

## Safety Data Sheet

### Figure 4<sup>®</sup> FLEX-BLK 20

Revision Date: January 19, 2022

#### 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<sup>®</sup> 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:**

Skin Corrosion/Irritation	Category 2	H315
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: Warning**

**Hazard determining components of labelling:**

2-Propenoic acid, (5-ethyl-1,3-dioxan-5yl)methyl 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:**

H315: Causes skin irritation

H317: May cause an allergic skin reaction

H361: Suspected of damaging fertility or the unborn child

H411: Toxic to aquatic life with long-lasting effects

## Safety Data Sheet

### Figure 4<sup>®</sup> FLEX-BLK 20

Revision Date: January 19, 2022

#### Precautionary statements:

##### Prevention:

P203: Obtain, read and follow all safety instructions before use.  
 P261: Avoid breathing dust/fume/gas/mist/vapours/spray.  
 P264: Wash contaminated skin thoroughly after handling.  
 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 water.  
 P318: IF exposed or concerned, get medical advice.  
 P321: Specific treatment: Wash contaminated skin with soap and water. Wash eyes with clean water for about 15 minutes.  
 P332 + P317: If skin irritation occurs: Get medical help.  
 P333 + P317: If skin irritation or rash occurs: Get medical help.  
 P362 + P364: Take off contaminated clothing and wash it before reuse.  
 P391: Collect spillage.

##### Storage:

P405: Store locked up.

##### Disposal:

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

#### Supplementary information:

**Safety:** Protect from sunlight. Store in a well-ventilated place. Do not eat, drink or smoke when using this product.

### 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-Propenoic acid, (5-ethyl-1,3-dioxan-5-yl)methyl ester	66492-51-1	266-380-7	20-50	Skin Corr/Irrit Cat 2 - H315 Skin Sens Cat 1 - H317 Aquatic Chronic Category 2 - H411
2-propenoic acid, 2-methyl-, (2-oxo-1,3-dioxolan-4-yl)methyl ester	13818-44-5	604-066-7	15 -30	Acute Toxicity (oral) Category 4 - H302
Phosphine oxide, phenylbis(2,4,6-trimethylbenzoyl)	162881-26-7	423-340-5	1-10	Skin Sensation Cat 1 - H317 Aqu Chronic Cat 4 - H413
2-Propenoic acid, 2-phenoxyethyl ester	48145-04-6	256-360-6	1-10	Repro Tox Cat 2 - H361 Skin Sens Cat 1 - H317 Aqu Chronic Cat 2 - H411
Bis(1,2,2,6,6-pentamethyl-4-piperidyl) sebacate	Proprietary	Proprietary	1-5	Skin Sens Cat 1 - H317 Aqua Acute Cat 1 - H400 Aqua Chronic Cat 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.

## Safety Data Sheet

### Figure 4<sup>®</sup> FLEX-BLK 20

Revision Date: January 19, 2022

---

**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.

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#### 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<sub>2</sub>, CO, NO<sub>x</sub> 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.

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#### 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.

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#### 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 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.

## Safety Data Sheet

### Figure 4<sup>®</sup> FLEX-BLK 20

Revision Date: January 19, 2022

**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

<b>Appearance</b>	-
<b>Physical state</b>	Liquid
<b>Form</b>	Not available
<b>Color</b>	Black
<b>Odor</b>	Mild acrylate
<b>Odor threshold</b>	Not available
<b>pH</b>	Not available
<b>Melting point/freezing point (°C)</b>	Not available
<b>Initial boiling point and boiling range (°C)</b>	Not available
<b>Flash point (°C)</b>	128.5 (Pensky Martens Closed Cup)
<b>Evaporation rate</b>	Not available
<b>Flammability (solid, gas)</b>	Not available
<b>Relative density (g/cm<sup>3</sup>)</b>	Not available
<b>Upper/lower flammability or explosive limits</b>	-
<b>Flammability limit - lower (%)</b>	Not available
<b>Flammability limit - upper (%)</b>	Not available
<b>Explosive limit - lower (%)</b>	Not available
<b>Explosive limit - upper (%)</b>	Not available
<b>Vapor pressure</b>	Not available
<b>Vapor density</b>	Not available
<b>Solubility(ies)</b>	-
<b>Solubility (water)</b>	insoluble
<b>Partition coefficient (n-octanol/water)</b>	Not available
<b>Auto-ignition temperature</b>	Not available
<b>Decomposition temperature (°C)</b>	Not available
<b>Viscosity (cPs)</b>	~2250 (@ 25 °C)
<b>Other information</b>	-
<b>Oxidizing properties</b>	Not available
<b>VOC (g/L)</b>	Not available

#### 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.

**Storage Class:** 6.1B

## Safety Data Sheet

### Figure 4<sup>®</sup> FLEX-BLK 20

Revision Date: January 19, 2022

---

#### 11. TOXICOLOGICAL INFORMATION

**11.1 Toxicokinetics, metabolism and distribution:** NA

**11.2 Acute effects:** Formulation has not been tested.

**11.3 Chronic effects:** Formulation has not been tested.

**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.

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#### 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.

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#### 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.

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#### 14. TRANSPORT INFORMATION

##### 14.1 DOT:

UN-No.: 3082

UN Proper Shipping Name: Environmentally hazardous substance, liquid, n.o.s. (Acrylic polymers-other)

Transport hazard class(es):

Class: 9

Subsidiary risk: -

Packing group: III

Environmental Hazard:

Marine pollutant: Yes

Special Precautions for user: Not Available

##### 14.3 IATA:

UN-No.: 3082

UN Proper Shipping Name: Environmentally hazardous substance, liquid, n.o.s. (Acrylic polymers-other)

Transport hazard class(es): 9

Class: Not Available

Subsidiary risk: -

Packing group: III

Environmental Hazard: Yes

Special Precautions for user: Not Available

## Safety Data Sheet

### Figure 4<sup>®</sup> FLEX-BLK 20

Revision Date: January 19, 2022

---

#### 14.2 IMDG:

UN-No.: 3082  
UN Proper Shipping Name: Environmentally hazardous substance, liquid, n.o.s. (Acrylic polymers-other)  
Transport hazard class(es)  
Class: 9  
Subsidiary risk: -  
Packing group: III  
Environmental Hazard:  
Marine pollutant: Yes  
EmS : Not Available

#### 14.1 ADR:

UN-No.: 3082  
UN Proper Shipping Name: Environmentally hazardous substance, liquid, n.o.s. (Acrylic polymers-other)  
Transport hazard class(es)  
Class: 9  
Subsidiary risk: -  
Hazard No (ADR): Not available  
Tunnel restriction code : Not available  
Packing group: III  
Environmental Hazard: Yes  
Special Precautions for user: Not available

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## 15. REGULATORY INFORMATION

### 15.1. European Union Regulation:

**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 on Active TSCA Inventory or exempt from listing.

**TSCA - 5(a) Significant New Use Rule List of Chemicals:** Contain 2-propenoic acid, 2-methyl-, (2-oxo-1,3-dioxolan-4-yl)methyl ester (CAS 13818-44-5 ) subjected to TSCA §5(a)(2) Significant New Use Rule at EPA 40 CFR Part 721.11461.

**US. Toxic Substances Control Act (TSCA) Section 12(b):** Contains 2-propenoic acid, 2-methyl-, (2-oxo-1,3-dioxolan-4-yl)methyl ester.

**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

## Safety Data Sheet

### Figure 4<sup>®</sup> FLEX-BLK 20

Revision Date: January 19, 2022

California Prop. 65 Components: WARNING: This product can expose you to chemicals known to the State of California to cause birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

Chemical Name	CAS Number
Toluene	108-88-3

**15.4 International regulations:** All components of this product are registered or exempt from registration according to chemical regulations in Australia, Canada, China, European Union, New Zealand, Switzerland, Taiwan and United States.

There may be substances not registered in Japan, South Korea and Philippines.

**Stockholm Convention:** Not applicable

**Rotterdam Convention:** Not applicable

**Montreal Protocol:** Not applicable

**Kyoto protocol:** Not applicable

**Basel Convention:** Not applicable

#### 15.5 Canadian regulations

**Controlled Drugs and Substances Act**

Not regulated.

**Export Control List (CEPA 1999, Schedule 3)**

Not listed.

**Greenhouse Gases**

Not listed.

**Precursor Control Regulations**

Not regulated.

#### 15.6 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.

**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).

#### 15.7 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.

#### 15.8 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.

## Safety Data Sheet

### Figure 4<sup>®</sup> FLEX-BLK 20

Revision Date: January 19, 2022

---

**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

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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):**

H302: Harmful if swallowed

H315: Causes skin irritation

H317: May cause an allergic skin reaction

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 #: .....-06-A

SDS Revision Date: ..... January 19, 2022

Reason for Revision: ..... Update section 15.

[www.3dsystems.com](http://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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