



## MATERIAL SAFETY DATA

OCEAN NETWORK EMERGENCY PHONE 1-800-OLIN-911

THIS MATERIAL SAFETY DATA SHEET (MSDS) HAS BEEN PREPARED IN COMPLIANCE WITH THE FEDERAL OSHA HAZARD COMMUNICATION STANDARD, 29 CFR 1910.1200. THIS PRODUCT MAY BE CONSIDERED TO BE A HAZARDOUS CHEMICAL UNDER THAT STANDARD. (REFER TO THE OSHA CLASSIFICATION IN SEC. I.) THIS INFORMATION IS REQUIRED TO BE DISCLOSED FOR SAFETY IN THE WORKPLACE. THE EXPOSURE TO THE COMMUNITY, IF ANY, IS QUITE DIFFERENT.

### I. PRODUCT IDENTIFICATION

REVISION NO : 1  
REVISION DATE : 8/03/92  
PRODUCT CODE : JPE841528  
FILE NUMBER : JPE01152.0002  
PRODUCT NAME: PBS RESIST DEVELOPER 1

SYNONYMS: Not Available/Mixture  
CHEMICAL FAMILY: Aliphatic ketone  
FORMULA: Not Applicable/Mixture  
USE DESCRIPTION: A blend of organic solvents employed in microlithography  
OSHA HAZARD CLASSIFICATION: Flammable liquid; skin, eye and respiratory  
irritant; nervous system toxin;  
possible sensitizer

### II. COMPONENT DATA

#### PRODUCT COMPOSITION

CAS or CHEMICAL NAME: 5-Methyl-2-hexanone  
CAS NUMBER: 110-12-3  
PERCENTAGE RANGE: 70-90%  
HAZARDOUS PER 29 CFR 1910.1200: Yes  
EXPOSURE STANDARDS: None established

CAS or CHEMICAL NAME: 2-Pentanone  
CAS NUMBER: 107-87-9  
PERCENTAGE RANGE: 10-30%  
HAZARDOUS PER 29 CFR 1910.1200: Yes  
EXPOSURE STANDARDS:

	OSHA (PEL)		ACGIH (TLV)	
	ppm	mg/cubic-meter	ppm	mg/cubic-meter
TWA:	200		200	
CEILING:		None		None
STEL:	250		250	



## MATERIAL SAFETY DATA

### SKIN PROTECTIVE EQUIPMENT:

Use chemical goggles and impermeable gloves.

### EQUIPMENT SPECIFICATIONS: (WHEN APPLICABLE)

RESPIRATOR TYPE: NIOSH/MSHA approved organic vapor respirator

PROTECTIVE CLOTHING TYPE: (This includes: gloves, boots, apron, protective suit): Impervious

## VI. FIRE AND EXPLOSION HAZARD INFORMATION

### FLAMMABILITY DATA:

FLAMMABLE: Yes

COMBUSTIBLE: Not Applicable

PYROPHORIC: No

FLASH POINT: 13 Deg.C (56 Deg.F) Test Method: TCC

AUTOIGNITION TEMPERATURE: No Data

FLAMMABLE LIMITS AT NORMAL ATMOSPHERIC TEMPERATURE AND PRESSURE (PERCENT

VOLUME IN AIR): UEL - No Data LEL - No Data

### NFPA RATINGS:

Not Established

### HMIS RATINGS:

Health: 2

Flammability: 3

Reactivity: 0

### EXTINGUISHING MEDIA:

Alcohol resistant foam, carbon dioxide, dry chemical, water spray

### FIRE FIGHTING TECHNIQUES AND COMMENTS:

Use water to cool containers exposed to fire.

See Section XI for protective equipment for fire fighting.

OTHER: For cargo fires, use unmanned hose holder or monitor.

## VII. REACTIVITY INFORMATION

### CONDITIONS UNDER WHICH THIS PRODUCT MAY BE UNSTABLE:

TEMPERATURES ABOVE: Stable under normal conditions

MECHANICAL SHOCK OR IMPACT: No

ELECTRICAL (STATIC) DISCHARGE: Sparks can cause ignition

OTHER: Open flame, sparks, heat





## MATERIAL SAFETY DATA

### WARNING STATEMENTS AND WARNING PROPERTIES

DO NOT TAKE INTERNALLY. CAUSES EYE AND MUCOUS MEMBRANE IRRITATION. CAUSES SKIN IRRITATION. CAUSES RESPIRATORY IRRITATION. INHALATION OF HIGH CONCENTRATIONS MAY CAUSE CNS DEPRESSION. PROLONGED OR REPEATED SKIN CONTACT MAY CAUSE DERMATITIS OR ALLERGIC SENSITIZATION.

### HUMAN THRESHOLD RESPONSE DATA

ODOR THRESHOLD: 11 ppm

IRRITATION THRESHOLD: No Data

IMMEDIATELY DANGEROUS TO LIFE OR HEALTH: The IDLH concentration is 5,000 ppm.

### SIGNS, SYMPTOMS, AND EFFECTS OF EXPOSURE

#### INHALATION

##### ACUTE:

If inhaled, may cause irritation to the throat, mucous membranes, upper respiratory tract, and lungs. Any irritation would be expected to be transient with no permanent damage expected. High concentrations in air may be narcotic and depress the central nervous system (CNS) with symptoms including headache, breathing difficulty, dizziness, drowsiness, loss of coordination, weakness, nausea, and vomiting.

##### CHRONIC:

No effects would be expected except for those listed under acute inhalation exposure.

#### SKIN

##### ACUTE:

Skin contact would be expected to cause an irritation consisting of transient redness. This irritant effect would not result in permanent damage.

##### CHRONIC:

Repeated or prolonged contact may cause a defatting action on the skin leading to dermatitis. Repeated exposure may result in allergic skin sensitization in some individuals.

#### EYE

Contact with the eyes would be expected to cause an irritation consisting of reversible redness, swelling and mucous membrane discharge to the conjunctiva. No corneal involvement or visual impairment would be expected.



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### MUTAGENICITY:

This product is not known or reported to be mutagenic. Methyl propyl ketone (2-Pentanone), an ingredient in this product, has been shown to be mutagenic in *Saccharomyces cerevisiae*. The relevance of this to mammalian systems is unknown.

### AQUATIC TOXICITY:

No data for product, individual constituents are as follows:

#### Methyl propyl ketone (2-Pentanone):

96 hr LC50 (fathead minnow): > 1,000 mg/l

96 hr LC50 (daphnid): > 1,000 mg/l

#### Methyl isoamyl ketone (5-Methyl-2-hexanone):

24 hr EC50: (daphnid): 560 mg/L

96 hr LC50 (daphnid): > 100 mg/L

96 hr LC50: (fathead minnow): 100-159 mg/L

48 hr LC50: (golden orfe): 164-193 mg/L

## X. TRANSPORTATION INFORMATION

THIS MATERIAL IS REGULATED AS A DOT HAZARDOUS MATERIAL.

DOT DESCRIPTION FROM THE HAZARDOUS MATERIALS TABLE 49 CFR 172.101:

LAND: KETONES, LIQUID, N.O.S. (METHYL ISOAMYL KETONE, METHYL  
PROPYL KETONE) 3, UN 1224, PG II

WATER: SAME AS ABOVE

AIR: SAME AS ABOVE

HAZARD LABEL/PLACARD: FLAMMABLE LIQUID

REPORTABLE QUANTITY: Not Applicable (Per 49 CFR 172.101, Appendix)

EMERGENCY GUIDE NO: 26

## XI. SPILL AND LEAKAGE PROCEDURES

FOR ALL TRANSPORTATION ACCIDENTS, CALL CHEMTREC AT 800-424-9300.

REPORTABLE QUANTITY: (Per 40 CFR 302.4) Not Applicable





## MATERIAL SAFETY DATA

As a hazardous liquid waste, it must be disposed of in accordance with local, state and federal regulations in a permitted hazardous waste treatment, storage and disposal facility by incineration.

CARE MUST BE TAKEN TO PREVENT ENVIRONMENTAL CONTAMINATION FROM THE USE OF THIS MATERIAL. THE USER OF THIS MATERIAL HAS THE RESPONSIBILITY TO DISPOSE OF UNUSED MATERIAL, RESIDUES AND CONTAINERS IN COMPLIANCE WITH ALL RELEVANT LOCAL, STATE AND FEDERAL LAWS AND REGULATIONS REGARDING TREATMENT, STORAGE AND DISPOSAL FOR HAZARDOUS AND NONHAZARDOUS WASTES.

### XIII. ADDITIONAL REGULATORY STATUS INFORMATION

#### TOXIC SUBSTANCES CONTROL ACT:

The components of this product are listed on the Toxic Substance Control Act inventory.

#### SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT TITLE III:

##### HAZARD CATEGORIES, PER 40 CFR 370.2:

##### HEALTH:

Immediate (Acute)

##### PHYSICAL:

Fire

#### EMERGENCY PLANNING AND COMMUNITY RIGHT TO KNOW, PER 40 CFR 355, APP.A:

##### EXTREMELY HAZARDOUS SUBSTANCE - THRESHOLD PLANNING QUANTITY:

None Established

#### SUPPLIER NOTIFICATION REQUIREMENTS, PER 40 CFR 372.45:

None Established

### XIV. ADDITIONAL INFORMATION

No Additional Information

### XV. MAJOR REFERENCES

1. ACGIH Guide to Protective Clothing. Cincinnati, OH: American Conference of Government Industrial Hygienists, 1987.
2. ANSI Z88.2. Recommended Practice for Respiratory Protection. American National Standards Institute, New York, NY.
3. Baker, C. J., The Fire Fighter's Handbook of Hazardous Materials, 4th Ed., Indiana: Maltese Enterprises, Inc., 1984.



## MATERIAL SAFETY DATA

26. Amore, John, E. and Earl Hautala, Odor as an Aid to Chemical Safety: Odor Thresholds Compared with Threshold Limit Values and Volatiles for 214 Industrial Chemicals in Air and Water Dilution. Journal of Applied Toxicology, Vol. 3, No. 6, pp. 272-290, 1983.
27. Zimmermann, F.K., et al., Acetone, methyl ethyl ketone, ethyl acetate, acetonitrile and other polar aprotic solvents are strong inducers of aneuploidy in *Saccharomyces cerevisiae*. Mutation Research, 149, pp. 339-351, 1985.

THE INFORMATION IN THIS MATERIAL SAFETY DATA SHEET SHOULD BE PROVIDED TO ALL WHO WILL USE, HANDLE, STORE, TRANSPORT, OR OTHERWISE BE EXPOSED TO THIS PRODUCT. THIS INFORMATION HAS BEEN PREPARED FOR THE GUIDANCE OF PLANT ENGINEERING, OPERATIONS AND MANAGEMENT AND FOR PERSONS WORKING WITH OR HANDLING THIS PRODUCT. OLIN BELIEVES THIS INFORMATION TO BE RELIABLE AND UP TO DATE AS OF THE DATE OF PUBLICATION, BUT MAKES NO WARRANTY THAT IT IS. ADDITIONALLY, IF THIS MATERIAL SAFETY DATA SHEET IS MORE THAN THREE YEARS OLD, YOU SHOULD CONTACT OLIN AT THE PHONE NUMBER LISTED BELOW TO MAKE CERTAIN THAT THIS SHEET IS CURRENT.

**OLIN MSDS CONTROL GROUP**

Olin Corporation  
120 Long Ridge Road  
Stamford, CT 06904

Phone Number: (203) 356-3449

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