

Safety Data Sheet

Figure 4® MED-AMB 10

Revision Date: February 26, 2020

1. IDENTIFICATION OF THE PREPARATION AND OF THE COMPANY/UNDERTAKING

1.1 Identification of the mixture: Figure 4 MED-AMB 10

1.2 Use of the preparation: For use with Figure 4 Printers

1.3 Company/undertaking identification:

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2. HAZARDS IDENTIFICATION

2.1 Classification:

GHS : Regulation (EC) No. 1272/2008, HazCom 29 CFR 1910, Australian Dangerous Goods Code:

Skin irritation	Category 1	H317
Aquatic environment – long-term hazard	Category 2	H411

2.2 Label Elements

Regulation (EC) No, 1272/2008:

Hazard pictograms and signal word:



GHS07



GHS09

Signal word: Warning

Hazard determining components of labelling: 7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxo-5,12-diazahexadecane-1,16-diyl bismethacrylate; phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide

Hazard statements:

H317 May cause an allergic skin reaction
H411 Toxic to aquatic life with long lasting effects

Precautionary statements:

P261 Avoid breathing dust/fume/gas/mist/vapours/spray
P264 Wash skin thoroughly after handling
P280 Wear protective gloves, protective clothing, eye protection
P302+350 If on skin, wash with 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.
P311 Call a POISON CENTER/Doctor
P333+313 If skin irritation or rash occurs: Get medical advice/attention
P362 Take off contaminated clothing.
P363 Wash contaminated clothing before reuse.
P391 Collect spillage
P410+403 Protect from sunlight. Store in a well-ventilated place
P501 Dispose of contents/container in accordance with local/regional regulations

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3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Chemical characterization:

Description: Organic mixture

3.2 Dangerous components:

Chemical name	CAS-No	EC-No	%	Classification Regulation (EC) 1272/2008
Ethoxylated bisphenol A dimethacrylate	41637-38-1	609-946-4	>= 75	Aquatic Chronic 4, H413
7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxo-5,12-diazahexadecane-1,16-diyl bismethacrylate	72869-86-4	276-957-5	30 - 50	Skin Sens. 1B, H317 Aquatic Chronic 2, H411
phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide	162881-26-7	015-189-00-5	< 10	Skin Sens. 1, H317 Aquatic Chronic 4, H413

4. FIRST AID MEASURES

4.1 General Information: Ensure that eyewash stations and safety showers are close to the workstation location. Immediately remove any clothing soiled by the product. Symptoms of poisoning may even occur after several hours. Therefore, medical observation is required for at least 48 hours after the accident. In case of irregular breathing or respiratory arrest, provide artificial respiration. Involve doctor immediately.

4.2 In case of inhalation: Move affected person to fresh air. Call for a doctor. In case of unconsciousness place patient stably in side position for transportation. Seek medical treatment. Do not use mouth to mouth or mouth to nose resuscitation.

4.3 In case of skin contact: May cause irritation or sensitization by skin contact, including redness and/or swelling. Immediately flush skin with plenty of soap and water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse.

4.4 In case of eye contact: Irritating to eyes. Causes redness, swelling and pain. Immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if symptoms persist.

4.5 In case of ingestion: Irritating to mouth, throat and stomach. If ingested, seek immediate medical attention. Do not induce vomiting.

4.6 Self-protection of the first aider: Put on appropriate protective equipment (see section 8). Move exposed person to fresh air. Remove contaminated clothing and shoes.

5. FIRE-FIGHTING MEASURES

5.1 Suitable extinguishing media: Foam. Dry powder. Carbon dioxide. Water spray. Sand.

5.2 Extinguishing media which must not be used for safety reasons: High volume water jet.

5.3 Special exposure hazards arising from the substance or preparation itself, combustion products, resulting gases: Thermal decomposition products can include CO₂, CO, NO_x and smoke.

5.4 Special protective equipment for fire-fighters: Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire fighting water from entering the environment..

5.5 Additional information: Move container from area if it can be done without risk. Cool containers with water spray. Avoid inhalation of material or combustion by-products.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions: Keep unnecessary personnel away. Wear appropriate protective equipment and clothing. Consult expert immediately.

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6.2 Environmental precautions: Stop the flow of material, if this is without risk. Ventilate contaminated area. Eliminate sources of ignition. Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters

6.3 Methods for cleaning up: Wear appropriate protective equipment and clothing. Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Store away from other materials.

7. HANDLING AND STORAGE

7.1 Handling Provide adequate ventilation. Use suitable protective equipment. Avoid contact with skin and eyes. Do not breathe vapors or mist. Avoid ignition sources. Do not allow to enter drains or watercourses.

7.2 Storage: Store sealed in the original container at room temperature. Keep this material indoors in a cool, dry, well ventilated place. Store out of direct sunlight or UV light sources. Keep container closed when not in use. To avoid the risks of fires, all contaminated materials should be stored in purpose-built containers or in metal containers with tight-fitting self-closing lids.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Exposure limit values:

Ethoxylated bisphenol A dimethacrylate (41637-38-1)	
DNEL/DMEL (Workers)	
Long-term - systemic effects, dermal	2 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	3,52 mg/m ³
DNEL/DMEL (General population)	
Long-term - systemic effects, oral	0,5 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	0,87 mg/m ³
Long-term - systemic effects, dermal	1 mg/kg bodyweight/day
phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide (162881-26-7)	
DNEL/DMEL (Workers)	
Acute - systemic effects, dermal	3,33 mg/kg bodyweight/day
Acute - systemic effects, inhalation	7,84 mg/m ³
Long-term - systemic effects, dermal	3,33 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	7,84 mg/m ³
DNEL/DMEL (General population)	
Acute - systemic effects, dermal	1,67 mg/kg bodyweight
Acute - systemic effects, inhalation	3,92 mg/m ³
Acute - systemic effects, oral	1,67 mg/kg bodyweight
Long-term - systemic effects, oral	1,5 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	1,93 mg/m ³
Long-term - systemic effects, dermal	1,5 mg/kg bodyweight/day
PNEC (Water)	
PNEC aqua (freshwater)	0,0008 - 0,001 mg/l
PNEC aqua (marine water)	0,0008 - 0,001
PNEC aqua (intermittent, marine water)	0,0008 - 0,001 mg/l
PNEC (Sediment)	
PNEC sediment (freshwater)	0,712 mg/kg bw
PNEC sediment (marine water)	0,712 mg/kg bw
PNEC (Soil)	
PNEC soil	20 mg/kg bw
phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide (162881-26-7)	
PNEC (STP)	
PNEC sewage treatment plant	1 mg/l

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7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxo-5,12-diazahehexadecane-1,16-diyl bismethacrylate (72869-86-4)	
DNEL/DMEL (Workers)	
Long-term - systemic effects, dermal	1,3 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	3,3 mg/m ³
DNEL/DMEL (General population)	
Long-term - systemic effects, oral	0,3 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	0,6 mg/m ³
Long-term - systemic effects, dermal	0,7 mg/kg bodyweight/day
PNEC (Water)	
PNEC aqua (freshwater)	0,01 mg/l
PNEC aqua (marine water)	0,001 mg/l
PNEC aqua (intermittent, freshwater)	0,1 mg/l
PNEC aqua (intermittent, marine water)	0,1 mg/l
PNEC (Sediment)	
PNEC sediment (freshwater)	4,56 mg/kg bw
PNEC sediment (marine water)	0,46 mg/kg bw
PNEC (Soil)	
PNEC soil	0,91 mg/kg bw
PNEC (STP)	
PNEC sewage treatment plant	3,61 mg/l

8.2 Exposure controls

Technical measures to prevent exposure: Use local exhaust ventilation.

Instructional measures to prevent exposure: When using, do not eat, drink or smoke. Wash hands after handling and before eating, smoking and using the lavatory and at the end of the day.

Personal protection equipment:

Respiratory protection: If ventilation cannot effectively keep vapor concentrations below established limits, appropriate certified organic vapor respiratory protection must be provided (e.g. 3M 6001 organic vapor cartridge with half facepiece 3M 6000 or 3M 7000).

Hand protection: Use impervious nitrile or butyl gloves.

Eye protection: Wear safety glasses or chemical goggles.

Body protection: Use apron and closed shoes.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Important health, safety and environmental information

Physical state	: Liquid
Colour	: transparent. orange.
Odour	: Ester.
Odour threshold	: No data available
pH	: No data available
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: No data available
Freezing point	: No data available
Boiling point	: > 200 °C
Flash point	: No data available
Auto-ignition temperature	: 375 °C
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Vapour pressure	: No data available
Relative vapour density at 20 °C	: No data available
Relative density	: 1,1 - 1,2 Relative density, liquid (water=1)
Solubility	: Soluble in organic solvents. Water: insoluble in water
Log Pow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: 0,9 - 1,1 Pa.s
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: No data available

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9.2 Other information

VOC content 0%

10. STABILITY AND REACTIVITY

10.1 Conditions to avoid: Avoid exposure to heat and light. Take necessary actions to avoid static electricity discharge.

10.2 Materials to avoid: Not tested. Recommendation is to avoid Oxidizing materials, strong acids and strong bases

10.3 Hazardous decomposition products: Carbon dioxide, carbon monoxide and other toxic fumes can be released at high temperatures or upon burning.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

11.1.1 Toxicity of the mixture

Irritation to respiratory tract: May cause respiratory irritation

Skin irritation: May cause skin irritation

Eye irritation: May cause eye irritation

Sensitisation: Causes sensitisation

11.1.2 Toxicity of the components

Ethoxylated bisphenol A dimethacrylate (41637-38-1)	
LD50 oral rat	2000 mg/kg
LD50 dermal rat	2000 mg/kg
phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide (162881-26-7)	
LD50 oral rat	2000 mg/kg
LD50 dermal rat	2000 mg/kg
7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxo-5,12-diazahexadecane-1,16-diyl bismethacrylate (72869-86-4)	
LD50 oral rat	5000 mg/kg
LD50 dermal rat	2000 mg/kg
Ethoxylated bisphenol A dimethacrylate (41637-38-1)	
NOAEL (oral, rat, 90 days)	300 mg/kg bodyweight/day
phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide (162881-26-7)	
NOAEL (oral, rat, 90 days)	1000 mg/kg bodyweight/day
7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxo-5,12-diazahexadecane-1,16-diyl bismethacrylate (72869-86-4)	
NOAEL (oral, rat, 90 days)	100 - 300 mg/kg bodyweight/day

11.3 Experiences made in practice

Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

11.4 General remarks:

Carcinogenicity: None of this product's components are listed by ACGIH, IARC, OSHA, NIOSH, or NTP as carcinogens.

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12. Ecological information

12.1 Ecotoxicity

12.1.1 Mixture:

- Ecology – general : Avoid release to the environment.
 Chronic aquatic toxicity : Toxic to aquatic life with long lasting effects.

12.1.2 Chemical ingredients:

Ethoxylated bisphenol A dimethacrylate (41637-38-1)	
NOEC (chronic)	14,3 mg/l 28 d
phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide (162881-26-7)	
LC50 fishes	0,09 mg/l
EC50 Daphnia	1,175 mg/l
EC50 72h algae (1)	0,26 mg/l
LOEC (chronic)	0,008 mg/l
NOEC (chronic)	0,008 mg/l 21 d
NOEC chronic algae	0,26 mg/l
7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxo-5,12-diazahexadecane-1,16-diyl bismethacrylate (72869-86-4)	
LC50 fishes	10,1 mg/l
EC50 Daphnia	1,2 mg/l
EC50 72h algae (1)	0,68 mg/l

12.2 Persistence and degradability

No data available

12.3 Bioaccumulative potential

Ethoxylated bisphenol A dimethacrylate (41637-38-1)	
Log Pow	3,43 - 5,62 @ pH 6.44
phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide (162881-26-7)	
Log Pow	4,65 - 5,8 @ 20-22 °C and pH 7.5
7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxo-5,12-diazahexadecane-1,16-diyl bismethacrylate (72869-86-4)	
Log Pow	3 - 3,39 @ 20 °C and pH 7

12.4 Mobility in soil – No data available

13. DISPOSAL CONSIDERATIONS

13.1 Appropriate disposal / Product: Do not contaminate drains, soil or surface waters with this material or its container. Reduce waste by attempting to utilize product completely. Dispose of this container and its contents in accordance with all local, state, and federal regulations. Do not reuse or refill.

13.2 Waste codes / waste designations according to EWC / AVV: 08 01 99 wastes not otherwise specified

13.3 Appropriate packaging: NA

13.4 Additional information: Prior to disposal 3D Systems recommends consulting an approved waste disposal firm to ensure regulatory compliance.

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14. TRANSPORT INFORMATION

14.1 Land transport (ADR/RID/GGVSE):

Official transport designation: Environmentally hazardous substance, liquid N.O.S., (7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14- dioxo-5,12- diazahexadecane-1,16-diyl bismethacrylate), 9, III, (-)

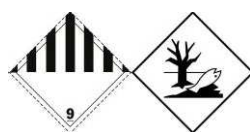
UN-No.: 3082

Class: 9

Packing group: III

Marine pollutant: yes

Contains: Acrylates



14.2 Sea transport (IMDG-Code/GGVSee):

Official transport designation: Environmentally hazardous substance, liquid N.O.S., (7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14- dioxo-5,12- diazahexadecane-1,16-diyl bismethacrylate), 9, III, (-)

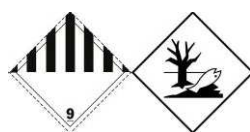
UN-No.: 3082

Class: 9

Packing group: III

Marine pollutant: yes

Contains. Acrylates



14.3 Air transport (ICAO-IATA/DGR):

Official transport designation: Environmentally hazardous substance, liquid N.O.S., (7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14- dioxo-5,12- diazahexadecane-1,16-diyl bismethacrylate), 9, III, (-)

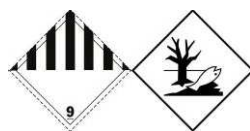
UN-No.: 3082

Class: 9

Packing group: III

Marine pollutant: yes

Contains. Acrylates



15. REGULATORY INFORMATION

15.1 EU regulations

The following restrictions are applicable according to Annex XVII of the REACH Regulation (EC) No 1907/2006:

3(b) Substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: Hazard classes 3.1 to 3.6, 3.7 adverse effects on sexual function and fertility or on development, 3.8 effects other than narcotic effects, 3.9 and 3.10	7,7,9(or 7,9,9)-trimethyl- 4,13-dioxo-3,14-dioxo-5,12-diazahexadecane- 1,16-diyl bismethacrylate
3(c) Substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: Hazard class 4.1	Ethoxylated bisphenol A dimethacrylate - 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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15.2 Does not contain substances listed on the REACH candidate list

15.3 Does not contains substances listed on REACH Annex XIV

15.4 Germany : Wassergefährdungsklasse (water hazard class, Germany): WGK 2: Hazard to waters

15.5 International regulations: All components of this product are registered or exempt from registration according to chemical regulations in Australia, Canada (DSL or NDSL), China, Japan ENCS and Japan ISHL, Taiwan, New Zealand, Philippines, South Korea, and Switzerland.

15.6 Japanese regulations

Chemical Risk Information platform (CHRIIP)	Listed
Industrial Health and Safety Law	not applicable
Hazardous material	not applicable
Organic solvent poison prevention rule	not applicable
Ordinance on prevention of hazard due to specified chemical substances	not applicable
Lead Poisoning Prevention Rule	not applicable
Poison and Deleterious Substance Control law	not applicable
PRTR and Promotion of Chemical Management law (PRTR Law)	no listed components
Fire Services Act	Category 4, Class 3, oil
Explosives Law	not applicable
High pressure gas safety law	not applicable
Export Trade Control Order	not applicable
Waste Disposal and Public Cleaning Law	applicable. Before disposal, consult an approved waste disposal operative to ensure regulatory compliance.

16. OTHER INFORMATION

16.1 Relevant Hazard Statements (number and full text) referred to in sections 2 and 3 (according to (EC) No. 1272/2008):

Full text of H-statements:	
H317	May cause an allergic skin reaction.
H411	Toxic to aquatic life with long lasting effects.
H413	May cause long lasting harmful effects to aquatic life.

16.2 Further information:

SDS Creation Date:April 10, 2019

SDS Revision #:-01-A

SDS Revision Date:February 26, 2020

Reason for Revision:Update header, section 1, 15, 16.

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