

***** Section 1 - Chemical Product and Company Identification *******Product Use:** Ink Cartridge - Professional Use**Chemical Name:** Ink Cartridge - Professional Use**Manufacturer Information**

Objet Inc.
5 Fortune Drive
Billerica, MA 01821
E-mail: objet-info@stratasys.com, www.stratasys.com
Phone: 1-877-489-9449

24H Emergency Telephone Service

- +49 722 97772280 - Europe - Multi lingual response
- +49 722 97772281 - Global – English Language response
- +1 978 495 5580 - USA – Multi-lingual response
- +85 2 975 70887 - Asia Pacific - Multi lingual response
- +61 2 8011 4763 - Australia - Multi lingual response
- +86 15626070595 - China - Chinese response

***** Section 2 - Hazards Identification *******Emergency Overview**

This product is considered to be an article according to 29 CFR 1910.1200 (OSHA Hazard Communication Standard) and the Canadian Controlled Product Regulations. While no specific safety information is required for articles, this Material Safety Data Sheet is provided for informational purposes.

As manufactured and supplied, the Objet toner cartridge is not hazardous under normal conditions of use. While unlikely, uncured resin may leak from damaged toner cartridges and cause eye irritation. Uncured resin may cause an allergic response in sensitized individuals.

Potential Health Effects: Eyes

Uncured resin is expected to be irritating to the eyes. Uncured resin may polymerize and adhere to eye tissue.

Potential Health Effects: Skin

Uncured resin is irritating to the skin. Uncured resin may polymerize and adhere to skin. Uncured resin may cause an allergic response in sensitized individuals.

Potential Health Effects: Ingestion

Ingestion is not a likely exposure route. Uncured resin is expected to be irritating to the digestive tract. Ingestion of large quantities is likely to cause nausea and vomiting.

Potential Health Effects: Inhalation

Inhalation is not a likely exposure route. Inhalation is expected to cause respiratory tract irritation, nausea, and headache.

HMIS Ratings: Health: 1 Fire: 1 Physical Hazard: 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic hazard

***** Section 3 - Composition / Information on Ingredients *****

CAS #	Component	Percent
Proprietary	Urethane acrylate oligomer	30-60
5888-33-5	Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate	1-20
Proprietary	Methacrylate oligomer	1-20
Not Available	Resin, Polyurethane	1-20
Proprietary	Photoinitiator	0.1-1

Component Information/Information on Non-Hazardous Components

This product is considered to be an article according to 29 CFR 1910.1200 (OSHA Hazard Communication Standard) and the Canadian Controlled Product Regulations. While no specific safety information is required for articles, this Material Safety Data Sheet is provided for informational purposes. The liquid within the cartridges is considered hazardous, and the MSDS has been prepared in case of exposure to the liquid.

***** Section 4 - First Aid Measures *******First Aid: Eyes**

Immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately if the skin or eyes become bonded. Do not apply neutralizing agents. If irritation persists get medical attention.

First Aid: Skin

If exposed to resin, remove contaminated clothing. Immediately wash affected area with soap and water, and seek medical attention if irritation develops or persists. If product polymerizes and adheres to skin, DO NOT attempt to remove. Get immediate medical attention.

First Aid: Ingestion

If ingested, immediately give plenty of water to drink. Never give water to an unconscious person. Do not induce vomiting. Consult a doctor.

First Aid: Inhalation

Remove source of contamination or move affected person to fresh air. Seek medical advice if irritation develops or persists. If the affected person is not breathing, apply artificial respiration.

First Aid: Notes to Physician

Provide general supportive measures and treat symptomatically.

***** Section 5 - Fire Fighting Measures *******General Fire Hazards**

See Section 9 for Flammability Properties.

Not expected to be a fire hazard.

Hazardous Combustion Products

Upon combustion, release of toxic and corrosive gases/ vapors (nitrous vapors, carbon monoxide and carbon dioxide).

Extinguishing Media

Water spray, foam, dry chemical, carbon dioxide.

Specific Hazards Arising From the Chemical

During a fire, cool closed containers by spraying with water. Use water spray to dilute toxic gases.

Fire Fighting Equipment/Instructions

Fire fighters should wear full-face, self contained breathing apparatus and impervious protective clothing. Fire fighters should avoid inhaling any combustion products. Prevent run-off from fire fighting from entering sewers or water ways.

NFPA Ratings: Health: 1 Fire: 1 Reactivity: 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

***** Section 6 - Accidental Release Measures *******Personal Precautions**

Refer to Section 8 of this MSDS.

Containment Procedures

Intact cartridges do not pose a leak or spill hazard. Damaged cartridges may leak uncured resin. Stop the flow of material, if this is without risk.

Environmental Precautions

Do not allow the spilled product to enter public drainage system or open water courses.

Clean-Up Procedures

Gather up spilled material. Collect spilled cartridge contents with an inert absorbent such as sand or vermiculite. Place in properly labeled closed container. Flush area with water to remove trace residue.

Evacuation Procedures

Not ordinarily required.

Special Procedures

Contact local regulatory authorities for advice regarding disposal of cleanup materials.

***** Section 7 - Handling and Storage *******Handling Procedures**

For damaged cartridges: Avoid getting this material into contact with your skin and eyes. Immediately take off all contaminated clothing. Wash contaminated clothing before reuse. Wash thoroughly after handling. Do not discharge waste into drains or open waterways.

Storage Procedures

Keep the container tightly closed. Store at room temperature. Keep out of direct sunlight. Keep the container dry. Do not handle or store near an open flame, heat or other sources of ignition. Store at 15-25°C (59-77°F). Store in a dark area. Shipment temperature (up to 5 weeks) : -20°C to 50 °C (-4 to 122°F).

***** Section 8 - Exposure Controls / Personal Protection *******A: Component Exposure Limits**

ACGIH, OSHA, and NIOSH have not developed exposure limits for any of this product's components.

Engineering Controls

Use local exhaust ventilation, when uncured resin is exposed.

PERSONAL PROTECTIVE EQUIPMENT**Personal Protective Equipment: Eyes/Face**

Not ordinarily required. Chemical goggles or safety glasses with side shields should be worn when handling a damaged cartridge.

Personal Protective Equipment: Skin

Not ordinarily required. Wear neoprene or nitrile impervious gloves when handling damaged cartridge. Wash contaminated clothing before re-use.

Personal Protective Equipment: Respiratory

Not normally needed. In emergency situation where protection is required, wear a NIOSH/MSHA approved self-contained breathing apparatus.

Personal Protective Equipment: General

Use good industrial hygiene practices in handling this material.

***** Section 9 - Physical & Chemical Properties *****

Appearance: Toner cartridge; Contents are a black liquid
Physical State: Article, Contents: Liquid
Vapor Pressure: Not Applicable
Boiling Point: Not Applicable
Solubility (H2O): Not Applicable
Evaporation Rate: Not Applicable
Flash Point Method: Not Available
Auto Ignition: Not Applicable

Odor: Contents: Mild Odor
pH: Not Applicable
Vapor Density: Not Applicable
Melting Point: Not Applicable
Specific Gravity: Not Applicable
Octanol/H2O Coeff.: Not Applicable
Flash Point: >100°C (>212°F)

***** Section 10 - Chemical Stability & Reactivity Information *******Chemical Stability**

Instability caused by exposure to light and heat.

Chemical Stability: Conditions to Avoid

Exposure to heat and light.

Incompatibility

Not applicable under normal conditions of use and storage.

Hazardous Decomposition

Upon decomposition, this product may yield gaseous nitrogen oxides, carbon monoxide, carbon dioxide and/or low molecular weight hydrocarbons.

Possibility of Hazardous Reactions

Uncured resin will polymerize on exposure to light.

***** Section 11 - Toxicological Information *******Acute Dose Effects****A: General Product Information**

Under normal conditions of use, the likelihood of exposure to uncured resin is very small.

The following symptoms may appear when the cartridge components are released:

After Skin Contact: tingling or irritation of the skin.

After Eye Contact: irritation, inflammation or damage of the eye tissue.

After Inhalation: Irritation of the respiratory tract and mucous membranes.

B: Component Analysis - LD50/LC50

Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate (5888-33-5)

Oral LD50 Rat: 4890 mg/kg; Dermal LD50 Rabbit: >5 g/kg

Repeated Dose Effects

Repeated exposure may produce an allergic reaction. Symptoms may include: skin rash and inflammation.

Irritation

Contact with uncured resin is likely to irritate the eyes and skin. Uncured resin may polymerize, and adhere to tissue.

Carcinogenicity**A: General Product Information**

No information available for the product.

B: Component Carcinogenicity

None of this product's components are listed by ACGIH, IARC, OSHA, NIOSH, or NTP.

Sensitization

Uncured resin contains a skin sensitizer.

***** Section 12 - Ecological Information *******Ecotoxicity****A: General Product Information**

No data available for product. Do not allow this material to drain into sewers/water supplies.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity

No ecotoxicity data are available for this product's components.

Mobility in Environmental Media

Insoluble in water.

***** Section 13 - Disposal Considerations *******US EPA Waste Number & Descriptions****A: General Product Information**

No information available for the product.

B: Component Waste Numbers

No EPA Waste Numbers are applicable for this product's components.

Disposal Instructions

Spent or damaged cartridges should be recycled if possible. Consult with Local, State, Federal and Provincial Regulatory agencies for advice regarding recycling or environmentally sound disposal of this product.

See Section 7 for Handling Procedures. See Section 8 for Personal Protective Equipment recommendations.

***** Section 14 - Transportation Information *******US DOT Information**

Shipping Name: Not regulated as a hazardous material for transportation.

TDG Information

Shipping Name: Not regulated as dangerous goods for transportation.

***** Section 15 - Regulatory Information *******US Federal Regulations****A: General Product Information**

Components of this product have been checked against the non-confidential TSCA inventory by CAS Registry Number. Components not identified on this non-confidential inventory are either exempt from listing (i.e. polymers, hydrates) or are listed on the confidential inventory as declared by the supplier. All components listed in this product appear on the Canadian DSL/NDSL or are exempt from listing (i.e. polymers, hydrates).

B: Component Analysis

None of this products components are listed under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), or CERCLA (40 CFR 302.4).

State Regulations**A: General Product Information**

Other state regulations may apply. Check individual state requirements.

B: Component Analysis - State

None of this product's components are listed on the state lists from CA, MA, MN, NJ, PA, or RI.

Canadian WHMIS Information**A: General Product Information**

This product is an article. Should the product break, or leak, the contents of the cartridge would be classified as the following:

Class D2B - Toxic Material

B: Component Analysis - WHMIS IDL

No components are listed in the WHMIS IDL.

Additional Regulatory Information**A: General Product Information**

No additional information available.

B: Component Analysis - Inventory

Component	CAS #	TSCA	EEC	DSL	NDSL
Urethane acrylate oligomer	Proprietary	Yes	EINECS	No	Yes
Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate	5888-33-5	Yes	EINECS	Yes	No
Methacrylate oligomer	Proprietary	Yes	Exempt	Yes	No
Photoinitiator	Proprietary	Yes	ELINCS	Yes	No
Resin, Polyurethane	Not Available	Yes	Yes	Yes	No

***** Section 16 - Other Information *******Other Information**

Reasonable care has been taken in the preparation of this information, but the manufacturer makes no warranty of merchantability or any other warranty, expressed or implied, with respect to this information. The manufacturer makes no representations and assumes no liability for any direct, incidental or consequential damages resulting from its use.

MSDS History

New MSDS: 02 October 2007.

Updated product name: 11 June 2008.

Addition of 24H emergency telephone service: September 19, 2011

Key/Legend

EPA = Environmental Protection Agency; TSCA = Toxic Substance Control Act; ACGIH = American Conference of Governmental Industrial Hygienists; IARC = International Agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration., NFPA = National Fire Protection Association; HMIS = Hazardous Material Identification System; CERCLA = Comprehensive Environmental Response, Compensation and Liability Act; SARA = Superfund Amendments and Reauthorization Act; DSL = Canadian Domestic Substance List; EINECS = European Inventory of New and Existing Chemical Substances; WHIMIS = Workplace Hazardous materials information System

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