inhalation	Not determined or not applicable.
	Acute - Dermal	No hazard identified
	Chronic - Oral	Not determined or not applicable.
	Chronic - Inhalation	21 mg/m³
	Chronic - Dermal	3 mg/kg bw/day
Workers - Local Effects	Acute - Oral	Not determined or not applicable.
	Acute - Inhalation	Not determined or not applicable.
	Acute - Dermal	Hazard identified but no DNEL available
	Chronic - Oral	Not determined or not applicable.
	Chronic - Inhalation	Not determined or not applicable.
	Chronic - Dermal	Hazard identified but no DNEL available

General Population - Systemic Effects	Acute - Oral	No hazard identified
	Acute - Inhalation	Not determined or not applicable.
	Acute - Dermal	No hazard identified
	Chronic - Oral	1.5 mg/kg bw/day
	Chronic - Inhalation	5.2 mg/m³
	Chronic - Dermal	1.5 mg/kg bw/day
General Population - Local Effect	Acute - Oral	Not determined or not applicable.
	Acute - Inhalation	Not determined or not applicable.
	Acute - Dermal	Hazard identified but no DNEL available
	Chronic - Oral	Not determined or not applicable.
	Chronic - Inhalation	Not determined or not applicable.
	Chronic - Dermal	Hazard identified but no DNEL available

Predicted No Effect Concentration (PNEC):
Ingredient Name: Methacrylate Monomer(s)
CAS #: Trade Secret

Environmental Protection Target	PNEC
Fresh water	0.904 mg/L; 2.33 µg/L
Freshwater sediments	6.28 mg/kg; 1.2 mg/kg sediment dw
Marine water	0.09 mg/L; 0.233 µg/L
Marine sediments	6.28 mg/kg; 0.12 mg/kg sediment dw
Microorganisms in sewage treatment	10 mg/L; 2.45 mg/L
Soil (agricultural)	0.727 mg/kg; 0.239 mg/kg soil dw
Air	No hazard identified; No hazard identified
Oral (Secondary Poisoning)	No exposure expected; No exposure expected

Ingredient Name: Urethane dimethacrylate
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: Phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide
CAS #: 162881-26-7

Environmental Protection Target	PNEC
Fresh water	1 µg/L
Freshwater sediments	0.712 mg/kg sediment dw
Marine water	1 µg/L
Marine sediments	0.712 mg/kg sediment dw
Microorganisms in sewage treatment	1 mg/L

Soil (agricultural)	20 mg/kg soil dw
Air	No hazard identified
Oral (Secondary Poisoning)	No exposure expected

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 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

Physical State	Liquid
Color	Black/dark blue
Odor/Odor threshold	Characteristic acrylate

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)	> 93.5°C
Flammability	Not flammable
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.
Relative vapor density	Not determined or not available.
Density	1.06 g/cm3
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.
Kinematic viscosity	Not determined or not available.
Particle characteristics	Not determined or not available.

9.2 Other information

9.2.1 Information with regard to physical hazard classes

Explosives	No data available/Not applicable
Flammable gases	No data available/Not applicable
Aerosols	No data available/Not applicable
Oxidizing gases	No data available/Not applicable
Gases under pressure	No data available/Not applicable
Flammable liquids	No data available/Not applicable
Flammable solids	No data available/Not applicable
Self-reactive substances and mixtures	No data available/Not applicable
Pyrophoric liquids	No data available/Not applicable
Pyrophoric solids	No data available/Not applicable
Self-heating substances and mixtures	No data available/Not applicable
Substances and mixtures, which emit flammable gases in contact with water	No data available/Not applicable
Oxidizing liquids	No data available/Not applicable
Oxidizing solids	No data available/Not applicable
Organic peroxides	No data available/Not applicable
Corrosive to metals	No data available/Not applicable
Desensitized explosives	No data available/Not applicable

9.2.2 Other safety characteristics

Dynamic Viscosity	1600 cps @ 25°C

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:
Polymerization initiators, including peroxides, strong oxidizing agents, 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 hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity

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

Product data: No data available.

Substance data:

Name	Route	Result
Urethane dimethacrylate	oral	LD50 Rat: >5000 mg/kg
	dermal	LD50 Rat: >2000 mg/kg
Methacrylate Monomer(s)	oral	LD50 Rat: 3160 mg/kg
		LD50 Rat: >=2000 mg/kg
	dermal	LD50 Rabbit: >3000 mg/kg
		LD50 Rabbit: >5000 mg/kg
Phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide	oral	LD50 Rat: >2000 mg/kg
	dermal	LD50 Rat: >2000 mg/kg

Skin corrosion/irritation

Assessment:
Causes skin irritation.

Product data:
No data available.

Substance data:

Name	Result
Methacrylate Monomer(s)	Causes skin irritation

Serious eye damage/irritation

Assessment:
Causes serious eye irritation.

Product data:
No data available.

Substance data:

Name	Result
Methacrylate Monomer(s)	Causes serious eye irritation
	Causes serious eye irritation.

Respiratory or skin sensitization

Assessment:
May cause an allergic skin reaction.

Product data:
No data available.

Substance data:

Name	Result
Urethane dimethacrylate	May cause an allergic skin reaction.
Phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide	May cause an allergic skin reaction.
Methacrylate Monomer(s)	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
Urethane dimethacrylate	Not Applicable
Methacrylate Monomer(s)	Not Applicable
	Not Applicable
Phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide	Not Applicable

Germ cell mutagenicity

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

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
Methacrylate Monomer(s)	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.

Endocrine disrupting properties:

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.

11.2 Information on other hazards

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
Urethane dimethacrylate	Fish LC50 Danio rerio: 10.1 mg/L (96 hr)
	Aquatic Invertebrates EC50 Daphnia magna: > 1.2 mg/L (48 hr [mobility])
	Aquatic Plants EC50 Desmodesmus subspicatus: > 0.68 mg/L (72 hr [growth rate])

Name	Result
Methacrylate Monomer(s)	Fish LC50 Danio rerio: 1.79 mg/L (96 hr)
	Aquatic Invertebrates EC50 Daphnia magna: 2.57 mg/L (48 hr [mobility])
	Aquatic Plants EC50 Pseudokirchneriella subcapitata: >97.2 mg/L (72 hr [growth rate])
	Fish LC50 Psetta maxima: 833 mg/L (96 hr)
	Aquatic Invertebrates EC50 Daphnia magna: >143 mg/L (48 hr [mobility])
	Aquatic Plants EC50 Pseudokirchneriella subcapitata: 2.28 mg/L (72 hr [growth rate])
Phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide	Aquatic Plants EC50 Desmodesmus subspicatus: >0.26 mg/L (72 hr [growth rate, biomass])
	Fish LC50 Danio rerio: >0.09 mg/L (96 hr)
	Aquatic Invertebrates EC50 Daphnia magna: >1.175 mg/L (48 hr [mobility])

Chronic (long-term) toxicity

Assessment:

Toxic to aquatic life with long lasting effects.

Product data: No data available

Substance data:

Name	Result
Methacrylate Monomer(s)	Aquatic Invertebrates EC50 Daphnia magna: 0.658 mg/L (21 d [reproduction])
Phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide	Aquatic Invertebrates NOEC Daphnia magna: >= 0.0081 mg/L (21d [reproduction])

12.2 Persistence and degradability

Product data: No data available

Substance data:

Name	Result
Phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide	The substance is not readily biodegradable. 1% degradation in water, measured by CO2 evolution after 29 days.
Methacrylate Monomer(s)	The substance is readily biodegradable. 81% degradation in water, measured by BOD, after 28 days.
Methacrylate Monomer(s)	The substance is readily biodegradable. 70% degradation in water, measured by CO2 evolution, after 28 days.
Urethane dimethacrylate	The substance is not readily biodegradable. 22% degradation in water, measured by CO2 evolution, after 28 days.

12.3 Bioaccumulative potential

Product data: No data available

Substance data:

Name	Result
Methacrylate Monomer(s)	Low potential to bioaccumulate (BCF: 3.2; Log kow: 1.21)

Name	Result
Methacrylate Monomer(s)	Bioaccumulation can be assumed based on a log Pow value of 5.09. However, due to expected rapid metabolism and non-bioaccumulative potential of the metabolites, bioaccumulation in organisms is not expected.
Phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide	The substance is not expected to bioaccumulate (BCF: < 5, aquatic species: Cyprinus carpio).
Urethane dimethacrylate	The substance has the potential to bioaccumulate (log Pow: 3.39 at 20 °C).

12.4 Mobility in soil

Product data: No data available

Substance data:

Name	Result
Methacrylate Monomer(s)	The substance has a low potential for adsorption to soil or sediments based on high water solubility, a low vapor pressure (0.11 hPa @ 20 deg C), and low log Kow (0.97).
Methacrylate Monomer(s)	The substance is slightly mobile in soil with a high potential for adsorption to soil and sediment. Log Koc: 3.71
Phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide	The substance is slightly mobile, therefore, adsorption to soil and sediment is expected (log Koc: 3.85).
Urethane dimethacrylate	The substance is slightly mobile, therefore, adsorption to soil and sediment is expected (log Koc: 3.655 dimensionless at 25 °C, QSAR substance data).

12.5 Persistent, bioaccumulative and toxic (PBT) or very persistent, very bioaccumulative (vPvB) properties

PBT Properties

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

Product data: No data available

Substance data:

Urethane dimethacrylate	The substance is not PBT.
Methacrylate Monomer(s)	This substance in not PBT
Phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide	The substance is not PBT.
Methacrylate Monomer(s)	The substance is not PBT.

vPvB Properties

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

Product data: No data available

Substance data:

Urethane dimethacrylate	The substance is not vPvB.
Methacrylate Monomer(s)	This substance is not vPvB
Phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide	The substance is not vPvB.
Methacrylate Monomer(s)	The substance is not vPvB.

12.6 Persistent, mobile and toxic (PMT) or very persistent, very mobile (vPvM) properties

PMT Properties

Assessment: Based on available data, the classification criteria are not met.
Product data: No data available
Substance data: No data available

vPvM Properties

Assessment: Based on available data, the classification criteria are not met.
Product data: No data available
Substance data: No data available

12.7 Endocrine disrupting properties

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

Product data:
No data available

Substance data: No data available

12.8 Other adverse effects: No data available.

12.9 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: Not determined or not available.

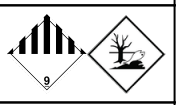
13.1.2 Waste treatment-relevant information: Not determined or not available.

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 or ID number	UN 3082
UN proper shipping name	Environmentally hazardous liquid, N.O.S. Urethane dimethacrylate
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 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.

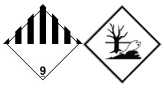
International Carriage of Dangerous Goods by Inland Waterways (ADN)

UN number or ID number	UN 3082
UN proper shipping name	Environmentally hazardous liquid, N.O.S. Urethane dimethacrylate
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 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 or ID number	UN 3082
UN proper shipping name	Environmentally hazardous liquid, N.O.S. Urethane dimethacrylate
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 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 Air Transport Association Dangerous Goods Regulations (IATA-DGR)

UN number or ID number	UN 3082
UN proper shipping name	Environmentally hazardous liquid, N.O.S. Urethane dimethacrylate
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 5.0.2.4.1, 5.0.2.6.1 and 5.0.2.8.

Maritime Transport in Bulk according to IMO Instruments

Bulk Name	None
Ship type	None
Pollution category	None
IMO hazard class	None

Environmental hazards	None
Material hazardous only in bulk	None
Cargo Group	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	Urethane dimethacrylate	Listed
Trade Secret	Methacrylate Monomer(s)	Listed
Trade Secret	Methacrylate Monomer(s)	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:

72869-86-4	Urethane dimethacrylate	Not Listed
Trade Secret	Methacrylate Monomer(s)	Not Listed
Trade Secret	Methacrylate Monomer(s)	Not Listed
162881-26-7	Phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide	Listed

Water hazard class (WGK) (Product): Class 1

Water hazard class (WGK) (Substance):

Ingredient Name	CAS	Class
Urethane dimethacrylate	72869-86-4	Water hazard class 1: slightly hazardous to water
Methacrylate Monomer(s)	Trade Secret	Water hazard class 1: slightly hazardous to water
Methacrylate Monomer(s)	Trade Secret	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:

MAL Code: 0-1

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:

ESD Resin

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:

Aquatic Chronic 2	Chronic aquatic hazard, category 2
Skin Sens. 1B	Skin sensitization, category 1B
Skin Sens. 1	Skin sensitization, category 1
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:

H411	Toxic to aquatic life with long lasting effects
H317	May cause an allergic skin reaction
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 Commission Delegated Regulation (EU) 2023/707, and EC No. 1907/2006 (REACH), as amended by Commission Regulation (EU) 2020/878. The information provided in this SDS is correct, to the best of our knowledge, based on 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