SHIPLEY

MATERIAL SAFETY DATA SHEET
EAGLE 2100 ED PHOTORESIST
17560 3.00 US US 22.10.1999 MSDS_US

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Code	17560
Trade Name	EAGLE 2100 ED PHOTORESIST
Manufacturer/Supplier	Shipley Company
Address	455 Forest St. Marlborough, Massachusetts 01752
Phone Number	(508) 481-7950
Emergency Phone Number	(508) 481-7950
Chemtrec #	(800) 424-9300
MSDS first issued	18 October 1996
MSDS data revised	22 October 1999
Prepared By:	Environmental, Health & Safety Department
Local Sales Company	Shipley Company, 455 Forest Street, Marlboro, MA 01752 (508-481-7950)

2. COMPOSITION/INFORMATION ON THE INGREDIENTS

Components without CAS numbers are Trade Secret

Component Name	CAS# / Codes	Concentration
water	7732-18-5	> 70.00
Acrylate ester		< 5.00
Electronic grade propylene glycol monomethyl ether		< 2.00
ethyl acrylate	140-88-5	< 0.10
Dye compound		< 10.00

3. HAZARD IDENTIFICATION

Main Hazards	- Irritant - Nervous System - Skin - Eye - Kidney - Liver - Sensitizer
Routes of Entry	Inhalation, ingestion, eye and skin contact, absorption.
Carcinogenic Status	Not considered carcinogenic by NTP, IARC and OSHA
Target Organs	- Nervous System - Skin - Eye - Liver - Kidney - Respiratory System
Health Effects - Eyes	Liquid or vapor may cause pain, transient irritation and superficial corneal effects.
Health Effects - Skin	Material may cause slight irritation on prolonged or repeated

3. HAZARD IDENTIFICATION

	contact. Repeated and/or prolonged contact may lead to: - drowsiness - liver damage - kidney damage - allergic sensitization - central nervous system depression
Health Effects - Ingestion	A large dose may have the following effects: - drowsiness - liver damage - kidney damage - central nervous system depression
Health Effects - Inhalation	Exposure to vapor at high concentrations may have the following effects: - irritation of nose, throat and respiratory tract - liver damage - kidney damage - allergic sensitization - central nervous system depression

4. FIRST AID MEASURES

First Aid - Eyes	Immediately flush the eye with plenty of water for at least 15 minutes, holding the eye open. Obtain medical attention if soreness or redness persists.
First Aid - Skin	Wash skin with water. Continue washing for at least 15 minutes. Obtain medical attention if blistering occurs or redness persists.
First Aid - Ingestion	Wash out mouth with water. Have victim drink 1-3 glasses of water to dilute stomach contents. Obtain medical attention. Never administer anything by mouth if a victim is losing conciousness, is unconcious or is convulsing.
First Aid - Inhalation	Remove from exposure. If there is difficulty in breathing, give oxygen. Seek medical attention if symptoms persist.
Advice to Physicians	Treat symptomatically.

5. FIRE FIGHTING MEASURES

Extinguishing Media	Use water spray, foam, dry chemical or carbon dioxide. Keep containers and surroundings cool with water spray.
Special Fire-Fighting Procedures	This product may give rise to hazardous vapors in a fire. Vapors can travel a considerable distance to a source of ignition and result in flashback.
Unusual Fire & Explosion	Pressure may build up in closed containers with possible liberation of combustible vapors.

5. FIRE FIGHTING MEASURES

Hazards

Protective Equipment for Fire-Fighting	Wear full protective clothing and self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

Spill Procedures	Contain and absorb using earth, sand or other inert material. Transfer into suitable containers for recovery or disposal. Finally flush area with plenty of water.
Personal Precautions	Wear appropriate protective clothing. Wear respiratory protection. Eliminate all sources of ignition.
Environmental Precautions	Prevent the material from entering drains or water courses.

7. HANDLING AND STORAGE

Handling	Use local exhaust ventilation. Avoid contact with eyes, skin and clothing. Keep container tightly closed when not in use.
Storage	Store in original containers. Store away from sources of heat or ignition. Storage area should be: - cool - dry - well ventilated - out of direct sunlight

Other

Proprietary photoresist film is composed of acrylate copolymers. Unexposed photoresist contains acrylate monomers, which are skin irritants.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Standards

Electronic grade propylene glycol monomethyl ether	ACGIH: TLV 100ppm (369mg/m3) 8h TWA. ACGIH: STEL 150ppm (553mg/m3) 15min TWA. OSHA: PEL 100ppm (360mg/m3) 8h TWA. OSHA: STEL 150ppm (540mg/m3) 15min TWA. UK EH40: OES 100ppm (360mg/m3) 8h TWA. UK EH40: OES 300ppm (1080mg/m3) 15min TWA. Can be absorbed through skin.
ethyl acrylate	ACGIH: TLV 5ppm (20mg/m3) 8h TWA. ACGIH: STEL 15ppm (61mg/m3) 15min TWA. OSHA: PEL 25ppm (100mg/m3) 8h TWA. UK EH40: OES 5ppm (20mg/m3) 8h TWA. UK EH40: OES 15ppm (60mg/m3) 15min TWA. Can be absorbed through skin.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Control Measures	Engineering methods to prevent or control exposure are preferred. Methods include process or personnel enclosure, mechanical ventilation (local exhaust), and control of process conditions.
Respiratory Protection	Respiratory protection if there is a risk of exposure to high vapor concentrations. The specific respirator selected must be based on the airborne concentration found in the workplace and must not exceed the working limits of the respirator.
Hand Protection	Butyl rubber gloves. Other chemical resistant gloves may be recommended by your safety professional.
Eye Protection	Chemical goggles.
Body Protection	Normal work wear.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Liquid
Color	Blue
Odor	Acrylate
VOC (g/l)	244.92
Specific Gravity	1.0-1.1
pH	3.5 - 4
Boiling Range/Point (°C/F)	104 /220
Flash Point (PMCC) (°C/F)	>93 / >200
Explosion Limits (%)	Upper limit 10.9. Lower limit 1.5 at 151 °C.
Solubility in Water	Emulsifies.
Vapor Density (Air = 1)	Heavier than air.
Evaporation Rate	Slower than ether
Vapor Pressure	Propylene glycol monomethyl ether: 12.5 mmHg at 25 °C.

10. STABILITY AND REACTIVITY

Stability	Stable under normal conditions.
Conditions to Avoid	- High temperatures - Static discharge
Incompatibilities	- Oxidizing agents - Acids - Alkalis

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Hazardous Polymerization	Will not occur.
Hazardous Decomposition Products	- carbon monoxide - Carbon Dioxide - oxides of sulfur - oxides of nitrogen - morpholine - acrylate monomers

11. TOXICOLOGICAL INFORMATION

Acute Data	Propylene glycol monomethyl ether: Oral LD50 (rat) 6065mg/kg.
Chronic/Subchronic Data	No relevant studies identified.
Genotoxicity	The product did not exhibit mutagenic activity in the following systems (with and without metabolic activation): - Chinese hamster ovary cells No significant mutagenic response was observed and the carcinogenic potential of the material is therefore considered to be low.
Reproductive/Developmental Toxicity	Propylene glycol monomethyl ether: Inhalation teratology testing of this solvent (with less than 3% beta isomer) revealed no maternally toxic, teratogenic or fetotoxic responses in rats or rabbits exposed to concentrations as high as 1,500 ppm. Concentrations reaching nearly 3,000 ppm produced maternal toxicity in rats. When maternal toxicity occurred slight fetotoxicity but no teratogenicity was also observed in these animals. These effects were not observed in rabbits exposed to this dose level. Propylene glycol monomethyl ether: Dermal teratology testing of this solvent (with less than 3% beta isomer) revealed no maternally toxic, teratogenic or fetotoxic responses in rats or rabbits exposed to concentrations of 1,000 and 2,000 mg/kg per day.
Additional Data	None known.

12. ECOLOGICAL INFORMATION

Mobility	The product will dissolve rapidly in water. The product is poorly absorbed onto soils or sediments. The product will leach into soil.
Persistence/Degradability	Major components are readily biodegradable but the product

12. ECOLOGICAL INFORMATION

	contains components that are expected to be non-degradable.
Bio-accumulation	Product is not expected to bioaccumulate.
Ecotoxicity	Propylene glycol monomethyl ether: Tests on the following species gave a LC50 of 20800mg/litre: - fathead minnows Tests on the following species gave a LC50 of 23800mg/litre: - daphnia

13. DISPOSAL CONSIDERATIONS

Product Disposal	Incineration is the recommended method of disposal. Dispose of in accordance with all applicable local and national regulations.
Container Disposal	Labels should not be removed from containers until they have been cleaned. Empty containers may contain hazardous residues. Dispose of containers with care.

14. TRANSPORT INFORMATION

DOT Ground:	Not Regulated
UN Proper Shipping Name	Not Regulated
UN Class	Not applicable.
UN Number	Not applicable.
UN Packaging Group	Not applicable.
N.O.S. 1:	Not applicable.
N.O.S. 2:	
Subsidiary Risks	None.
ADR/RID Substance Identification Number	None assigned.
CERCLA RQ	Not applicable.
Marine Pollutant	No.

15. REGULATORY INFORMATION

TSCA Listed	All components of this product are listed on the U.S. Toxic Substances Control Act Chemical Inventory (TSCA Inventory) or are exempted from listing because a Low Volume Exemption has been granted in accordance with 40 CFR 723.50. This product is not subject to a Section 5(e) Consent Order or Significant New Use Rule (SNUR).

15. REGULATORY INFORMATION

TSCA Exemptions	
TSCA Sec.12(b) Export Notification	N/A
WHMIS Classification	D.2.B
MA Right To Know Law	All components have been checked for inclusion on the Massachusetts Substance List (MSL). Those components present at the de minimus concentration have been identified in the hazardous ingredients section of the MSDS.
California Proposition 65	This product contains the following chemicals that have been found by the State of California to cause cancer, birth defects or other reproductive harm: - ethyl acrylate
SARA TITLE III-Section 311/312 Categorization (40 CFR 370)	Immediate, delayed health hazard
SARA TITLE III-Section 313 (40 CFR 372)	This product does not contain a chemical which is listed in Section 313 at or above de minimis concentrations.

16. OTHER INFORMATION

NFPA Rating- FIRE	0
NFPA Rating- HEALTH	2
NFPA Rating- REACTIVITY	0
NFPA Rating- SPECIAL	None.
Revisions Highlighted	Composition/Information on the Components First Aid Measures SARA TITLE III-Section 313
Abbreviations	CAS#: Chemical Abstract Services Number ACGIH: American Conference of Governmental Industrial Hygienists OSHA: Occupational Safety and Health Administration TLV: Threshold Limit Value PEL: Permissible Exposure Limit STEL: Short Term Exposure Limit NTP: National Toxicology Program IARC: International Agency for Research on Cancer R: Risk S: Safety LD50: Lethal Dose 50% LC50: Lethal Concentration 50% BOD: Biological Oxygen Demand

16. OTHER INFORMATION

Koc: Soil Organic Carbon Partition Coefficient.
TLm: Median Tolerance Limit

Disclaimer
The data contained herein is based on information that Shipley Company believes to be reliable, but no expressed or implied warranty is made with regard to the accuracy of such data or its suitability for a given situation. Such data relates only to the specific product described and not to such products in combination with any other product and no agent of Shipley Company is authorized to vary any of such data. Shipley Company and its agents disclaim all liability for any action taken or foregone on reliance upon such data.