

I. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product/Trade Name: Accura[®] si 45HC
System/Laser Compatibility: For SLA[®] systems equipped with He/Cd lasers
Chemical Family: Epoxy resin containing reactive diluents
Product Use: Material for SLA[®] series stereolithography systems

Manufacturer:

Hazardous Materials Identification System (HMIS):	
<i>(Degree of hazard: 0 = low, 4 = extreme):</i>	
Health	2
Flammability	1
Physical Hazards	2
Personal Protection:	
gloves, goggles	



	In the U.S./Canada
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Emergency	800.424.9300 - Chemtrec

II. COMPOSITION INFORMATION

EINECS #	Component	Percent
219-207-4	Cycloaliphatic Epoxy Resin	40-60
Proprietary	Polyol	5-30
262-270-8	Polyacrylate Ester	5-15
255-901-3	Diacrylate esters	5-15
Proprietary	Substituted ketone	1-5
Proprietary	Aliphatic polyol polyglycidyl ether	1-5

Component Information/Information on Non-Hazardous Components

A: Non-Annex 1 Component Analysis

This product has been evaluated using criteria specified in European Union Directives 67/548 and 99/45.

Provisional Classification

Polyacrylate ester R36/38; R43 EC No. 262-270-8	Cycloaliphatic Epoxy Resin Xi; R36/38; R43 CAS No. 2386-87-0 EC No. 219-207-4	Diacrylate Ester EC No. 255-901-3 Xi; R36/R38; R43
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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.

Substance Preparation Classification

This preparation has been classified for the European Union according to Annex VI Directives 67/548/EEC and 99/45/EC.

Xi; R36/38; R43

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.

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:** Get medical attention. Flush eyes immediately with water for at least 15 minutes while holding eyelids open. Do not rub eyes. Uncured product will polymerize, forming a solid that can adhere to eye tissue. If cured product adheres to eyes, do not remove; get immediate medical attention.
- 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. If cured product adheres to skin, do not remove; get immediate medical attention.
- Ingestion:** If ingested, get 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, get medical attention immediately.

Notes to Physician

Uncured product contains skin 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: : >300 °C (>572°F) (est'd) Flammability Classification: Combustible
- Rate of Burning: Not available

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 facemask.

VI. ACCIDENTAL RELEASE MEASURES

Containment Procedures: Stop the flow of material, if this is without risk. Dike the spilled material if 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 can 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: Store in original container. 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. Maximum storage temperature is 35°C (95°F)

Specific Use: For SLA systems equipped with He/Cd lasers

VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION**Exposure Guidelines**

A: General Product Information: Follow all applicable exposure limits.

B: Substance Exposure Limits: The EU, ACGIH, Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Portugal, Spain, Sweden, and United Kingdom have not developed exposure limits for any of the substances in this preparation.

Engineering Controls: Use appropriate local exhaust ventilation to keep exposures below the regulated limits.

PERSONAL PROTECTIVE EQUIPMENT

Eyes/Face: Wear chemical goggles or 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 approved respiratory protection must be provided.

General: Eye wash fountain and emergency showers are recommended.

IX. PHYSICAL AND CHEMICAL PROPERTIES

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

X. CHEMICAL STABILITY AND REACTIVITY INFORMATION

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 can 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 can be toxic.

B: Component Analysis - LD50/LC50

Cycloaliphatic Epoxy Resin: Oral LD50 Rat: 4490 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 IARC Austria, Belgium, Denmark, France, Germany, Ireland, Luxembourg, Netherlands, Spain, or United Kingdom.

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.

Mobility – No information available for product.

Persistence & Degredation – No information available for product.

Bioaccumulation – No information available for product.

Other Adverse Effects – No information available for product.

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.

XIII. DISPOSAL CONSIDERATIONS

Waste Disposal Instructions

Avoid disposal. Attempt to utilize preparation completely. Prior to disposal of unused preparation, consult an approved waste disposal operative to ensure regulatory compliance.

XIV. TRANSPORT INFORMATION

IATA Information

Not regulated as a dangerous good

ICAO Information

Not regulated as a hazardous material.

IMDG Information

Not regulated as a hazardous material.

ADR Information

Not regulated as a hazardous material.

RID Information

Not regulated as a hazardous material.

XV. REGULATORY INFORMATION

European Union Regulatory Information

General Product Information

R36/38 Irritating to eyes and skin.
R43 May cause sensitization by skin contact.

S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S24 Avoid contact with skin.

S36/37 Wear suitable protective clothing and gloves.

S60 This material and its container must be disposed of as hazardous waste

Other Information

General Product Information: This product contains a component (<1%) not listed on the ELINCS/EINECS inventory.

Component Analysis - Inventory

Component	EINECS #	EEC	CAN	TSCA
Cycloaliphatic Epoxy Resin	219-207-4	EINECS	DSL	Yes
Diacrylate esters	255-901-3	EINECS	DSL	Yes
Polyacrylate Ester	262-270-8	EINECS	DSL	Yes
Polyol	Proprietary	NLP	DSL	Yes
Substituted ketone	Proprietary	EINECS	DSL	Yes
Aliphatic polyol polyglycidyl ether	Proprietary	EINECS	Yes	Yes

XVI. ADDITIONAL INFORMATION

Full text of all Risk Phrases in Sections 2 & 3

R36/38 Irritating to eyes and skin.
 R43 May cause sensitization by skin contact.

MSDS Creation Date: September 14, 2004

MSDS Revision #: n/a

MSDS Revision Date: n/a

Reason for Revision: n/a

For more information: www.3dsystems.com

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Key/Legend

ACGIH = American Conference of Governmental Industrial Hygienists
 ADR/RID = European Agreement of Dangerous Goods by Road/Rail
 CAS = Chemical Abstracts Service
 CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act
 CFR = Code of Federal Regulations
 CPR = Controlled Products Regulations
 DFG = Deutch Forschungsgenmeinschaft
 DOT = Department of Transportation
 DSL = Domestic Substances List
 EEC = European Economic Community
 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
 IMO = International Maritime Organization

MAC/MAK = Maximum Concentration Value in the Workplace
 mg/Kg = milligrams per Kilogram
 mg/L = milligrams per Liter
 mg/m3 = milligrams per Cubic Meter
 MSHA = Mine Safety and Health Administration
 NA = Not Applicable or Not Available
 NIOSH = National Institute for Occupational Safety and Health
 NJTSR = New Jersey Trade Secret Registry
 NLP = No Longer Polymers List
 NTP = National Toxicology Program
 OEL = Occupational Exposure Limit
 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
 TWA = Time Weighted Average
 VLA/VLE = Work Exposure Threshold
 WHMIS = Workplace Hazardous Materials Information System.