

Safety Data Sheet

Figure 4™ FLEX-BLK 20

Revision Date: November 8, 2019

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

1.1 Identification of the mixture: Figure 4 FLEX-BLK 20

1.2 Use of the preparation: For 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
Chemical Emergency:
800.424.9300 – Chemtrec

3D Systems Europe Ltd.
Mark House, Mark Road
Hemel Hempstead
Herts HP2 7 United Kingdom
Phone: +44 144-2282600
e-mail: moreinfo@3dsystems.com
Chemical Emergency:
+1 703.527.3887 - Chemtrec

3D Systems / Australia
5 Lynch Street
Hawthorn, VIC 3122
+1 03 9819-4422
e-mail: moreinfo@3dsystems.com
Chemical Emergency:
+(61) 29037.2994 – Aus Chemtrec

2. HAZARDS IDENTIFICATION

2.1 Classification

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

Physical Hazard:

None

Health Hazard:

Skin Corrosion/Irritation	Category 2	H315
Serious Eye Damage/Eye Irritation	Category 2	H319
Skin Sensitization	Category 1	H317
Reproductive Toxicity	Category 2	H361

Environmental Hazard:

Chronic Aquatic Toxicity	Category 2	H411
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2.2 Label Elements

Regulation (EC) No, 1272/2008:

Hazard pictograms and signal word:



GHS07



GHS08



GHS09

Signal word: Danger

Hazard determining components of labelling:

2-Propenoic acid, (5-ethyl-1,3-dioxan-5yl)methyl ester; Propeonic acid acrylate ester; Phosphine oxide, phenylbis(2,4,6-trimethylbenzoyl); 2-Propenoic acid, 2-phenoxyethyl ester; Bis(1,2,2,6,6-pentamethyl-4-piperidyl) sebacate

Hazard statements:

H302: Harmful if swallowed

H317: May cause an allergic skin reaction

H318: Causes serious eye damage

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

H412: Harmful to aquatic life with long-lasting effect

Safety Data Sheet

Figure 4™ FLEX-BLK 20

Revision Date: November 8, 2019

Precautionary statements:

Prevention:

P260: Do not breathe dust/fume/gas/mist/vapors/spray.
P272: Contaminated work clothing should not be allowed out of the workplace.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P264: Wash contaminated skin thoroughly after handling.
P270: Do not eat, drink or smoke when using this product.
P273: Avoid release to the environment.

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.
P362: Take off contaminated clothing and wash before reuse
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.

Storage:

P410 + P403: Protect from sunlight. Store in a well-ventilated place.

Disposal:

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

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Chemical characterization:

Description: Organic mixture

3.2 Dangerous components:

Chemical name	CAS-number	EC-number	%	Classification Regulation (EC) 1272/2008
2-Propenoic acid, (5-ethyl-1,3-dioxan-5-yl)methyl ester	66492-51-1	266-380-7	20-50	Skin Corrosion/Irritation Category 2 - H315 Skin Sensitization Category 1 - H317 Aquatic Chronic Category 2 - H411
Propeonic acid acrylate ester	Trade Secret	Trade Secret	15 -30	Serious Eye Damage/Eye Irritation Category 2 - H319 Skin Corrosion/Irritation Category 2 - H315
Phosphine oxide, phenylbis(2,4,6-trimethylbenzoyl)	162881-26-7	423-340-5	1-10	Skin Sensitization Category 1 - H317 Aquatic Chronic Category 4 - H413
2-Propenoic acid, 2-phenoxyethyl ester	48145-04-6	256-360-6	1-10	Reproductive Toxicity Category 2 - H361 Skin Sensitization Category 1 - H317 Aquatic Chronic Category 2 - H411
Bis(1,2,2,6,6-pentamethyl-4-piperidyl) sebacate	41556-26-7	255-437-1	1-10	Skin Sensitization Category 1 - H317 Aquatic Acute Category 1 - H400 Aquatic Chronic Category 1 - H410

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.

Safety Data Sheet

Figure 4™ FLEX-BLK 20

Revision Date: November 8, 2019

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. 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.

8.1 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 machines that have exhaust ventilation capability.

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.

Safety Data Sheet

Figure 4™ FLEX-BLK 20

Revision Date: November 8, 2019

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Appearance:

Physical state: liquid

Colour: black

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):	128.5
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):	~2250 (@ 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

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

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.

12.2 Mobility: No information available for product.

12.3 Persistence and degradability: No information available for product.

Safety Data Sheet

Figure 4™ FLEX-BLK 20

Revision Date: November 8, 2019

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

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.

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.

UN-No.: 3082

Class: 9

Packing group: III

Contains: Acrylates

14.4 DOT:

Official transport designation: Environmentally hazardous substance, liquid N.O.S.

UN-No.: 3082

Class: 9

Packing group: III

Contains: Acrylates

15. REGULATORY INFORMATION

15.1 EU regulations

EINEC/ELINCS/NLP and Switzerland: All the chemical substance are listed or exempt from registration.

REACH Annex XVII: None listed

15.2 EU National regulations

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

Safety Data Sheet

Figure 4™ FLEX-BLK 20

Revision Date: November 8, 2019

15.3 US FEDERAL

TSCA: All components listed or exempt from listing.

One of the components does not appear on the TSCA Inventory because it is manufactured and processed under a Low Volume Exemption (LVE) to the Premanufacture Notification process. There are maximum amounts of this material that may be manufactured. This material is available for commercial use ONLY as a monomer in UV curable inks. Do not release to the environment, use safety precautions to minimize skin and inhalation exposure.

TSCA - 5(a) Significant New Use Rule List of Chemicals: None

US. Toxic Substances Control Act (TSCA) Section 12(b): None

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 components of this product are registered or exempt from registration according to chemical regulations in China and Taiwan.

There may be substances not registered in Australia, Canada, Japan, South Korea, New Zealand, and Philippines.

15.5 Japanese regulations

Chemical Risk Information platform (CHRIP)	not applicable
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):

H315: Causes skin irritation
H317: May cause an allergic skin reaction
H319: Causes Serious Eye Irritation
H361: Suspected of damaging fertility or the unborn child
H400: Very toxic to aquatic life
H410: Very toxic to aquatic life with long-lasting effects
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: September 28, 2018

SDS Revision #: -03-A

SDS Revision Date: November 8, 2019

Reason for Revision: Update section 1, 9.

Safety Data Sheet

Figure 4™ FLEX-BLK 20

Revision Date: November 8, 2019

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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