

Safety Data Sheet

Figure 4[®] Rigid White

Revision Date: March 1, 2021

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

1.1 Identification of the mixture: Figure 4 Rigid White

1.2 Use of the preparation: For 3D printing use in Figure 4[®] systems

1.3 Company/undertaking identification:

3D Systems, Inc.
333 Three D Systems Circle
Rock Hill, South Carolina U.S.A.
Phone: 803.326.3900 or
Toll-free Phone: 800.793.3669
e-mail: moreinfo@3dsystems.com

3D Systems Europe Ltd.
200 Maylands Avenue
Hemel Hempstead
Herts, HP2 7TG United Kingdom
Phone: +44 144-2282600
e-mail: moreinfo@3dsystems.com

3D Systems Asia-Pacific
30-32 Ceylon St
Nunawading VIC 3131
Australia
+61 3 9819 4422
e-mail: moreinfo@3dsystems.com

1.4. Emergency telephone number:

U.S.A.:
Chemical Emergency:
800.424.9300 – Chemtrec

Europe:
Chemical Emergency:
+1 703.527.3887 - Chemtrec

Australia:
Chemical Emergency:
+(61) 29037.2994 – Aus Chemtrec

2. HAZARDS IDENTIFICATION

2.1 Classification

GHS : Regulation (EC) No. 1272/2008, 29 CFR 1910

Physical Hazard:

None

Health Hazard:

Acute (oral) toxicity	Category 4	H302
Skin Sensitization	Category 1	H317
Serious Eye Damage/Eye Irritation	Category 1	H318
Reproductive Toxicity	Category 1B	H360
STOT Repeated Exposure	Category 2	H373

Environmental Hazard:

Aquatic environment – Chronic	Category 3	H412
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2.2 Label Elements

Regulation (EC) No, 1272/2008:

Hazard pictograms and signal word:



GHS07



GHS08



GHS05

Signal word: Danger

Hazard determining components of labelling:

2-Propen-1-one, 1-(4-morpholinyl); (3,3,5-trimethylcyclohexyl) prop-2-enoate; 2-Propenoic acid, 2-methyl-, (1R,2R,4R) -1,7,7-trimethylbicyclo [2.2.1]hept-2-yl ester, rel- ; Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide; 2-Propenoic acid, 2-phenoxyethyl ester

Hazard statements:

H302: Harmful if swallowed.

H312: Harmful to aquatic life with long-lasting effects.

H317: May cause an allergic skin reaction.

H318: Causes serious eye damage.

H360: May damage fertility or the unborn child.

H373: May cause damage to organs through prolonged or repeated exposure.

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Precautionary statements:

Prevention:

P201: Obtain special instructions before use.
 P202: Do not handle until all safety precautions have been read and understood.
 P260: Do not breathe dust/fume/gas/mist/vapors/spray.
 P264: Wash contaminated skin thoroughly after handling.
 P270: Do not eat, drink or smoke when using this product.
 P272: Contaminated work clothing should not be allowed out of the workplace.
 P273: Avoid release to the environment.
 P280: Wear protective gloves/protective clothing/eye protection/face protection.

Response:

P302 + P352: IF ON SKIN: Wash with plenty of soap and water
 P333 + P313: If skin irritation or rash occurs: Get medical advice/attention.
 P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P308 + P313: IF exposed or concerned: Get medical advice/attention.
 P310: Immediately call a POISON CENTER or doctor/physician.
 P301 + P312: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
 P321: Specific treatment (Wash contaminated skin with soap and water. Wash eyes with clean water for about 15 minutes).
 P362+P364: Take off contaminated clothing and wash before reuse.

Storage:

P405: Store locked up.

Disposal:

P501: Dispose of contents/container in accordance with local/state/regional regulations.

Supplementary information:

Storage: Protect from sunlight. Store in a well-ventilated place.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Chemical characterization:

Description: Organic mixture

3.2 Mixtures:

Chemical name	CAS-number	EC-number	%	Classification Regulation (EC) 1272/2008
2-Propen-1-one, 1-(4-morpholinyl)	5117-12-4	418-140-1	30 - 60	Acute Tox (oral) Cat 4 - H302 Eye Dam Cat 1 - H318 STOT re (Oral) Cat 2 - H373 Skin Sen Cat 1 - H317
(3,3,5-trimethylcyclohexyl) prop-2-enoate	86178-38-3	289-200-9	5 - 20	Skin Sen Cat 1 - H317 Aqu Chronic Cat 2 - H411 Aqu Acute Cat 1 - H400
2-Propenoic acid, 2-methyl-, (1R,2R,4R) - 1,7,7-trimethylbicyclo [2.2.1]hept-2-yl ester, rel-	7534-94-3	231-403-1	5 -20	Skin Cor Cat 2 - H315 Eye Irri Cat 2 - H319 STOT SE Cat 3 - H335 Aqu Chro Cat 3 - H412
Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide	75980-60-8	278-355-8	0.1-1	Repro Tox Cat 1B - H360 Skin Sens Cat 1 - H317 Aqu Chronic Cat 2 - H411
2-Propenoic acid, 2-phenoxyethyl ester	48145-04-6	256-360-6	1-5	Skin Sens Cat 1 - H317 Aqu Chronic Cat 2 - H411 Repro Tox Cat 2 - H361

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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 difficult 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 CO₂, 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 to minimise exposure. Use of certified respirators and chemical resistant gloves are required to avoid exposure to any unreacted materials during spill clean-up (in accordance with 29 CFR 1910.134, use of a National Institute for Occupational Safety and Health (NIOSH) certified respirator with an Assigned Protection Factor (APF) of 50).

Absorb spillage with suitable absorbent materials. Place all waste in an appropriate air tight bags or containers 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.

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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 only with 3D Systems Figure 4 systems with installed and fully functional carbon filtration systems. Uncured parts should be transported in closed containers.

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: Recommend users establish appropriate engineering control measures, including but not limited to local exhaust ventilation, in rooms/areas where printers are installed and in post-processing areas, to minimize inhalation exposure. In cases where engineering controls do not mitigate exposure to vapors, a respirator with APF 50 should be worn in accordance with 29 CFR 1910.134.

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: white

Odour: mild acrylate

9.2 Important health, safety and environmental information

pH (20 °C):	NA
Melting point/range (°C):	NA
Boiling point/range (°C):	NA
Flash point (°C):	103 (Pensky-Martens closed cup)
Ignition temperature (°C):	NA
Vapour pressure (°C):	NA
Density (g/cm³):	NA
Bulk density (kg/m³):	NA
Water solubility (20°C in g/l):	NA
Partition coefficient:	NA
n-Octanol/Water (log Po/w):	NA
Viscosity, dynamic (mPa s):	~250 (@ 25 °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

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11.2 Acute effects (toxicity tests) – Formulation has not been tested

Acute toxicity of the components:

- Irritation to skin and eye
- Causes sensitisation
- Corrosive to skin and eye
- May be harmful if swallowed
- Causes serious eye damage
- May cause damage to organs through prolonged or repeated exposure
- Suspected of damaging fertility or the unborn child

11.3 Chronic effects: This product contains a substance [2-Propen-1-one, 1-(4-morpholinyl)] which according to the US EPA may cause internal organ effects and reproductive effects.

11.4 Experiences made in practice: Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

11.5 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.

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): Not Regulated

14.2 Sea transport (IMDG-Code/GGVSee): Not Regulated

14.3 Air transport (ICAO-IATA/DGR): Not Regulated

14.4 DOT: Not Regulated

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15. REGULATORY INFORMATION

15.1. European Union Regulations:

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

Persistent Organic Pollutants

Not applicable

Ozone-depleting substances (ODS) regulation (EC) 1005/2009

Not applicable

Authorisations and/or restrictions on use:

This product does not contain substances subject to authorization (Regulation (EC) No. 1907/2006 (REACH), Annex XIV) This product does not contain substances subject to restriction (Regulation (EC) No. 1907/2006 (REACH), Annex XVII)

Other EU regulations

Directive 2012/18/EU on major accident hazards involving dangerous substances, as amended.

Not listed

National regulations:

German Water Hazard Class (WGK): WGK2 (hazard to waters)

15.2. Chemical safety assessment

Chemical Safety Report - No information available

15.3 US FEDERAL

TSCA: All components listed or exempt from listing

TSCA - 5(a) Significant New Use Rule List of Chemicals: Contains 2-Propen-1-one, 1-(4-morpholinyl)- (CAS 5117-12-4) subjected to TSCA §5(a)(2) Significant New Use Rule at 40 CFR § 721.5185.

TSCA – Section 5(e) Consent Order: This product contain 2-Propen-1-one, 1-(4-morpholinyl) subjected to TSCA section 5(e) consent order. Use only in 3D Systems Figure 4 stereolithographic printing applications; Do not release to waters; Avoid direct skin and inhalation exposure to the raw material.

US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpart D): This product contain 2-Propen-1-one, 1-(4-morpholinyl) (CAS 5117-12-4) subjected to Toxic Substances Control Act Section 12(b) Export Notification.

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

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 International regulations: All chemical substances in this product are listed according to chemical regulations in Australia, Canada, China, European Union, Japan, South Korea, New Zealand, Taiwan, Switzerland and USA.

This product may contain substances NOT registered according to chemical regulations in the Philippines.

Stockholm Convention: Not applicable

Rotterdam Convention: Not applicable

Montreal Protocol: Not applicable

Kyoto protocol: Not applicable

Basel Convention: Not applicable

15.5 Malaysia regulations

Active Ingredients of Pesticide Product (Pesticide Act 1974, First Schedule, as amended through October 1, 2004): Not regulated.

CWC (Chemical Weapons Convention) Act 2005, Schedules 1-3, as amended through CWC Regulations 2007, October 5, 2007): Not regulated.

Ozone Depleting Substances (ODS) (Environmental Quality (Prohibition on the Use of CFC and Other Gases as Propellants and Blowing Agents) Order 1993, Dec. 31, 1993): Not regulated.

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Prohibited Use of Substances [Occupational Safety and Health (Prohibition of Use of Substance) Order 1999]: Not regulated.

Other information

Ordinance of the Minister of Labour and Social Policy of 06 June 2014 concerning maximum permissible concentrations and intensities of agents harmful to health in a work environment (Journal of Laws 2014 item 817).

15.6 Singapore regulations

Controlled Narcotic Drugs (Misuse of Drugs Act, First Schedule, Part I, II & III): Not regulated.

Controlled Specified Drugs (Misuse of Drugs Act, Fourth Schedule): Not regulated.

Prior Informed Consent (PIC) Substances (Environment Protection and Management Act, 2nd Schedule, Part 1, Jul. 1, 2013): Not regulated.

15.7 South Korea regulations

All chemical ingredients in this formulation are registered or exempt from registration under South Korean chemical regulations.

A. Restrictions under the Industrial Safety and Health Law

Harmful Substances Requiring Permission for Manufacture or Use: Not regulated.

Controlled Hazardous Substances: Not regulated.

Harmful Substances Requiring Special Medical Examination: Not regulated.

Workplace Environmental Monitoring Harmful Materials: Not regulated.

Occupational Exposure Limit: Not regulated.

B. Restrictions under the Chemicals Control Law (Previously Toxic Chemicals Control Law)

Accidental Release Prevention Substances: Not regulated.

Observational Chemicals: Not regulated.

C. Restrictions under the Dangerous Substance Safety Management Act

Not regulated

D. Restrictions under the Wastes Control Act

Halogenated Materials in Waste Organic Solvents: Not regulated.

Hazardous Substances: Not regulated.

E. Restrictions under other foreign or domestic laws

Clean Air Conservation Act

Air Pollutants: Not regulated.

Specific Air Pollutants: Not regulated.

Act on the Registration and Evaluation of Chemicals

Banned Toxic Chemicals: Not regulated.

Designated Existing Chemicals Subject to Registration (PEC) (MoE No. 2015-92): Not listed.

Restricted Chemical Substances: Not regulated.

Toxic Chemicals: Not regulated

15.8 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.

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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):

H317: May cause an allergic skin reaction
H318: Causes serious eye damage
H302: Harmful if swallowed Causes serious eye damage
H312: Harmful in contact with skin
H373: May cause damage to organs through prolonged or repeated exposure
H411: Toxic to aquatic life with long-lasting effects
H412: Harmful to aquatic life with long-lasting effects
H315: Causes skin irritation
H361: Suspected of damaging fertility or the unborn child
H400: Very toxic to aquatic life

16.2 Further information:

SDS Creation Date: January 27, 2020
SDS Revision #: -03-A
SDS Revision Date: March 1, 2021
Reason for Revision: Update section 6, 8, 15.

www.3dsystems.com

800.793.3669 (Toll-free in the US GMT-07:00; N. America, Mon – Fri, 6:00 a.m. to 6 p.m.)

803.326.3900 (Outside the U.S. GMT-07:00; N. America, Mon – Fri, 6:00 a.m. to 6 p.m.)

+44 144-2282600 (Europe GMT+01:00; Mon – Fri, 08:00 a.m. - 17:00 p.m. MEZ)

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