Safety Data Sheet

according to Regulation (EC) No 1907/2006 (REACH),
GHS Rev 04 (2011): US, OSHA, CMA, ANSI
WHS Regulations Australia
JIS Z 7253 (2012): Japan

ColorBond / zbond® 90

Revision Date: July 8, 2014

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

1.1 Identification of the mixture: ColorBond / zbond® 90

1.2 Use of the preparation: For use with ZPrinter® 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
800.424.9300 - Chemtrec

3D Systems Europe Ltd.
Mark House, Mark Road
Hemel Hempstead
Herts HP2 7
United Kingdom
Phone: +44 144-2282600
703.527.3887 - Chemtrec (U.S.)

3D Systems / Australia
5 Lynch Street
Hawthorn, VIC 3122
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+(61) 290372994 - Chemtrec

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2. HAZARDS IDENTIFICATION

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

Skin corrosion/irritation	Category 2	H315
Serious eye damage/eye irritation	Category 2	H319
Specific target organ toxicity - Single exposure	Category 3 (respiratory irritation)	H335

Bonds skin and eyes in seconds. Highly reactive to water.

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

Xi, R 36/37/38,

2.2 Label Elements

Regulation (EC) No, 1272/2008:

Hazard pictograms and signal word:

GHS07

Signal word: Warning

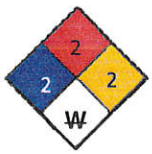
Hazard determining components of labelling: 2-Methoxyethyl-2-cyanoacrylate

Hazard statements:

H315:	Causes skin irritation
H319:	Causes serious eye irritation
H335:	May cause respiratory irritation
EUH202:	Cyanoacrylate. Danger. Bonds skin and eyes in seconds

Precautionary statements:

P261:	Avoid breathing mist/vapours/spray.
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. Immediately call a POISON CENTER or doctor/physician.
P333+313:	If skin irritation or rash occurs: Get medical advice/attention.
P337+313:	If eye irritation persists: Get medical advice/attention.



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	**2**
Flammability	**2**
Reactivity Hazard	**2**
Specific Hazard:	**No Water**

Personal Protection:
Skin, eye protection

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	Regulation 67/548/EEC, 1999/45/EC
2-Methoxyethyl-2-cyanoacrylate	27816-23-5	248-670-5	80-100	Skin Irrit 2, H315, Eye Irrit.2, H 319, STOT SE 3, H335	Xi R36/37/38

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: If bonding occurs, immerse the bonded surfaces in warm soapy water. Peel or roll the surfaces apart using a blunt edge, such as a spatula or spoon handle. Do not pull surfaces apart with a direct opposing action. If burns occur, treat as thermal burns. Get medical attention, if needed.

4.4 In case of eye contact: If bonding to tissues occurs, wash with large amounts of warm water. Cover both eyes with sterile, dry bandages. The eye will open without further action. Do not pull surfaces apart with a direct opposing action. If burns occur, treat as thermal burns. Get medical attention.

4.5 In case of ingestion: It is almost impossible to swallow cyanoacrylates. The adhesive solidifies and adheres in the mouth. Saliva will lift it in ½ to 2 days. In case a lump forms in the mouth, position the patient to prevent ingestion of the lump when it detaches.

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.

NOTE TO PHYSICIAN: Mineral oil, vegetable oil, or petroleum jelly may help soften the bonding between skin surfaces. For skin contact, consider acetone or nitromethane.

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. Flood with water to polymerize cyanoacrylate and to control product vapors. Soak up with an inert adsorbent or scrape up cured product. 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. Storage Temperature: 2 to 8°C.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Exposure limit values:

Component	Component Manufacturer IEL (Internal Exposure Limit)
2-Methoxyethyl-2-cyanoacrylate	0.2 ppm TWA, 1.5 mg/m3 STEL

8.2 Exposure controls

Technical measures to prevent exposure: Use explosion-proof 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 (respirator FFP3).
Hand protection: Use impervious nitrile gloves. Polyethylene or Polypropylene gloves are recommended when large quantities are used. Do not use PVC, rubber or nylon 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: clear
Odour: slight

9.2 Important health, safety and environmental information

pH (20 °C):	NA
Melting point/range (°C):	NA
Boiling point/range (°C):	150°C
Flash point (°C):	85 (closed cup)
Ignition temperature (°C):	NA
Vapour pressure (°C):	0.293 mbar
Density (g/cm3):	1.04 g/cm^3
Bulk density (kg/m3):	NA
Water solubility (20°C in g/l):	Polymerization in contact with water
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: Rapid exothermic polymerization will occur in the presence of water, amines, alkalis and alcohols.

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
2-Methoxyethyl-2-cyanoacrylate	>5000 mg/kg (rat)	>2000 mg/kg (rabbit)

Irritant and corrosive effects: Irritating to the skin. Bonds skin in seconds.

Irritation to respiratory tract: Irritating to respiratory system. Prolonged exposure to high concentrations of vapors may lead to chronic effects in sensitive individuals. In dry atmosphere with < 50% humidity, vapors may irritate eyes and respiratory system.

Irritation to eyes: This product is an irritant to eyes. Liquid product will bond eyelids. In dry atmosphere (rel. Hum. < 50%) vapors may cause irritation and lachrymatory effect.

12. Ecological information

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

12.2 Mobility: Cured adhesives are immobile.

12.3 Persistence and degradability: Biodegradable

12.4 Results of PBT assessment: This substance is not identified as a PBT substance.

12.5 Other adverse effects: No information available for product

13. DISPOSAL CONSIDERATIONS

13.1 Appropriate disposal / Product: Polymerize by slowly adding water (1:10). Dispose of as water-insoluble, non-toxic, solid chemical product in suitable landfills or burn under controlled conditions.

13.2 Waste codes / waste designations according to EWC / AVV: 080409 Adhesive or sealing agent that may contain organic solvents or other dangerous products.

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 U.S. Department of transportation Ground (49CFR): Not regulated

14.3 Sea transport (IMDG-Code/GGVSee): Not regulated

14.4 Air transport (ICAO-IATA/DGR):
Official transport designation: Aviation regulated liquid, liquid N.O.S. (Cyanoacrylate ester)
UN-No.: 3334
Class: 9
Packing group: III
Hazard label: 9
Contains. Cyanoacrylate ester

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 or are not subject to TSCA requirements
SARA 302 and 313 Components:
California Proposition 65: This product does not contain chemicals which are known to the state of California to cause cancer, birth, or any other reproductive defects.

15.3 Australian regulations
SUSDP, Industrial Chemicals Act 1989:
Australian Inventory of Chemical Substances, AICS: Listed, Poisons schedule 5, class S5

15.4 Japanese regulations

Chemical Risk Information platform (CHRIP):	Listed
Industrial Health and Safety Law	chemical name: 2-Methoxyethyl-2-cyanoacrylate
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
Explosives Law	not applicable
High pressure gas safety law	not applicable
Export Trade Control Order	not applicable
Waste Disposal and Public Cleaning Law	applicable

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: Causes skin irritation
Eye Irrit. 2, H319- Eye irritation, category 2: Causes serious eye irritation
STOT SE 3, H335 -Specific target organ toxicity - Single exposure, category 3, may cause respiratory irritation

Relevant R-Phrases (number and full text) referred to in sections 2 and 3:
R36/37/38- Irritating to eyes, respiratory system and skin

16.2 Further information:
SDS Creation Date:.....March 10, 2013
SDS Revision #: .....-02-A
SDS Revision Date:.....July 8, 2014
Reason for Revision: .....Update of section 3, 14

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