



## MATERIAL SAFETY DATA SHEET

### PEPR 2400 PHOTO RESIST

10560 4.00 US US 22.10.1999 MSDS\_US

## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Code	10560
Trade Name	PEPR 2400 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	30 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
2-octanone	111-13-7	< 5.00
triethanolamine	102-71-6	< 1.00
1-methyl-2-pyrrolidinone	872-50-4	< 3.00
Diazo photoactive compound		< 5.00
Dye Compound		< 1.00
acrylic copolymer		< 20.00

## 3. HAZARD IDENTIFICATION

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

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**3. HAZARD IDENTIFICATION**

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<b>Health Effects - Ingestion</b>	A large dose may have the following effects: - irritation of mouth, throat and digestive tract
<b>Health Effects - Inhalation</b>	Exposure to vapor at high concentrations may have the following effects: - irritation of nose, throat and respiratory tract

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**4. FIRST AID MEASURES**

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<b>First Aid - Eyes</b>	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.
<b>First Aid - Skin</b>	Wash skin with water. Continue washing for at least 15 minutes. Obtain medical attention if blistering occurs or redness persists.
<b>First Aid - Ingestion</b>	Wash out mouth with water. Have victim drink 1-3 glasses of water to dilute stomach contents. Induce vomiting. Obtain medical attention.
<b>First Aid - Inhalation</b>	Remove from exposure. If there is difficulty in breathing, give oxygen. Seek medical attention if symptoms persist.
<b>Advice to Physicians</b>	Treat symptomatically.

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**5. FIRE FIGHTING MEASURES**

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<b>Extinguishing Media</b>	Use water spray, foam, dry chemical or carbon dioxide. Keep containers and surroundings cool with water spray.
<b>Special Fire-Fighting Procedures</b>	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.
<b>Unusual Fire &amp; Explosion Hazards</b>	Pressure may build up in closed containers with possible liberation of combustible vapors.
<b>Protective Equipment for Fire-Fighting</b>	Wear full protective clothing and self-contained breathing apparatus.

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**6. ACCIDENTAL RELEASE MEASURES**

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<b>Spill Procedures</b>	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.
<b>Personal Precautions</b>	Wear appropriate protective clothing. Wear respiratory protection. Eliminate all sources of ignition.
<b>Environmental Precautions</b>	Prevent the material from entering drains or water courses.

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**7. HANDLING AND STORAGE**

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<b>Handling</b>	Use local exhaust ventilation. Avoid contact with eyes, skin and clothing. Keep container tightly closed when not in use.
<b>Storage</b>	Store in original containers. Store away from sources of heat or ignition. Storage area should be: - cool - dry - well ventilated - out of direct sunlight
<b>Other</b>	Proprietary photoresist film is composed of acrylate copolymers. Unexposed photoresist contains acrylate monomers, which are skin irritants.

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**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

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<b>Occupational Exposure Standards</b>	
<b>2-octanone</b>	None assigned.
<b>triethanolamine</b>	ACGIH: TLV 5mg/m <sup>3</sup> 8h TWA.
<b>1-methyl-2-pyrrolidinone</b>	An exposure limit of 25ppm is recommended. Can be absorbed through skin. An exposure limit of 75ppm is recommended. (15min)
<b>Engineering Control Measures</b>	Engineering methods to prevent or control exposure are preferred. Methods include process or personnel enclosure, mechanical ventilation (local exhaust), and control of process conditions.
<b>Respiratory Protection</b>	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.
<b>Hand Protection</b>	Butyl rubber gloves. Other chemical resistant gloves may be

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**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

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	recommended by your safety professional.
Eye Protection	Chemical goggles.
Body Protection	Normal work wear.

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**9. PHYSICAL AND CHEMICAL PROPERTIES**

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Physical State	Liquid
Color	Blue - Green
Odor	Acrylate
VOC (g/l)	207
Specific Gravity	1.037
pH	~8
Boiling Range/Point (°C/F)	104 /220
Flash Point (PMCC) (°C/F)	>93 / >200
Explosion Limits (%)	Not determined.
Solubility in Water	Completely soluble.
Vapor Density (Air = 1)	Heavier than air.
Evaporation Rate	Slower than ether
Vapor Pressure	2-Octanone: 1.2mmHg at 25 °C. 1-methyl-2-pyrrolidinone: 0.29mmHg at 20 °C.

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**10. STABILITY AND REACTIVITY**

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

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**11. TOXICOLOGICAL INFORMATION**

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Acute Data	1-methyl-2-pyrrolidinone: Dermal LD50 (rat) 8000mg/kg.
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**11. TOXICOLOGICAL INFORMATION**

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	2-Octanone: Oral LD50 (rat) 3824mg/kg.
Chronic/Subchronic Data	This product is not expected to cause any carcinogenic effects.
Genotoxicity	No adverse effects are expected.
Reproductive/Developmental Toxicity	No relevant studies identified.
Additional Data	None known.

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**12. ECOLOGICAL INFORMATION**

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Mobility	A major part of 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 contains components that are expected to be non-degradable.
Bio-accumulation	Product is not expected to bioaccumulate.
Ecotoxicity	The product may be harmful to aquatic organisms.

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**13. DISPOSAL CONSIDERATIONS**

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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.

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**14. TRANSPORT INFORMATION**

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DOT Ground:	Not Regulated
UN Proper Shipping Name	Not Regulated
UN Class	Not applicable.
UN Number	Not applicable.
UN Packaging Group	Not applicable.

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**14. TRANSPORT INFORMATION**

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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.

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**15. REGULATORY INFORMATION**

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<b>TSCA Listed</b>	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).
<b>TSCA Exemptions</b>	
<b>TSCA Sec.12(b) Export Notification</b>	U.S. exporters of this product are required to notify the U.S. Environmental Protection Agency (EPA) that a regulated substance(s) is leaving the U.S. market. This product contains the following substance(s) which are subject to Section 12(b) export notification: - 1-Methyl-2-pyrrolidinone (CAS# 872-50-4)
<b>WHMIS Classification</b>	D.2.B
<b>MA Right To Know Law</b>	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.
<b>California Proposition 65</b>	This product does not contain materials which the State of California has found to cause cancer, birth defects or other reproductive harm.
<b>SARA TITLE III-Section 311/312 Categorization (40 CFR 370)</b>	Immediate, delayed health hazard
<b>SARA TITLE III-Section 313 (40 CFR 372)</b>	This product contains a chemical which is listed in Section 313 at or above de minimis concentrations. The following listed chemicals are present: (quantity present is found elsewhere on this MSDS) - 1-methyl-2-pyrrolidinone (872-50-4)



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#### 16. OTHER INFORMATION

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NFPA Rating- FIRE	0
NFPA Rating- HEALTH	2
NFPA Rating- REACTIVITY	0
NFPA Rating- SPECIAL	None.

Revisions Highlighted	Composition/Information on the Components Health Effects - Inhalation First Aid Measures
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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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#### 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.