SHIPLEY

MATERIAL SAFETY DATA SHEET

UVIII-0.5 PHOTO RESIST

33830 5.00 US US 16.04.1998 MSDS_US

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Code	33830
Trade Name	UVIII-0.5 PHOTO RESIST
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	2 July 1996
MSDS data revised	16 April 1998
Prepared By:	Amy C. Nichols
Local Sales Company	Shipley Company, 455 Forest Street, Marlboro, MA 01752 (508-481-7950)

2. COMPOSITION/INFORMATION ON THE INGREDIENTS

Components in Product

Component Name	CAS# / Codes	Concentration
ethyl lactate	97-64-3	87.00 - 88.00
Acrylic Copolymer		10.00 - 20.00
Organic Siloxane Surfactant		0.01 - 1.00
Aromatic Sulfur Compound		< 1.00

3. HAZARD IDENTIFICATION

Main Hazards	- Irritant - Combustible - Skin - Eye - Nervous System - Respiratory System
Routes of Entry	Inhalation, ingestion, eye and skin contact, absorption.
Carcinogenic Status	Not considered carcinogenic by NTP, IARC and OSHA
Target Organs	- Skin - Eye - Nervous System - Respiratory System
Health Effects - Eyes	Liquid or vapor may cause slight transient irritation.
Health Effects - Skin	Material may cause slight irritation on prolonged or repeated contact. Repeated or prolonged contact may produce defatting of the skin leading to irritation and dermatitis.
Health Effects - Ingestion	Swallowing may have the following effects:

3. HAZARD IDENTIFICATION

- irritation of mouth, throat and digestive tract

Health Effects - Inhalation

Exposure to vapor at high concentrations may have the following effects:
- drowsiness - irritation of nose, throat and respiratory tract

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. Obtain medical attention if blistering occurs or redness persists.

First Aid - Ingestion

Wash out mouth with water. Obtain medical attention.

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 Hazards

Pressure may build up in closed containers with possible liberation of combustible vapors.

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.

6. ACCIDENTAL RELEASE MEASURES

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
None known.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Standards
ethyl lactate None assigned.

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.

Eye Protection Chemical goggles.

Body Protection Normal work wear.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State Liquid
Color Clear
Odor Sweet

9. PHYSICAL AND CHEMICAL PROPERTIES

VOC (g/l)	910.76
Specific Gravity	1.04
pH	Neutral
Boiling Range/Point (°C/F)	154 / 309
Flash Point (PMCC) (°C/F)	48.9 / 120
Explosion Limits (%)	ethyl lactate: Lower limit 1.6%
Solubility in Water	Partially soluble.
Vapor Density (Air = 1)	Heavier than air.
Evaporation Rate	Slower than ether
Vapor Pressure	Ethyl Lactate: 2.0 mmHg at 20 °C.

10. STABILITY AND REACTIVITY

Stability	Stable under normal conditions.
Conditions to Avoid	- High temperatures - Static discharge
Incompatibilities	- Oxidizing agents - Bases - Acids
Hazardous Polymerization	Will not occur.
Hazardous Decomposition Products	- carbon monoxide - Carbon Dioxide - Acrylics - oxides of nitrogen

11. TOXICOLOGICAL INFORMATION

Acute Data	ethyl lactate: Oral LD50 (mouse) 2500mg/kg.
Chronic/Subchronic Data	No data.
Genotoxicity	No adverse effects are expected.
Reproductive/Developmental Toxicity	No adverse reproductive effects were observed in experimental animals.
Additional Data	None known.

12. ECOLOGICAL INFORMATION

Mobility	No relevant studies identified.

12. ECOLOGICAL INFORMATION

Persistence/Degradability	ethyl lactate: COD = 0.00166g/g.
Bio-accumulation	Product is not expected to bioaccumulate.
Ecotoxicity	ethyl lactate: Tests on the following species gave a 48h EC50 of 683mg/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 per 49 CFR 173.150(f)(2)
UN Proper Shipping Name	Ethyl Lactate Solution
UN Class	(3) Flammable Liquid
UN Number	UN1192
UN Packaging Group	III
N.O.S. 1:	Not applicable.
N.O.S. 2:	Not applicable.
Subsidiary Risks	None.
ADR/RID Substance Identification Number	CLASS 3 - 31(c)
CERCLA RQ	None.
Marine Pollutant	No.

15. REGULATORY INFORMATION

TSCA Listed	Yes
TSCA Exemptions	
WHMIS Classification	D.2.B B.3
MA Right To Know Law	All components have been checked for inclusion on the

15. REGULATORY INFORMATION

	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: - Toluene (trace)
SARA TITLE III-Section 311/312 Categorization (40 CFR 370)	Immediate, delayed, flammability 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	2
NFPA Rating- HEALTH	2
NFPA Rating- REACTIVITY	0
NFPA Rating- SPECIAL	None.
Revisions Highlighted	Boiling Range/Point (°C/F) Flash Point (PMCC) (°C/F)
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 Koc: Soil Organic Carbon Partition Coefficient. TLm: Median Tolerance Limit

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16. OTHER INFORMATION

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