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Safety data sheet: Zortrax Photopolymer Resin BASIC

SECTION 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/ UNDERTAKING

1.1. PRODUCT IDENTIFIER

Trade name: ZORTRAX PHOTOPOLYMER RESIN BASIC (Pigment-free)

1.2. RELEVANT IDENTIFIED USES OF THE SUBSTANCE OR MIXTURE AND USES ADVISED AGAINST

Identified use: For use with 3D printers

Use advised against: Other than listed above

1.3. DETAILS OF THE SUPPLIER OF THE SAFETY DATA SHEET

Supplier: Zortrax S.A.
Lubelska 43a
10-410 Olsztyn
Poland
TEL. +48 89 672 40 01
email: office@zortrax.com

1.4. EMERGENCY TELEPHONE NUMBER

Emergency telephone number: 112 - emergency number
+48 89 672 40 01 (8.00 am-4.00 pm) - supplier's number

SECTION 2. HAZARDS IDENTIFICATION

2.1. CLASSIFICATION OF THE SUBSTANCE OR MIXTURE

According to the Regulation (EC) No 1272/2008:

Hazard statements:

Skin corrosion/irritation, Hazard Category 2

Serious eye damage/eye irritation, Hazard Category 1

Sensitisation - Skin, Hazard Category 1

Hazardous to the aquatic environment - Acute Hazard, Category 1

Hazardous to the aquatic environment - Chronic Hazard, Category 2

Precautionary statements:

Causes skin irritation.

Causes serious eye damage.

May cause an allergic skin reaction.

Very toxic to aquatic life

Toxic to aquatic life with long lasting effects.

2.2. LABEL ELEMENTS

According to the Regulation (EC) No 1272/2008:

Hazard-determining components of labelling:

1,6-Hexanediol diacrylate

Hexane, 1,6-diisocyanato, polymers with 2-hydroxyethyl acrylate blocked 1,6-diisocyanatohexane homopolymer, 2-hydroxyethyl acrylate and pentaerythritol triacrylate blocked

Pentaerythritol tetraacrylate

Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide

Signal word:

Danger

Pictograms:



Hazard statements:

H315 Causes skin irritation.

H317 May cause an allergic skin reaction.

H318 Causes serious eye damage.

H400 Very toxic to aquatic life.

H411 Toxic to aquatic life with long lasting effects.

Precautionary statements:

P101 If medical advice is needed, have product container or label at hand.

P102 Keep out of reach of children.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310 Immediately call a POISON CENTER or doctor/physician.

P501 Dispose of waste according to applicable legislation.

Special labelling of certain mixtures:

EUH204 Contains isocyanates. May produce an allergic reaction.

Labelling of packages < 125 ml:

Signal word:

Danger

Pictograms:



Hazard statements:

H317-H318

Precautionary statements:

P101-P102-P280-P305+P351+P338-P310-P501

2.3. OTHER HAZARDS

No information available

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1. SUBSTANCES

Not applicable

3.2. MIXTURES

Hazardous components

Name	CAS EC Index No REACH Registration No	Content %	CLP classification
1,6-Hexanediol diacrylate	13048-33-4 235-921-9 607-109-00-8 01-2119484737-22	50 - 100	Skin Irrit. 2, H315 Eye Irrit. 2, H319 Skin Sens. 1, H317 Aquatic Acute 1, H400 Aquatic Chronic 2, H411
Hexane, 1,6-diisocyanato, polymers with 2-hydroxyethyl acrylate blocked 1,6-diisocyanatohexane homopolymer, 2-hydroxyethyl acrylate and pentaerythritol triacrylate blocked	2123508-19-8	25 - 50	Skin Irrit. 2, H315 Eye Irrit. 2, H319 Skin Sens. 1, H317
Pentaerythritol tetraacrylate	4986-89-4 225-644-1 607-122-00-9	1 - 10	Acute Tox. 4, H302 Skin Irrit. 2, H315 Eye Dam. 1, H318 Skin Sens. 1, H317 Aquatic Chronic 2, H411

Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide	75980-60-8	1 - < 3	Repr. 2, H361f
	278-355-8		Skin Sens. 1B, H317
	015-203-00-X		Aquatic Chronic 2, H411

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

SECTION 4. FIRST AID MEASURES

4.1. DESCRIPTION OF FIRST AID MEASURES

After inhalation:	Provide fresh air. If breathing is irregular or stopped, administer artificial respiration. Medical treatment necessary.
After contact with skin:	After contact with skin, wash immediately with plenty of water and soap. Take off immediately all contaminated clothing and wash it before reuse. In case of skin reactions, consult a physician.
After contact with eyes:	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. Remove contact lenses, if present and easy to do. Continue rinsing.
After ingestion:	Observe risk of aspiration if vomiting occurs. Rinse mouth immediately and drink plenty of water. Do NOT induce vomiting. Never give anything by mouth to an unconscious person or a person with cramps. Get medical advice/attention.

4.2. MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYED

Persons already sensitised to diisocyanates may develop allergic reactions when using this product.

4.3. INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED

Treat symptomatically.

SECTION 5. FIREFIGHTING MEASURES

5.1. EXTINGUISHING MEDIA

Suitable extinguishing media:	Co-ordinate firefighting measures to the fire surroundings.
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5.2. SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE

Non-flammable. Thermal decomposition can lead to the release of toxic gases and vapors.

5.3. ADVICE FOR FIREFIGHTERS

Special protective equipment for firefighters:

Wear a self-contained breathing apparatus and chemical protective clothing. Full protection suit.

Additional information:

Extinguish fires with water spray jet. Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

SECTION 6. ACCIDENTAL RELEASE MEASURES

6.1. PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES

Provide adequate ventilation. Do not breathe gas/fume/vapor/spray. Avoid contact with skin, eyes and clothes. Use personal protection equipment.

6.2. ENVIRONMENTAL PRECAUTIONS

Do not allow to enter into surface water or drains.

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 – SECTION 7

Personal protective equipment – SECTION 8

Disposal – SECTION 13

SECTION 7. HANDLING AND STORAGE

7.1. PRECAUTIONS FOR SAFE HANDLING

Advice on safe handling

Provide adequate ventilation. Do not breathe gas/fume/vapor/spray. Avoid contact with skin, eyes and clothes. Use personal protection equipment.

Advice on protection against fire and explosion

Usual measures for fire prevention.

Further information on handling

Persons already sensitised to diisocyanates may develop allergic reactions when using this product. People who suffer from skin sensitization problems, asthma, allergies, chronic or recurring respiratory illnesses should not be deployed in any process using this preparation.

7.2. CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES

Requirements for storage rooms and vessels

Keep container tightly closed. Store in a dry place. Provide adequate ventilation as well as local exhaustion at critical locations. Keep locked up. Store in a place accessible by authorized persons only.

Advice on storage compatibility

No information available

Further information on storage conditions

Protect against: UV-radiation/sunlight, Humidity.

7.3. SPECIFIC END USE(S)

3D printing, resin

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. CONTROL PARAMETERS

DNEL and DMEL values

CAS No	Components			
DNEL type	Exposure route	Effect	Value	
75980-60-8	Diphenyl(2,4,6-trimethylbenzoyl)phosphinoxid			
DNEL (worker, long-term)	inhalation	systemic	3,5 mg/m ³	
DNEL (worker, long-term)	dermal	systemic	1 mg/kg KG/d	

PNEC values

CAS No	Components	
Environmental compartment	Value	
75980-60-8	Diphenyl(2,4,6-trimethylbenzoyl)phosphinoxid	
Freshwater	0,004 mg/l	
Freshwater (intermittent release)	0,035 mg/l	
Sediment (freshwater)	0,029 mg/kg	
Sediment (marine water)	0,029 mg/kg	
Soil	0,056 mg/kg	

Additional information on occupational exposure limit values:

There are currently no occupational exposure limit values.

8.2. EXPOSURE CONTROLS



Appropriate engineering controls

Provide adequate ventilation as well as local exhaust at critical locations.

Protective and hygiene measures

Remove contaminated, soaked clothing immediately. Draw up and observe a skin protection program. Wash hands and face before breaks and after work and take a shower if necessary. Do not eat, drink or smoke when using this product. Do not breathe gas/fume/vapor/spray. Avoid contact with skin, eyes and clothes.

Persons already sensitised to diisocyanates may develop allergic reactions when using this product. People who suffer from skin sensitization problems, asthma, allergies, chronic or recurring respiratory illnesses should not be deployed in any process using this preparation.

Eye/face protection

Wear eye/face protection.

Hand protection

Wear protective gloves.

The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

Skin protection

Wear suitable protective clothing.

Respiratory protection

In the case of inadequate ventilation, wear respiratory protection.

Environmental exposure controls

Do not allow to enter into surface water or drains.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES

Appearance:

Physical state:

Color:

Liquid

Pigment-free

Odor:

like: Acrylate

Melting point:

Not determined

Initial boiling point and boiling range:

> 100° C [212° F]

Flammability:

Not applicable

Upper/lower flammability or explosive limits:

Lower explosion limits: Not determined

Upper explosion limits: Not determined

Flash point:	> 110° C [230° F]
Auto-ignition temperature:	>230° C [446° F]
Decomposition temperature:	Not determined
pH:	Not determined
Solubility (water):	poorly soluble
Partition coefficient: n-octanol/water:	Not determined
Vapor pressure:	< 1 hPa at 20° C [68° F]
Relative density:	Not determined
Vapor density:	Not determined
Particle size:	no data available
Particle size distribution:	no data available

9.2. OTHER INFORMATION

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SECTION 10. STABILITY AND REACTIVITY

10.1. REACTIVITY

No hazardous reaction when handled and stored according to provisions.

10.2. CHEMICAL STABILITY

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

10.3. POSSIBILITY OF HAZARDOUS REACTIONS

No hazardous reactions are known.

10.4. CONDITIONS TO AVOID

Protect against: UV-radiation/sunlight, Humidity.

10.5. INCOMPATIBLE MATERIALS

No information available.

10.6. HAZARDOUS DECOMPOSITION PRODUCTS

Thermal decomposition can lead to the release of toxic gases and vapors.

SECTION 11. TOXICOLOGICAL INFORMATION

11.1. INFORMATION ON HAZARD CLASSES AS DEFINED IN REGULATION (EC) NO 1272/2008

Acute toxicity:

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

CAS No	Components				
	Exposure route	Dose	Species	Source	Method
13048-33-4	hexamethylene diacrylate; hexane-1,6-diol diacrylate				
	oral	LD50 5000 mg/kg	Rat	Manufacturer	
	dermal	LD50 3650 mg/kg	Rabbit	Manufacturer	OECD 402
4986-89-4	pentaerythritol tetraacrylate				
	oral	ATE 500 mg/kg			
75980-60-8	diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide				
	oral	LD50 > 5000 mg/kg	Rat	Manufacturer	
	dermal	LD50 > 2000 mg/kg	Rat	Manufacturer	

Irritation and corrosivity:

Causes skin irritation

Causes serious eye damage

Sensitising effects:

Contains isocyanates.

May cause an allergic skin reaction (hexamethylene diacrylate; hexane-1,6-diol diacrylate; Hexane, 1,6-diisocyanato-, polymers with 2-hydroxyethyl acrylate-blocked 1,6-diisocyanatohexane homopolymer, 2-hydroxyethyl acrylate- and pentaerythritol triacrylate-blocked; pentaerythritol tetraacrylate; diphenyl(2,4,6-trimethylbenzoyl) phosphine oxide)

Carcinogenic/mutagenic/toxic effects for reproduction: Based on available data, the classification criteria are not met.

STOT-single exposure: Based on available data, the classification criteria are not met.

STOT-repeated exposure: Based on available data, the classification criteria are not met.

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

Additional information on tests:

Persons already sensitised to diisocyanates may develop allergic reactions when using this product. People who suffer from skin sensitization problems, asthma, allergies, chronic or recurring respiratory illnesses should not be deployed in any process using this preparation.

SECTION 12. ECOLOGICAL INFORMATION

12.1. TOXICITY

Toxic to aquatic life with long lasting effects.

CAS No	Components					
	Aquatic toxicity	Dose	[h][d]	Species	Source	Method
13048-33-4	Hexamethylendiacylat; Hexan-1,6-dioldiacrylat					
	Toxicity to bacteria	(270 mg/l)	0,5 h	Activated sludge	Manufacturer	OECD 209
75980-60-8	Diphenyl(2,4,6-trimethylbenzoyl)phosphinoxid					
	Toxicity to algae	ErC50 > 2,01 mg/l	72 h	Scenedesmus subspicatus	Manufacturer	
	Toxicity to crustaceans	EC50 3,53 mg/l	48 h	Daphnia magna	Manufacturer	
	Toxicity to bacteria	(> 1000 mg/l)	3 h	Activated sludge	Manufacturer	

12.2. PERSISTENCE AND DEGRADABILITY

The product has not been tested.

CAS No	Components			
	Method	Value	d	Source
	Rating			
13048-33-4	Hexamethylendiacylat; Hexan-1,6-dioldiacrylat			
	OECD 310	60 - 70%	28	Manufacturer
	Readily biodegradable (in accordance with OECD criteria)			
75980-60-8	Diphenyl(2,4,6-trimethylbenzoyl)phosphinoxid			
	Biodegradability, water	0 - 10%	28	Manufacturer
	Not readily biodegradable			

12.3. BIOACCUMULATIVE POTENTIAL

The product has not been tested.

N-octanol/water partition coefficient

CAS No	Components	Log Pow
13048-33-4	Hexamethylendiacylat; Hexan-1,6-dioldiacrylat	2,81
75980-60-8	Diphenyl(2,4,6-trimethylbenzoyl)phosphinoxid	3,1

BCF

CAS No	Components	BCF	Species	Source
75980-60-8	Diphenyl(2,4,6-trimethylbenzoyl)phosph inoxid	47 - 55	Cyprinus carpio (common carp)	Manufacturer

12.4. MOBILITY IN SOIL

The product has not been tested.

12.5. RESULTS OF PBT AND VPVB ASSESSMENT

The product has not been tested.

12.6. ENDOCRINE DISRUPTING PROPERTIES

No data available

12.7. OTHER ADVERSE EFFECTS

No information available.

Further information:

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

SECTION 13. DISPOSAL CONSIDERATIONS

13.1. WASTE TREATMENT METHODS

Advice on disposal:

Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil. Dispose of waste according to applicable legislation.

Contaminated packaging:

Non-contaminated packages may be recycled. Handle contaminated packages in the same way as the substance itself.

SECTION 14. TRANSPORT INFORMATION

LAND TRANSPORT (ADR/RID)

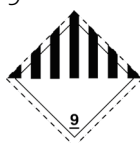
14.1. UN number or ID number: UN 3082

14.2. UN proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (hexamethylene diacrylate; hexane-1,6-diol diacrylate; pentaerythritol tetraacrylate)

14.3. Transport hazard class(es): 9

14.4. Packing group: III

Hazard label: 9



Classification code: M6

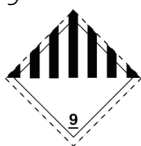
Special Provisions: 274 335 375 601

Limited quantity: 5 L

Excepted quantity: E1
Transport category: 3
Hazard identification number: 90
Tunnel restriction code: -

INLAND WATERWAYS TRANSPORT (ADN)

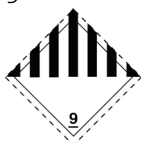
14.1. UN number or ID number: UN 3082
14.2. UN proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (hexamethylene diacrylate; hexane-1,6-diol diacrylate; pentaerythritol tetraacrylate)
14.3. Transport hazard class(es): 9
14.4. Packing group: III
Hazard label: 9



Classification code: M6
Special Provisions: 274 335 375 601
Limited quantity: 5 L
Excepted quantity: E1

MARINE TRANSPORT (IMDG)

14.1. UN number or ID number: UN 3082
14.2. UN proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (hexamethylene diacrylate; hexane-1,6-diol diacrylate; pentaerythritol tetraacrylate)
14.3. Transport hazard class(es): 9
14.4. Packing group: III
Hazard label: 9



Special Provisions: 274, 335, 969
Limited quantity: 5 L
Excepted quantity: E1
EmS: F-A, S-F

AIR TRANSPORT (ICAO-TI/IATA-DGR)

14.1. UN number or ID number: UN 3082
14.2. UN proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (hexamethylene diacrylate; hexane-1,6-diol diacrylate; pentaerythritol tetraacrylate)
14.3. Transport hazard class(es): 9
14.4. Packing group: III

Hazard label:

9



Special Provisions: A97 A158 A197
 Limited quantity - passenger: 30 kg G
 Passenger (Limited quantity): Y964
 Excepted quantity: E1
 Packing instructions IATA - passenger: 964
 Maximum net quantity IATA - passenger: 450 L
 Packing instructions IATA - cargo: 964
 Maximum net quantity IATA - cargo: 450 L

14.5. ENVIRONMENTAL HAZARDS

Environmentally hazardous:

Yes



Danger releasing substance:

Heksametylendiakrylat; Heksan-1,6-dioldiakrylat; Pentaerythritoltetraacrylat

14.6. SPECIAL PRECAUTIONS FOR USER

No information available.

14.7. MARITIME TRANSPORT IN BULK ACCORDING TO IMO INSTRUMENTS

Not applicable

SECTION 15. REGULATORY INFORMATION

15.1. SAFETY, HEALTH AND ENVIRONMENTAL REGULATIONS/LEGISLATION SPECIFIC FOR THE SUBSTANCE OR MIXTURE

EU regulatory information:

Restrictions on use (REACH, annex XVII):
 Entry 3:

Heksametylendiakrylat; Heksan-1,6-dioldiakrylat

Information according to 2012/18/EU (SEVESO III):

E1 Hazardous to the aquatic environment

National regulatory information:

Employment restrictions:

Observe the restrictions included in the Council Directive 94/33/EC on the protection of young people at work.

Water contamination class (D):

3 - highly water contaminating

Skin sensitization:

Causes allergic and hypersensitivity reactions.

15.2. CHEMICAL SAFETY ASSESSMENT

Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16. OTHER INFORMATION

Abbreviations and acronyms:

CLP: Classification, labelling and Packaging

REACH: Registration, Evaluation and Authorization of Chemicals

GHS: Globally Harmonised System of Classification, Labelling and Packaging of Chemicals

UN: United Nations

CAS: Chemical Abstracts Service

DNEL: Derived No Effect Level

DMEL: Derived Minimal Effect Level

PNEC: Predicted No Effect Concentration

ATE: Acute toxicity estimate

LC50: Lethal concentration, 50%

LD50: Lethal dose, 50%

LL50: Lethal loading, 50%

EL50: Effect loading, 50%

EC50: Effective Concentration 50%

ErC50: Effective Concentration 50%, growth rate

NOEC: No Observed Effect Concentration

BCF: Bio-concentration factor

PBT: persistent, bioaccumulative, toxic

vPvB: very persistent, very bioaccumulative

ADR: Accord européen relatif au transport international des marchandises Dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

RID: Regulations concerning the international carriage of dangerous goods by rail

ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways

IMDG: International Maritime Code for Dangerous Goods

EmS: Emergency Schedules

MFAG: Medical First Aid Guide

IATA: International Air Transport Association

ICAO: International Civil Aviation Organization

MARPOL: International Convention for the Prevention of Marine Pollution from Ships

IBC: Intermediate Bulk Container

VOC: Volatile Organic Compounds

SVHC: Substance of Very High Concern

Classification for mixtures and used evaluation method according to Regulation (EC) No. 1272/2008 [CLP]

Classification	Classification procedure
Skin Irrit. 2; H315	Calculation method
Eye Dam. 1; H318	Calculation method
Skin Sens. 1; H317	Calculation method
Aquatic Acute 1; H400	Calculation method
Aquatic Chronic 2; H411	Calculation method

Relevant H and EUH statements (number and full text)

H302	Harmful if swallowed.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage
H319	Causes serious eye irritation.
H361f	Suspected of damaging fertility.
H400	Very toxic to aquatic life
H411	Toxic to aquatic life with long lasting effects.
EUH204	Contains isocyanates. May produce an allergic reaction.

Changes introduced in the update: Section 1-16

Further Information:

The information is based on present level of our knowledge. It does not, however, give assurances of product properties and establishes no contract legal rights. The receiver of our product is responsible for adhering to existing laws and regulations.

(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)

End of Safety Data Sheet



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