

**I. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION****Product/Trade Name:** VisiJet® M100 Model Material

Colors: All  
Chemical Family: Organic mixture  
Product Use: For the InVision™ 3-D printer only

Manufacturer:

**Hazardous Materials Identification System (HMIS):**

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

Health **2**  
Flammability **0**  
Physical Hazards **0** (None)

**National Fire Protection Association (NFPA):**

Mixture, Not Rated

	In the U.S./Canada	In Europe
Manufacturer Contact	3D Systems, Inc. 26081 Avenue Hall Valencia, CA 91355 U.S.A.	3D Systems GmbH Guerickeweg 9 Darmstadt, Germany
For Information:	Phone: 970.257.4700 or Toll-free Phone: 800.793.3669	Phone: +49 (0) 6151 357-357 Fax: +49 (0) 6151 357-111
Emergency:	800.424.9300 - Chemtrec	703.527.3887 - Chemtrec (U.S.)

**II. COMPOSITION INFORMATION**

		EU Classification	
Chemical Identity	Concentration	Symbol	R-Phrase
Triethylene glycol dimethacrylate ester	30 – 60%	Xi	38, 43
Mixture of aromatic and aliphatic urethane acrylates with acrylic esters	10 – 30%	None	none
Polypropylene glycol monomethacrylate	7 – 13%	Xi	38
Mixture of carbamate planarizing agents	7 – 13%	None	None
1-Hydroxycyclohexyl phenyl ketone	1 – 5%	None	52

**OSHA Classification:** Irritant, sensitizer**III. HAZARDS IDENTIFICATION**

**MAY CAUSE EYE AND SKIN IRRITATION. MAY CAUSE AN ALLERGIC SKIN REACTION. HAZARDOUS POLYMERIZATION MAY OCCUR UPON DEPLETION OF INHIBITOR OR EXPOSURE TO HEAT. AVOID CONTACT WITH EYES, SKIN AND CLOTHING. WEAR EYE PROTECTION AND IMPERVIOUS GLOVES WHEN HANDLING. KEEP CONTAINER CLOSED WHEN NOT IN USE. DO NOT TAKE INTERNALLY. KEEP OUT OF THE REACH OF CHILDREN.**

**FOR INDUSTRIAL USE ONLY.****Potential Health Effects**

EYE: May cause irritation consisting of redness, swelling and pain.  
SKIN: May cause irritation or other allergic reactions, including redness and/or swelling.  
INHALATION: Inhalation of high concentrations may cause mild respiratory irritation.  
INGESTION: Ingestion may cause nausea, diarrhea and/or stomach pain.  
CHRONIC: May cause an allergic skin reaction with repeated or prolonged exposure consisting of redness, swelling and/or rash (urticaria).

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: May aggravate an existing eczema, dermatitis or other skin condition. See notes to physician below.

POTENTIAL ENVIRONMENTAL EFFECTS: A theoretical structure-reactivity calculation predicts that one of the components may be harmful to aquatic organisms.

#### IV. FIRST AID MEASURES

Skin contact: Immediately flush skin with plenty of soap and water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse.

Eye contact: Immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation persists. Avoid exposure to UV and other light sources.

Inhalation: Move affected person to fresh air. In case of asphyxia, initiate artificial respiration immediately. If breathing is difficult, give oxygen. Get medical attention immediately.

Ingestion: Ingestion is unlikely. However, if large quantities are swallowed, get medical attention and, if directed by medical personnel, induce vomiting immediately. Never give anything by mouth to an unconscious person.

Notes to Physician: Allergic dermatitis in susceptible individuals may be delayed. It may appear after weeks or even months of frequent and prolonged contact.

#### V. FIRE FIGHTING MEASURES

Unusual Fire & Explosion Hazards: Inhibitor depletion caused by heat, exposure to radiation or oxidizers can cause spontaneous polymerization generating heat and pressure. Avoid the use of a stream of water to control fire since frothing can occur.

Flashpoint: Not determined – not expected to be flammable, but will burn at high temperature.

Extinguishing media: Use water mist, dry chemical, carbon dioxide or chemical foam. DO NOT USE high volume water jet.

Protective equipment: Use full protective clothing for chemicals and self-contained breathing apparatus.

#### VI. ACCIDENTAL RELEASE MEASURES

For small spills, wipe up with absorbent, inert material and place in suitable and closable container for disposal. Use proper personal protective equipment as indicated in Section VIII. Do not release chemically contaminated water into drains, soil or surface waters. Sufficient measures must be taken to retain water used for extinguishing. Dispose of contaminated water and soil according to local regulations. Remove and clean protective clothing.

#### VII. HANDLING AND STORAGE

Handling: Handle and open container with care. Avoid unnecessary personal contact. Avoid contact with eyes and prolonged or repeated skin contact. Do not inhale mists. Use with adequate ventilation.

Storage: MAXIMUM 35°C (95°F). Store in the original container securely closed and at room temperature. Store indoors in a cool, dry area with adequate ventilation. Store out of direct sunlight or UV light sources.

#### VIII. EXPOSURE CONTROLS, PERSONAL PROTECTION

	ACGIH TLV	OSHA PEL	International OELs
Triethylene glycol dimethacrylate ester	None established	None established	Germany (MAK); Danger of sensitization of the skin.
Other components	None established	None established	None established

Respiratory protection: ..... Not normally required.

Ventilation: ..... General (mechanical) room ventilation is expected to be satisfactory for use at room temperature. Special, local ventilation is recommended at points where vapors generated at high temperatures may be vented to the workplace air.

Eye protection: ..... Wear suitable eye/face protection.

Skin protection: ..... Wear suitable protective clothing and gloves.

Other protective equipment: ..... Eye wash and safety shower should be available in the immediate work area.

**IX. PHYSICAL AND CHEMICAL PROPERTIES**

Appearance: .....White to neutral colored soft solid  
 Melting point: .....55 - 65°C (131 - 149°F)  
 Solubility in water: .....Insoluble at 20°C (68°F)  
 Vapor pressure: .....No data  
 Partition coefficient: .....No data  
 Explosive properties: .....Not expected to be explosive  
 Odor: .....Slight acrylate odor  
 Boiling point: .....No data  
 Density: .....1.01 g/cm<sup>3</sup> at 25°C  
 Flashpoint: .....>235°C (405°F)  
 Ignition: .....No data  
 pH-value: .....Not applicable  
 Viscosity: .....12 - 14 mPa\*s @ 80°C

**X. STABILITY AND REACTIVITY**

Conditions to avoid: .....Inhibitor depletion caused by heat, exposure to radiation or oxidizers can cause spontaneous polymerization generating heat and pressure. Stable under normal use of product.  
 Materials to avoid: .....Strong oxidizing agents.  
 Hazardous decomposition products: .... Thermal decomposition or burning may release oxides of carbon and other toxic gases or vapors.  
 Hazardous polymerization: .....May occur. Refer to Section 5.

**XI. TOXICOLOGICAL INFORMATION**

For Product The toxicological properties of this product have not been thoroughly investigated.		For Components:				
		Triethyleneglycol dimethacrylate ester	Urethane acrylates and esters	Urethane waxes	Propyleneglycol monomethacrylate	1-hydroxycyclohexyl phenyl ketone
Oral LD <sub>50</sub>	> 2 g/kg (rats)	4.49 ml/kg (rats)	No data	> 5 g/kg (rats)	29.1 mg/kg (rat)	No data
Dermal LD <sub>50</sub>	> 2 g/kg	> 2.0 ml/kg (rabbits)	No data	> 2 g/kg (rabbits)	> 20 ml/kg (rabbit)	No data
Inhalation LC <sub>50</sub>	Slightly toxic	> 2 mg/l (rats)	No data	No data	> 5000 mg/m <sup>3</sup> (rat)	No data
Irritation	Mild eye and skin irritant	Minimally irritating to eyes and skin (rabbits)	Eye irritant	Mild skin irritant, moderate eye irritant (rabbits)	Eye irritant	Irritant
Sensitization	Expected to be a sensitizer	Sensitizer (guinea pigs)	No data	Sensitizer (guinea pigs)	No data	No data

Mutagenicity: Triethylene glycol dimethacrylate tested positive in an *in vitro* mammalian cytogenicity test.

Carcinogenicity: This product is not classified as a carcinogen by NTP, IARC, OSHA or EPA.

**XII. ECOLOGICAL INFORMATION**

The aquatic toxicity of the product is unknown, however, based on a theoretical structure-reactivity calculation, one of the components may be toxic to aquatic organisms and is regulated under TSCA Section 5 Significant New Use Rule (SNUR) concerning release to water. The material is subject to record keeping as specified in 40CFR § 721.3850. Prevent contamination of soil, drains and surface waters.

Data for components: 1-hydroxycyclohexyl phenyl ketone: Zebra fish, 96-hour LC<sub>50</sub> = 24 ppm  
 Daphnia magna, 24-hour EC<sub>50</sub> = 105 ppm

Inhibitory concentration on respiration of aerobic wastewater bacteria, IC<sub>20</sub>, IC<sub>50</sub>, IC<sub>80</sub>: > 100 ppm  
 Readily biodegradable (Modified Sturm Test)

**XIII. DISPOSAL CONSIDERATIONS**

This product is not a hazardous waste as specified in 40CFR 261. Dispose in accordance with all Federal, State and Local regulations. Do not discharge material or clean-up residue into sewers or waterways.

**XIV. TRANSPORT INFORMATION**

	US DOT	RID/ADR	IMDG	IATA	IMO	Canada TDG
Shipping Name	Not regulated					
Hazard Class:						
UN Number:						
Packing Group:						

FLASHPOINT: Not determined

**XV. REGULATORY INFORMATION****US FEDERAL**

TSCA: All materials are listed on the TSCA Inventory. This product is subject to a TSCA Section 5 SNUR concerning record keeping and release to water as specified in 40CFR § 721.3850

CERCLA: None

SARA 313: None

SARA 312 Hazard Class: Health: Acute – Yes  
Chronic – No  
Fire: No  
Reactive: Yes  
Sudden Release of Pressure: No

SARA 302 EHS List: None of the components are listed

**STATE RIGHT-TO-KNOW STATUS**

Component	CA Prop. 65	Michigan	New Jersey	Pennsylvania	Massachusetts
1-hydroxycyclohexyl phenyl ketone	*	Not listed	X	X	Not listed

\* This product may contain trace quantities of a substance known to the state of California to cause cancer and/or reproductive toxicity.

**EUROPEAN/INTERNATIONAL REGULATIONS****Hazard Classification**

Danger Symbol: Xi Irritant  
Risk Phrases: R 36/38 Irritating to eyes and skin  
R 43 May cause sensitization by skin contact.

Safety Phrases: S 2 Keep out of reach of children.  
S 7 Keep container tightly closed.  
S 15 Keep away from heat.  
S 24/25 Avoid contact with skin and eyes.  
S 37/39 Wear suitable gloves and eye/face protection.  
S 46 If swallowed, seek medical advice immediately and show this container or label.

Contains: Trimethylene glycol dimethacrylate

Canadian DSL List: ..... The components of this product are on the DSL or are exempt from reporting under the New Substances Notification Regulations.

Canadian IDL: ..... Trimethylene glycol dimethacrylate

WHMIS: ..... Class D2B. This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations.

## **XVI. ADDITIONAL INFORMATION**

MSDS Creation Date:..... 12/01

MSDS Revision #: ..... 3

MSDS Revision Date:..... 09/01/04

Reason for Revision: ..... Add colors

For more information: ..... [www.3dsystems.com](http://www.3dsystems.com)

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