

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

StrengthMax / Z-Max 90 Resin

Revision Date: June 25, 2018

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

1.1 Identification of the mixture: **StrengthMax / Z-Max 90 Resin**

1.2 Use of the preparation: An infiltration resin used to strengthen parts made with ZPrinter 3D printers and ProJet® x60 3D printers.

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:

Eye Irritation	Category 2	H319
Skin Irritation	Category 2	H315
Skin sensitization	Category 1	H317
Aquatic Chronic	Category 2	H411

2.2 Label Elements

Regulation (EC) No, 1272/2008:

Hazard pictograms and signal word:



GHS07



GHS09

Signal word: Warning

Hazard statements:

H319: Causes serious eye irritation

H315: Causes skin irritation

H317: May cause an allergic skin reaction

H411: Toxic to aquatic life with long lasting effects

Hazard determining components of labelling: bisphenol F-epichlorohydrine

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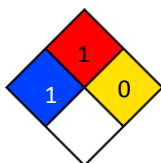
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Precautionary statements:

P280: Wear protective gloves/protective clothing/eye protection/face protection
P302+352: IF ON SKIN: Wash with plenty of 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+313: If skin irritation or rash occurs: Get medical advice/attention.
P337+313: If eye irritation persists: Get medical advice/attention.
P501: Dispose of contents/container in accordance with local/regional regulations



NFPA Ratings
0 = Minimal
1 = Slight
2 = Moderate
3 = Serious
4 = Severe

Hazardous Materials Identification System (HMIS):

(Degree of hazard: 0 = low, 4 = extreme);

Health **1**
Flammability **1**
Physical Hazards **0**

Personal Protective Equipment **B**

Skin, eye protection

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Chemical characterization: Organic mixture

3.2 Dangerous components:

Chemical name	CAS-No	EC-No	%	Classification
				Regulation (EC) 1272/2008
bisphenol-F-epichlorohydrine; epoxy resins (molecular weight ≤ 700)	9003-36-5	500-006-8	50-100	Eye Irrit.2, H319 Skin Irrit.2, H315, Skin Sens.1, H317 Aquat. Chron.2, H411
bisphenol A-epichlorohydrine; epoxy resins (molecular weight ≤ 700)	25068-38-6	500-033-5	25-50	Eye Irrit.2, H319 Skin Irrit.2, H315, Skin Sens.1, H317 Aquat. 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: 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: Immediately wash skin with soap and rinse with large amounts of water. Remove and wash contaminated clothing promptly. If symptoms persist, seek medical attention.

4.4 In case of eye contact: Immediately flush eyes with copious amounts of water for at least 15 minutes. Call physician if irritation continues.

4.5 In case of ingestion: Do not induce vomiting. Wash out mouth with water provided the person is conscious and seek medical attention.

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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 CO₂, CO 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.

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: Do not allow product to enter sewage systems, surface water or ground water.

6.3 Methods for cleaning up: Absorb product with liquid-binding material such as sand, universal binders, sawdust. Do not flush down drains. Place in closed containers. Ventilate area and wash spill site after material pickup is complete.

6.4 Waste Disposal Method: Follow safe solid waste disposal guidelines in accordance with federal, state and local regulations. National or regional provisions may also be in force. It is the responsibility of the generator to determine whether the material meets the criteria of a hazardous waste.

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.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Exposure limit values:

Component	Component Manufacturer IEL (Internal Exposure Limit)
bisphenol-F-epichlorohydrine; epoxy resins (molecular weight ≤ 700)	NA
bisphenol A-epichlorohydrine; epoxy resins (molecular weight ≤ 700)	NA

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).

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Hand protection: Use impervious Neoprene 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: Amber

Odour: Mild

9.2 Important health, safety and environmental information

pH (20 °C): NA
Melting point/range (°C): NA
Boiling point/range (°C): >200°C
Flash point (°C): 227°C
Ignition temperature (°C): >300°C
Vapour pressure (°C): NA
Density (g/cm³): 1.15 g/cm³
Bulk density (kg/m³): NA
Water solubility (20°C in g/l): Insoluble
Viscosity, dynamic (mPa s): NA
Dust explosion hazard: NA
Explosion limits: NA

10. STABILITY AND REACTIVITY

10.1 Conditions to avoid: Stable under recommended storage conditions.

10.2 Materials to avoid: Bases, amines, alcohols

10.3 Hazardous decomposition products: Irritant gases/vapors

10.4. Hazardous Polymerization: Exothermic polymerization may occur with amines and other bases

11. TOXICOLOGICAL INFORMATION

11.1 Toxicokinetics, metabolism and distribution: NA

11.2 Acute effects (toxicity tests)

Component	LD ₅₀ Oral	LD ₅₀ Dermal
bisphenol-F-epichlorohydrine; epoxy resins (molecular weight ≤ 700)	NA	NA
bisphenol A-epichlorohydrine; epoxy resin (molecular weight ≤ 700)	11400 mg/kg (rat)	>2000 mg/kg (rabbit)

Primary irritant effect: Corrosive to skin, eyes and mucous membranes.

Sensitization: May cause sensitization by skin contact.

Potential Human Health Effects: Irritating to skin and eyes. May cause sensitization by skin contact.

Target Organs or Systems: Skin and eyes.

Route of Exposure:

Skin Contact: Irritating to the skin. May cause sensitization.

Eye Contact: Irritating to the eyes.

Ingestion: May be harmful if ingested.

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Acute: Irritation to the skin and eyes.

Chronic: Skin: May cause sensitization from skin contact.

Carcinogens under OSHA, ACGIH, NTP, IARC, OTHER:

All ingredients in this product contain no carcinogens in concentrations of 0.1 percent or greater based on U.S. and European chemical data base information.

Potential Environmental Effects: Toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

12. Ecological information

12.1 Ecotoxicity: The aquatic toxicity of the product is unknown; the product is difficultly biodegradable.

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

13. DISPOSAL CONSIDERATIONS

13.1 Appropriate disposal / Product: As with all foreign substances do not allow to enter the storm or sewer drainage systems. Dispose of the product by burning in a suitable incinerator or bury in an approved land field following safe solid waste disposal guidelines in accordance with governmental regulations (community, national or regional). Contact a licensed professional waste disposal service to dispose of this product.

13.2 Waste codes / waste designations according to EWC / AVV

20 01 27 paint, inks, adhesives and resins containing dangerous substances

13.3 Additional information: Uncleaned Packaging: Recommend that empty containers not be disposed of unless any remaining material adhering to the internal walls has been removed.

14. TRANSPORT INFORMATION



Land transport ADR/RID (cross-border)

ADR/RID class: 9 (Miscellaneous dangerous substances and articles)

Danger code (Kemler): 90

UN-Number: 3082

Packaging group: III

Hazard label: 9

Description of goods: 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.

Maritime transport IMDG:

IMDG Class: 9

UN Number: 3082

Label: 9

Packaging group: III

EMS Number: F-A, S-F

Marine pollutant: No

Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.

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Air transport ICAO-TI and IATA-DGR:

ICAO/IATA Class: 9

UN/ID Number: 3082

Label: 9

Packaging group: III

Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.

15. REGULATORY INFORMATION

15.1 EU regulations

EINEC/ELINCS/NLP: All materials are listed

REACH Annex XVII: None listed

15.2 US FEDERAL

TSCA: All materials are listed on the TSCA Inventory and 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

15.3 Australian regulations

SUSDP, Industrial Chemicals Act 1989:

Australian Inventory of Chemical Substances, AICS: Listed

15.4 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	no listed components
Fire Services Act	Category 4, Class 4, 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):

Acute Tox.4, H312: Acute Toxicity, category 4, H 312: Harmful in contact with skin

Eye Irrit.2, H319: Eye Irritation, category 2, H 319: Causes serious eye irritation

Skin Irrit.2, H315: Skin Irritation, category 2, H 315: Causes skin irritation

Skin Sens.1, H317: Skin Sensitization, category 1, H 317: May cause an allergic skin reaction

Aquat. Chron.2, H411: Aquatic Chronic, category 2, H 411: Toxic to aquatic life with long lasting effects

16.2 Further information:

SDS Creation Date: March 20, 2013

SDS Revision #:-04-A

SDS Revision Date: June 25, 2018

Reason for Revision: Update section 2, 8, 15

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