Safety Data Sheet

According to EU Directive 1907/2006, as amended

Product name: Standard Resin

Date of issue: 12-5-2023

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

1.1 **Product identifier:** Standard Resin
UFI: Q300-P0FV-W00Q-GUYS

1.2 **Relevant identified uses of the substance or mixture and uses advised against:**
Use of the substance/mixture: 3D printing
Uses advised against: Not for intraoral area.

1.3 **Details of the supplier of the safety data sheet**
ReprapWorld B.V.
Klopperman 7
2292 JE Wateringen, The Netherlands
Phone: +31 (0)85 0091531

2. Hazards identification

2.1 **Classification of the substance or mixture**
GB CLP Regulation
Skin Irrit. 2; H315
Eye Dam. 1; H318
Skin Sens. 1; H317
Aquatic Acute 1; H400
Aquatic Chronic 2; H411
Full text of hazard statements: see SECTION 16.

2.2 **Label elements**
GB CLP Regulation
Hazard components forlabelling
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
Signalword: 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.
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/hearing 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/doctor.
P501 - Dispose of waste according to applicable legislation.

Precautionary statements:
Special labelling of certain mixtures
EUH204 Contains isocyanates. May produce an allergic reaction.
As from 24 August 2023 adequate training is required before industrial or professional use.

2.3 Other hazards
The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

3. Composition/information on ingredients

3.2 Mixtures:
Hazardous components

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification (GB CLP Regulation)			
13048-33-4	**hexamethylene diacrylate; hexane-1,6-diol diacrylate**			**50 - 100 %**
	235-921-9	607-109-00-8	01-2119484737-22	
	Skin Irrit. 2, Eye Irrit. 2, Skin Sens. 1, Aquatic Acute 1, Aquatic Chronic 2; H315 H319 H317 H400 H411			
2123508-19-8	**Hexane, 1,6-diisocyanato-, polymers with 2-hydroxyethyl acrylate-blocked 1,6-diisocyanatohexane homopolymer,2-hydroxyethyl acrylate- and pentaerythritol triacrylate-blocked**			**25 - 50 %**
	Skin Irrit. 2, Eye Irrit. 2, Skin Sens. 1; H315 H319 H317			
4986-89-4	**pentaerythritol tetraacrylate**			**1 - 10 %**
	225-644-1	607-122-00-9		
	Acute Tox. 4, Skin Irrit. 2, Eye Dam. 1, Skin Sens. 1, Aquatic Chronic 2; H302 H315 H318 H317 H411			
75980-60-8	**diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide**			**1 - < 3 %**
	278-355-8	015-203-00-X		
	Repr. 2, Skin Sens. 1B, Aquatic Chronic 2; H361f H317 H411			

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

SpecificConc.Limits,M-factors and ATE

CAS No	EC No	Chemical name	Quantity
		Specific Conc. Limits, M-factors and ATE	
13048-33-4	**235-921-9**	**hexamethylene diacrylate; hexane-1,6-diol diacrylate**	**50 - 100 %**
		dermal: LD50 = 3650 mg/kg; oral: LD50 = 5000 mg/kg	
4986-89-4	**225-644-1**	**pentaerythritol tetraacrylate**	**1 - 10 %**
		oral: ATE = 500 mg/kg	

75980-60-8	278-355-8	diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide	1 - < 3 %
		dermal: LD50 = > 2000 mg/kg; oral: LD50 = > 5000 mg/kg	

4. First aid measures

4.1 Description of first aid measures

General information

If unconscious but breathing normally, place in recovery position and seek medical advice. When in doubt or if symptoms are observed, get medical advice. In case of allergic symptoms, especially in the breathing area, seek medical advice immediately.

After inhalation

Provide fresh air. When in doubt or if symptoms are observed, get medical advice. In the case of bluish discoloration (lips, earlobes, finger nails) give oxygen as soon as possible. If breathing is irregular or stopped, administer artificial respiration.

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. Call a doctor if you feel unwell.

After contact with eyes

Rinse immediately carefully and thoroughly with eye-bath or water. Remove contact lenses, if present and easy to do. Continue rinsing. Protect uninjured eye. Consult an ophthalmologist.

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.

5. Fire fighting measures

5.1 Extinguishing media

Suitable extinguishing media: Co-ordinate fire-fighting measures to the fire surroundings.

5.2 Special hazards arising from the substance or mixture

Non-flammable. In case of fire may be liberated: Gases/vapours, toxic

5.3 Advice for fire fighters

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

Additional information

Suppress gases/vapours/mists with water spray jet. Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

General advice
Provide adequate ventilation. Do not breathe gas/fumes/vapour/spray. Avoid contact with skin, eyes and clothes. Use personal protection equipment.

For non-emergency personnel
Provide adequate ventilation. Use personal protection equipment.

For emergency responders
Use personal protection equipment.

6.2 Environmental precautions
Do not allow to enter into surface water or drains.

6.3 Methods and materials for containment and cleaning up

For containment
Stop leak if safe to do so.

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

Other information
Clean contaminated articles and floor according to the environmental legislation.

6.4 Reference to other sections
Safe handling: see section 7
Personal protection equipment: see section 8
Disposal: see section 13

7. Handling and storage

7.1 Precautions forsafe handling

Advice on safe handling
Provide adequate ventilation. Do not breathe gas/fumes/vapour/spray. Avoid contact with skin, eyes and clothes. Use personal protection equipment.

Advice on protection against fire and explosion
Usual measures for fire prevention.

Advice on general occupational hygiene
Remove contaminated, saturated clothing immediately. Draw up and observe skin protection programme. Wash hands and face before breaks and after work and take a shower if necessary. When using do not eat, drink, smoke, sniff. Do not breathe gas/fumes/vapour/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 mixture.

Further informationon 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 mixture.

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.

Hints on joint storage
No information available.

Further informationon storage conditions
Protect against: UV-radiation/sunlight, humidity.

7.3 Specificend use(s)
3D Printing resin

8. Exposure controls/personal protection

8.1 Control parameters

DNEL/DMEL values

CAS No	Substance			
DNEL type		Exposure route	Effect	Value
75980-60-8	diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide			
Worker DNEL, long-term		inhalation	systemic	3,5 mg/m³
Worker DNEL, long-term		dermal	systemic	1 mg/kg bw/day

PNEC values

CAS No	Substance	
Environmental compartment		Value
75980-60-8	diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide	
Freshwater		0,004 mg/l
Freshwater (intermittent releases)		0,035 mg/l
Freshwater sediment		0,029 mg/kg
Marine sediment		0,029 mg/kg
Soil		0,029 mg/kg

Additional advice on limit values
To date, no national critical limit values exist.

8.2 Exposure controls

Appropriate engineering controls
Provide adequate ventilation as well as local exhaustion at critical locations.

Individual protection measures,such as personal protective equipment
Eye/face protection
Wear eye/face protection.

Hand protection
Wear protective gloves. When handling with chemical substances, protective gloves must be worn with the CE-label including the four control digits. 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
Use of protective clothing.

Respiratory protection
In case of inadequate ventilation wear respiratory protection.

Thermal hazards
No information available.

Environmental exposure controls
Do not allow to enter into surface water or drains.

9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state:	Liquid
Colour:	various
Odour:	like: Acrylate
Odour threshold	not determined

Changes in the physical state

Melting point/freezing point:	not determined
Boiling point or initial boiling point and boiling range:	> 100 °C
Flash point:	> 110 °C

Flammability

Solid/liquid:	not applicable
Gas:	not applicable

Explosive properties

The product is not:	Explosive.
Lower explosion limits:	not determined
Upper explosion limits:	not determined
Auto-ignition temperature:	> 230 °C

Self-ignition temperature

Solid:	not applicable
Gas:	not applicable
Decomposition temperature:	not determined
pH-Value:	not determined
Viscosity / dynamic:	not determined
Viscosity / kinematic:	not determined
Water solubility:	poorly soluble

Solubility in other solvents
not determined

Partition coefficient n-octanol/water:	not determined
Vapour pressure (at 20 °C):	< 1 hPa
Density:	not determined
Relative vapour density:	not determined

9.2 Other information
Other safety characteristics
No information available.

10. Stability and reactivity

10.1 Reactivity:
No hazardous reaction when handled and stored according to provisions.

10.2 Chemical stability:
The product is stable under storage at normal ambient temperatures.

10.3 Possibility of hazardous reactions:
The product is stable under storage at normal ambient temperatures.

10.4 Conditions to avoid
Protect against: UV-radiation/sunlight, humidity.

10.5 Incompatible materials:
No information available.

10.6 Hazardous decomposition products
In case of fire may be liberated: Gases/vapours, toxic

11. Toxicological information

11.1 Informationon hazard classes as defined in GB CLP Regulation
Acute toxicity:
Based on available data, the classification criteria are not met.

CAS No	Chemical name				
	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	Rat	Manufacturer	
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 produce an allergic reaction. 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.

Information on likely routes of exposure
Oral, skin contact, eye contact, inhalation.

11.2 Information on other hazards

Endocrine disrupting properties
No information available.

Further information
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 mixture.

12. Ecological information

12.1 Toxicity
Toxic to aquatic life with long lasting effects.

CAS No	Chemical name					
	Aquatic toxicity	Dose	[h] | [d]	Species	Source	Method
13048-33-4	hexamethylene diacrylate; hexane-1,6-diol diacrylate					
	Acute bacteria toxicity	(EC50 270 mg/l)	0,5 h	Activated sludge	Manufacturer	OECD 209
75980-60-8	diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide					
	Acute bacteria toxicity	(EC50 > 2,01 mg/l)	72 h	Scenedesmus subspicatus	Manufacturer	
	Acute crustacea toxicity	(EC50 3,53 mg/l)	48 h	Daphnia magna (Big water flea)	Manufacturer	
	Acute bacteria toxicity	(EC50 > 1000 mg/l)	3 h	Activated sludge	Manufacturer	

12.2 Persistence and degradability
The product has not been tested.

CAS No	Chemical name			
	Method	Value	d	Source
	Evaluation			
13048-33-4	hexamethylene diacrylate; hexane-1,6-diol diacrylate			
	OECD 310	60 - 70 %	28	Manufacturer
	Readily biodegradable (according to OECD criteria).			
75980-60-8	diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide			
	Biodegradation, Water	0 - 10 %	28	Manufacturer
	Poorly biodegradable.			

12.3 Bioaccumulative potential
The product has not been tested.

Partition coefficient n-octanol/water

CAS No	Chemical name	Log Pow
13048-33-4	hexamethylene diacrylate; hexane-1,6-diol diacrylate	2,81
75980-60-8	diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide	3,1

BCF

CAS No	Chemical name	BCF	Species	Source
75980-60-8	diphenyl(2,4,6-trimethylbenzoyl) phosphine oxide	47 - 55	Cyprinus carpio (Common Carp) fish	Manufacturer

12.4 Mobility in soil
The product has not been tested.

12.5 Results of PBT and vPvB assessment
The substances in the mixture do not meet the PBT/vPvB criteria according to UK REACH.

12.6 Endocrine disrupting properties
This product does not contain a substance that has endocrine disrupting properties with respect to non-target organisms as no components meets the criteria.

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.

13: Disposal considerations

13.1 Waste treatment methods

Disposal recommendations

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.

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 No:	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
Excepted quantity:	E1
IATA-packing instructions - Passenger:	964
IATA-max. quantity - Passenger:	450 L
IATA-packing instructions - Cargo:	964
IATA-max. quantity - Cargo:	450 L

14.5 Environmental hazards
ENVIRONMENTALLY HAZARDOUS: Yes

Danger releasing substance: hexamethylene diacrylate; hexane-1,6-diol diacrylate; pentaerythritol tetraacrylate

14.6 Special precautions for user
No information available.

14.7 Maritime transport in bulk according to IMO instruments
Not applicable

15. Regulatory information

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

EU regulatoryinformation

Restrictions on use (REACH, annex XVII):	Entry 3, Entry 75
Information according to 2012/18/EU (SEVESO III):	E1 Hazardous to the Aquatic Environment

National regulatory information

Employment restrictions:	Observe restrictions to employment for juveniles according to the 'juvenile work protection guideline' (94/33/EC).
Water hazard class (D):	3 - highly hazardous to water

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

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 sur le transport 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 (Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures)
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
For abbreviations and acronyms, see table at http://abbrev.esdscom.eu

Classification for mixtures and used evaluation method according to GB CLP Regulation

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.

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

(The data for the hazardous ingredients were taken respectivelyfrom the last version oft he sub-contractor's safety data sheet.)