

## I. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Product/Trade Name:** Accura<sup>®</sup> si 45HC

**System/Laser Compatibility:** For SLA<sup>®</sup> systems equipped with Helium Cadmium (HeCd) lasers

**Chemical Family:** Epoxy resin containing reactive diluent

**Product Use:** Material for SLA<sup>®</sup> series stereolithography systems

### Hazardous Materials Identification System (HMIS):

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

Health **2**  
 Flammability **1**  
 Physical Hazards

### Personal Protection:

gloves, goggles

Manufacturer:



	In the U.S./Canada
Manufacturer Contact	3D Systems, Inc. 26081 Avenue Hall Valencia, CA 91355 U.S.A.
For Information	Phone: 970.257.4700 or Toll-free Phone: 800.793.3669
Emergency	800.424.9300 - Chemtrec

## II. COMPOSITION INFORMATION

Component	Percent
Cycloaliphatic Epoxy Resin	40% -60%
Polyol	15% - 35%
Acrylate Esters	10% - 30%
Aliphatic Polyol Polyglycidyl Ether	1% - 10%
Substituted Ketone	1% - 5%

### Component Information/Information on Non-Hazardous Components

This product is considered to be hazardous (irritant, sensitizer) according to 29CFR 1910.1200 (Hazard Communication Standard).

## III. HAZARDS IDENTIFICATION

### Emergency Overview

Uncured product is an amber liquid with a mild acrylate odor. Product cures upon exposure to light, forming a nonreactive plastic material. Exposure to uncured product causes moderate to severe irritation of the eyes and skin, and prolonged or multiple exposures are likely to cause sensitization (allergic response). Use water spray, foam, dry chemical or carbon dioxide to fight fires.

### Potential Health Effects:

- Eyes:** Uncured product is an eye irritant, and is likely to polymerize, forming a solid that can adhere to eye tissue.
- Skin:** Uncured product causes skin irritation, and is likely to polymerize, forming a solid that can adhere to skin. Prolonged or repeated exposures could cause sensitization.
- Ingestion:** Ingestion of unreacted product is unlikely. However, if ingested, gastrointestinal irritation and nausea are expected to occur with more serious symptoms developing upon ingestion of larger amounts.
- Inhalation:** Because of low volatility of unreacted product, inhalation is unlikely under normal conditions. Aerosols or vapors from processing at elevated temperatures would cause respiratory irritation. Prolonged or repeated exposures could cause sensitization.

### Medical Conditions Aggravated by Exposure

Persons with pre-existing eye, skin, or respiratory sensitivities will be more susceptible to the irritating effects of this product.



## IV. FIRST AID MEASURES

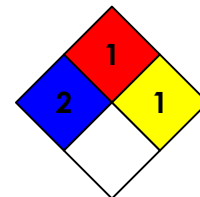
- Eyes:** Flush eyes immediately with water for at least 15 minutes while holding eyelids open. Do not rub eyes. Uncured product can polymerize, forming a solid material that might adhere to eye tissue. Get immediate medical attention if partially cured material adheres to eye tissue. DO NOT attempt to remove adhered product without medical assistance.
- Skin:** For skin contact, flush with large amounts of water. If irritation persists, get medical attention. In case of contact, immediately remove contaminated clothing and flush skin with copious amounts of water. Get medical attention if irritation or sensitization (allergic response) develops or persists.
- Ingestion:** If ingested, seek immediate medical attention. DO NOT INDUCE VOMITING.
- Inhalation:** Move affected person to fresh air. If respiratory irritation occurs, if breathing becomes difficult, or, in sensitized individuals, if delayed asthma-like symptoms develop, seek medical attention immediately.

### Notes to Physician

Uncured product contains dermal and pulmonary sensitizers. For skin exposures, treat symptomatically as for contact dermatitis. For eye exposure, stain for evidence of corneal injury.

## V. FIRE FIGHTING MEASURES

- Flash Point: >360 °F (183 °C)                      Method Used: NA
- Upper Flammable Limit (UFL): Not available      Lower Flammable Limit (LFL): Not available
- Auto Ignition: >572 °F (>300 °C) (est'd)      Flammability Classification: IIIB
- Rate of Burning: Not available



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

- General Fire Hazards:** High heat causes uncured product to decompose, evolving gases that could cause explosive rupture of closed containers.
- Hazardous Combustion Products:** Carbon monoxide, carbon dioxide, nitrogen oxides, and low molecular weight hydrocarbons.
- Extinguishing Media:** Water (spray/mist, NOT high pressure stream), dry chemical, carbon dioxide, or chemical foam.
- Fire Fighting Equipment/Instructions:** Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask.

## VI. ACCIDENTAL RELEASE MEASURES

- Containment Procedures:** Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible.
- Clean-Up Procedures:** Wear protective clothing, gloves, and respiratory protection during cleanup. Once spilled or released, the uncured product will polymerize on exposure to UV light, leaving a nonreactive plastic material. Allow small spills to cure for at least 15 minutes then scrape up plastic material. Absorb larger spills with sand, diatomaceous earth, or other suitable absorbent. Transfer slurry to an unsealed container, and allow to stand uncovered, in a well-ventilated area, for at least 48 hours to ensure complete curing.
- Evacuation Procedures:** Keep unnecessary personnel away.
- Special Procedures:** Surfaces might become slippery after a spill. Avoid skin contact and inhalation of vapors during disposal of spills.

## VII. HANDLING AND STORAGE

- Handling Procedures:** Do not breathe vapors or mists. Prevent skin and eye contact. Wash thoroughly after handling. Unintentional exposure to UV light can initiate polymerization reaction. Store in UV-opaque container. Keep this product from heat, sparks, or open flame.
- Storage Procedures:** Keep container tightly closed and in a cool, well-ventilated place away from light and incompatible materials. Keep away from heat, sparks, open flame and other ignition sources.

## VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Exposure Guidelines

- A: General Product Information:** Follow all applicable exposure limits.
- B: Component Exposure Limits:** ACGIH, OSHA, and NIOSH have not developed exposure limits for any of this product's components.
- Engineering Controls:** Use appropriate local exhaust ventilation to keep exposures below the regulated limits.



## PERSONAL PROTECTIVE EQUIPMENT

- Eyes/Face: Wear chemical goggles and a face shield.
- Skin: Use impervious gloves when handling. Use of protective coveralls and long sleeves is recommended to prevent skin contact.
- Respiratory: If ventilation is not sufficient to effectively keep vapor concentrations below established limits, appropriate NIOSH approved respiratory protection must be provided.
- General: Eye wash fountain and emergency showers are recommended.

## IX. PHYSICAL AND CHEMICAL PROPERTIES

Appearance .....	Amber	Odor .....	Mild acrylate
Physical State.....	Liquid	PH.....	NA
Vapor Pressure .....	< 2 Pa @ 20°C	Vapor Density .....	NA
Boiling Point .....	>200°C	Melting Point .....	NA
Solubility (H <sub>2</sub> O) .....	insoluble @ 20°C	Specific Gravity .....	1.1
Viscosity .....	500 cPs @ 30°C	Percent Volatile .....	<1%

## X. CHEMICAL STABILITY AND REACTIVITY

- Chemical Stability: Stable, but unintentional exposure to heat or UV light can initiate polymerization.
- Conditions to Avoid: Keep away from UV light or direct sunlight, heat, ignition sources, and incompatible materials.
- Incompatibility: Avoid contact with acids, bases, oxidizing agents, metals, alcohols, peroxides, amines and halogens.
- Hazardous Decomposition: Carbon monoxide, carbon dioxide, nitrogen oxides and low molecular weight hydrocarbons.
- Hazardous Polymerization: Upon exposure to UV light, uncured product can spontaneously polymerize, generating heat.

## XI. TOXICOLOGICAL INFORMATION

### Acute and Chronic Toxicity

A: General Product Information: Uncured product can cause moderate to severe eye and skin irritation, and is likely to polymerize, forming a solid that might adhere to tissue. Uncured product contains acrylates. Repeated or prolonged exposure can result in sensitization (chemical asthma) provoking allergic responses at concentrations far below established exposure limits. Symptoms include wheezing, coughing, shortness of breath, and impaired lung function. These effects might be delayed. Asthma and chronic respiratory conditions can be aggravated by exposure to uncured product. Skin sensitization can also occur. Ingestion can cause irritation of throat, stomach and gastrointestinal tract. Ingestion of large amounts may be toxic.

B: Component Analysis - LD50/LC50

Cycloaliphatic Epoxy Resin (proprietary): Oral LD50 Rat: 4490 mg/kg; Dermal LD50 Rabbit: 20 mL/kg

Alkyl carbonate (proprietary): Oral LD50 Rat: 29100 µL/kg; Oral LD50 Mouse: 20700 mg/kg; Dermal LD50 Rabbit: >20 mL/kg

Carcinogenicity

A: General Product Information: No information available for product.

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

## XII. ECOLOGICAL INFORMATION

### Ecotoxicity

A: General Product Information: No information available for product.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity: No ecotoxicity data are available for this product's components.

Environmental Fate: No information available for product. Based on the properties of similar materials, uncured product is expected to rapidly polymerize, forming a relatively inert, nonbiodegradable solid.

# Material Safety Data Sheet

Material Name: Accura si 45HC

## XIII. DISPOSAL CONSIDERATIONS

### US EPA Waste Number & Descriptions

A: General Product Information: No additional information.

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

Disposal Instructions: Avoid disposal. If possible, completely utilize product,. Dispose of unused product in accordance with applicable Federal, State, Provincial, or Local regulations.

## XIV. TRANSPORT INFORMATION

### International Transportation Regulations

Not regulated as a dangerous good

### US DOT Information

Shipping Name: Not regulated as a hazardous material.

Required Label(s): None

### TDG Information

Shipping Name: Not regulated as a dangerous good.

Required Label(s): None

## XV. REGULATORY INFORMATION

### US FEDERAL

TSCA:.....All materials are listed on the TSCA Inventory

SARA 302 EHS List (40 CFR 355 Appendix A):.....None of the components are listed

SARA 313 (40 CFR 372.65):.....None of the components are listed

CERCLA (40 CFR 302.4: .....None of the components are listed

### STATE RIGHT-TO-KNOW STATUS

Component	CA Prop. 65	MA	MN	NJ	PA	RI
None Listed						

WHMIS IDL: .....No components are listed in the WHMIS IDL.

### Component Analysis - Inventory

Component	TSCA	CAN	EEC
Cycloaliphatic Epoxy Resin	Yes	DSL	EINECS
Polyol	Yes	DSL	No
Acrylate Esters	Yes	DSL	EINECS
Aliphatic Polyol Polyglycidyl Ether	Yes	DSL	No
Substituted Ketone	Yes	DSL	EINECS

## XVI. ADDITIONAL INFORMATION

MSDS Creation Date: .... May 5, 2004

MSDS Revision #: ..... 1

MSDS Revision Date:..... September 15, 2004

Reason for Revision: ..... Change from experimental to commercial product name

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

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## Key/Legend

ACGIH = American Conference of Governmental Industrial Hygienists

CAS = Chemical Abstracts Service

CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act

CFR = Code of Federal Regulations

CPR = Controlled Products Regulations

DOT = Department of Transportation

DSL = Domestic Substances List

EINECS = European Inventory of Existing Commercial Chemical Substances

EPA = Environmental Protection Agency

IARC = International Agency for Research on Cancer

IATA = International Air Transport Association

IDL = Ingredients Disclosure List

mg/Kg = milligrams per Kilogram

mg/L = milligrams per Liter

mg/m<sup>3</sup> = milligrams per Cubic Meter

MSHA = Mine Safety and Health Administration

NA = Not Applicable or Not Available

NIOSH = National Institute for Occupational Safety and Health

NJTSP = New Jersey Trade Secret Registry

NTP = National Toxicology Program

OSHA = Occupational Safety and Health Administration

SARA = Superfund Amendments and Reauthorization Act

STEL = Short Term Exposure Limit

TDG = Transport Dangerous Goods

TSCA = Toxic Substances Control Act

WHMIS = Workplace Hazardous Materials Information System.