Safety Data Sheet

according to Regulation (EC) No 1907/2006 and 1272/2008,
Hazard Communication Standard 29 CFR 1910 (USA),
WHS Regulations Australia,
JIS Z 7253 (2012) Japan

Figure 4™ TOUGH-GRY 10

Revision Date: July 29, 2019

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

1.1 Identification of the mixture: **Figure 4 TOUGH-GRY 10**

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

1.3 Company/undertaking identification:

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2. HAZARDS IDENTIFICATION

2.1 Classification:
GHS : Regulation (EC) No. 1272/2008, HazCom 2012, Australian Dangerous Goods Code:

Skin irritation	Category 2	H315
Skin Sensitization	Category 1	H317
Serious Eye Irritation	Category 2	H319
Specific Target Organ Toxicity- single exposure	Category 3	H335
Aquatic environment- acute hazard	Category 1	H400
Aquatic environment-long term hazard	Category 2	H411

Regulation (EC) 67/548/EEC and 1999/45/EC:

2.2 Label Elements

Regulation (EC) No, 1272/2008:

Hazard pictograms and signal word:

GHS07 **GHS09**

Signal word: Warning

Hazard determining components of labelling: Isobornyl acrylate

Hazard statements:

H315: Causes skin irritation
H317: May cause an allergic skin reaction
H319: Causes serious eye irritation
H335: May cause respiratory irritation
H400: Very toxic to aquatic life
H411: Toxic to aquatic life with long lasting effects

Precautionary statements:

P261:	Avoid breathing 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
P305+351+338:	If in eyes, rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing
P333+P313:	If skin irritation or rush occurs: Get medical advice/attention
P362:	Take off contaminated clothing and wash before reuse
P410+403:	Protect from sunlight. Store in a well-ventilated place
P501:	Dispose of contents/container in accordance with local/regional regulations

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
Isobornyl acrylate	5888-33-5	227-561-6	40-50	Eye Irrit. 2, H319 Skin Sens. 1, H317 Skin Irrit.2, H 315 STOT SE 3, H335 Aqu. Acute 1, H400 Aqu. Chron.2, H411
Phenylbis (2,4,6-trimethyl benzoyl)-phosphine oxide	162881-26-7	423-340-5	1-5	Skin Sens. 1, H317 Aqu. Chron. 4, H413
2-Propenoic acid, 2-phenoxyethyl ester	48145-04-6	256-360-6	3-8	Skin Sens. 1, H317 Aqu. Chron.2, H411

4. FIRST AID MEASURES

4.1 General Information: Ensure that eyewash stations and safety showers are close to the workstation location.

4.2 In case of inhalation: May cause respiratory irritation. Move affected person to fresh air. If respiratory irritation occurs, if breathing becomes diffic00'pult seek medical attention immediately.

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, drink plenty of water and 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: Water mist, dry chemical, carbon dioxide, or appropriate foam.

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 CO_2, CO, NO_x and smoke.

5.4 Special protective equipment for fire-fighters: Wear full protective clothing, including helmet, self-contained positive-pressure or pressure demand breathing apparatus, protective clothing and facemask.

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.

6.2 Environmental precautions: Stop the flow of material, if this is without risk. Ventilate contaminated area. Eliminate sources of ignition. In case of contamination of aquatic environment inform local authorities.

6.3 Methods for cleaning up: Wear appropriate protective equipment and clothing. Absorb spillage with suitable absorbent materials. Place all waste in an appropriate container for disposal. The material and its container must be disposed of as hazardous waste. Keep away from sources of ignition.

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. Storage Temperature: below 35 °C / 95 °F. Storage class 10, environmentally hazardous liquids.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Exposure limit values:
General Product Information: No occupational exposure limits (PEL/TWA) have been established for this product.

8.2 Exposure controls
Technical measures to prevent exposure: Use local exhaust ventilation.
Instructual 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 respiratory protection must be provided (e.g. 3M 6000 with organic vapor cartridge A2 or half mask 3M 4251).
Hand protection: Use impervious nitrile gloves.
Eye protection: Wear safety glasses or chemical goggles.
Body protection: Use apron and closed shoes.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Appearance:
Physical state: liquid
Colour:
Odour: Mild

9.2 Important health, safety and environmental information

pH (20 °C):	NA
Melting point/range (°C):	NA
Boiling point/range (°C):	288
Flash point (°C):	94 °C (Pensky Martens closed cup)
Ignition temperature (°C):	NA
Vapour pressure (mm Hg):	~4.6 @ 21 °C
Density (g/cm3):	1.1
Bulk density (kg/m3):	NA
Water solubility (20°C in g/l):	insoluble
Partition coefficient:	NA
n-Octanol/Water (log Po/w):	NA
Viscosity, dynamic (mPa s):	~350 @ 30 °C
Dust explosion hazard:	NA
Explosion limits:	NA

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: 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 Toxicokinetics, metabolism and distribution: NA

11.2 Acute effects (toxicity tests)

Component	LD_{50} Oral	LD_{50} Dermal	LC50 (Inhalation)
Isobornyl acrylate	4890 mg/kg (rat)	5g/kg (rabbit)	

Irritation to respiratory tract: irritating
Skin irritation: irritating
Eye irritation: irritating
Sensitisation: causes sensitisation

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.

12. Ecological information

12.1 Ecotoxicity: The aquatic toxicity of the product is unknown; however based on components, it is predicted that this material may be harmful to aquatic organisms or cause long-term adverse effects in the aquatic environment. Prevent contamination of soil, drains and surface waters.

Component	Data
Isobornyl acrylate	EC50 (48)- h 1 mg/l 72 h ErC50 - 1.98 mg/l
2-Propenoic acid, 2-phenoxyethyl ester	EC50 (48h)- 1.2 mg/l (daphnia magna)

12.2 Mobility: No information available for product.

12.3 Persistence and degradability: No information available for product.

12.4 Results of PBT assessment: No information available for product

12.5 Other adverse effects: No information available for product

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: 070208

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.

14. TRANSPORT INFORMATION

14.1 Land transport (ADR/RID/GGVSE):
Official transport designation: Environmentally hazardous substance, liquid N.O.S.
UN-No.: 3082
Class: 9
Classification Code: M6
Packing group: III
Hazard label: 9
Risk No: 90
Tunnel restriction code: 3 (E)
Marine polluant : yes
Contains: Acrylates

14.2 Sea transport (IMDG-Code/GGVSee):
Official transport designation: Environmentally hazardous substance, liquid N.O.S.
UN-No.: 3082
Class: 9
Packing group: III
Hazard label: 9
Marine polluant : yes
Contains. Acrylates

14.3 Air transport (ICAO-IATA/DGR):
Official transport designation: Environmentally hazardous substance, liquid N.O.S.
UN-No.: 3082
Class: 9
Packing group: III
Hazard label: 9
Contains. Acrylates

15. REGULATORY INFORMATION

15.1 EU regulations
EINEC/ELINCS/NLP: All materials are listed.
REACH Annex XVII: None listed

15.2 National EU regulations
Wassergefährdungsklasse (water hazard class, Germany): WGK 2: Hazard to waters

15.3 US FEDERAL
TSCA: All materials are listed on the TSCA Inventory or are not subject to TSCA requirements
SARA 302 EHS List (40 CFR 355 Appendix A): None listed
SARA 313 (40 CFR 372.65): None listed
CERCLA (40 CFR 302.4): None listed

15.4 Australian regulations
SUSDP, Industrial Chemicals Act 1989:
Australian Inventory of Chemical Substances, AICS: All chemicals are listed

15.5 Japanese regulations

Chemical Risk Information platform (CHRIP)	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):
Skin irrit. 2, H 315- Skin irritation, category 2, H315: Causes skin irritation
Skin sens. 1, H 317- Skin sensitization, category 1, H317: May cause an allergic skin reaction
Eye Irrit. 2, H319 - Eye irritation, category 2, H319: Causes serious eye irritation
STOT SE 3, H335- Specific target organ toxicity, category 3, H 335: May cause respiratory irritation
Aqu. Acute 1, H400- Aquatic environment- acute hazard, category 1, H400: Very toxic to aquatic life
Aqu.Chron. 2, H411- Aquatic environment – long-term hazard, category 2, H411: Toxic to aquatic life with long lasting effects
Aqu.Chron. 2, H413- Aquatic environment – long-term hazard, category 4, H413: May cause long lasting harmful effects in the aquatic life

16.2 Further information:
SDS Creation Date: .....February 4, 2018
SDS Revision #: .....-04-A
SDS Revision Date: .....July 29, 2019
Reason for Revision: .....update section 2, 3, 9, 15.

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