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MATERIAL SAFETY DATA SHEET

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SECTION 1. CHEMICAL IDENTIFICATION -----

CHEMICAL NAME: Organic Polymer Solution
TRADE NAME: LOR B Series Resists

PRODUCT #: See Table 1 – Section 9

SECTION 2. COMPOSITION-----

HAZARDOUS
INGREDIENTS: Cyclopentanone (CAS: 120-92-3); 65-90%.
Propylene glycol monomethyl ether (CAS: 107-98-2); 10-15%

OTHER
INGREDIENTS: Polyaliphatic imide copolymer (CAS: 102322-80-5); 1-20%
Proprietary Dye, 0.1 - 2%
Proprietary Surfactant, <1%

SECTION 3. HAZARD DATA-----

INFLAMMABILITY: Flammable liquid.
SKIN CONTACT: Irritant.
EYE CONTACT: Severe eye irritant.
INGESTION: Harmful if ingested.
INHALATION: Harmful if inhaled.
MUTAGENICITY: Data not available.
CARCINOGENICITY: Data not available.
TARGET ORGANS: Eyes, Epidermis, Nervous System.

SECTION 4. FIRST AID MEASURES-----

INHALATION: Inhalation is not an expected route of exposure. If respiratory irritation or distress occurs remove victim to fresh air. Seek medical attention if respiratory irritation or distress continues.

INGESTION: If victim is conscious and alert, give 2-3 glasses of water to drink and induce vomiting by touching back of throat with a finger. Do not induce vomiting or give anything by mouth to an unconscious person. Seek immediate medical attention. Do not leave victim unattended. Vomiting may occur spontaneously. To prevent aspiration of swallowed product, lay victim on side with head lower than waist. If vomiting occurs and the victim is conscious, give water to further dilute the chemical.

SKIN CONTACT: In case of contact, immediately wash with plenty of soap and water for at least 5 minutes. Seek medical attention. Remove contaminated clothing and shoes. Clean contaminated clothing and shoes before re-use.

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SECTION 5. FIRE FIGHTING MEASURES

EXTINGUISHING

MEDIA: Dry chemical, carbon dioxide, alcohol foam, and universal foam.

SPECIAL FIRE FIGHTING PRECAUTIONS:

Firefighters should wear NIOSH/MSHA approved self-contained breathing apparatus and full protective clothing. Remove all ignition sources if it can be done safely.

UNUSUAL FIRE OR EXPLOSION HAZARDS:

Product will burn under fire conditions. Containers may explode (due to build-up of pressure) when exposed to extreme heat. Vapors may travel a considerable distance to a source of ignition and flash back along vapor trail.

SECTION 6. ACCIDENTAL RELEASE PROCEDURES

EVACUATION

PROCEDURES & SAFETY: Wear appropriate protective gear for the situation. See Personal Protection information in Section 8.

CLEANUP & DISPOSAL OF SPILL:

Absorb with an inert absorbent. Sweep up and place in an appropriate closed container (see Section 7). Clean up residual material by washing area with water. Collect washings for disposal.

ENVIRONMENTAL &

REGULATORY REPORTING: Do not flush to drain. If required proper authorities should be notified.

SECTION 7. STORAGE AND HANDLING PRECAUTIONS

STORAGE:

Store in tightly closed container in a cool, dry, well-ventilated environment away from ignition sources. Recommended container materials are polyethylene or glass.

HANDLING:

Use only under yellow light.
Keep away from heat, sparks, and flames.
Use only with mechanical exhaust.
Do not contact with skin, eyes, and clothing. Severe eye irritant.
Avoid prolonged or repeated contact with skin.
Do not breathe vapors or mist.
Wash with soap and water after handling.
Have safety shower and eye wash available.
Store and transfer under a blanket of dry inert gas.

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SECTION 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

RESPIRATORY PROTECTION: Under normal conditions, use of air-purifying (half-mask/full-face) respirator with cartridges/canisters approved for use against organic vapors, dust, mists and fumes is recommended.

VENTILATION: General area dilution/exhaust ventilation.

SKIN PROTECTION: Skin contact should be minimized through the use of gloves and suitable long-sleeved clothing.

EYE PROTECTION: Eye contact should be prevented through use of chemical safety glasses with side shields or splash proof goggles.

SECTION 9. PHYSICAL AND CHEMICAL DATA

APPEARANCE: Clear, yellow to brown
ODOR: Slightly sweet
BOILING POINT: 120-130 °C (248-266 °F)
SPECIFIC GRAVITY: See Table 1 below
VAPOR PRESSURE: 9 mm Hg @ 20 °C (68 °F)
VAPOR DENSITY: 2.3 (air=1)
H₂O SOLUBILITY: 10-20% @ 20 °C, by wt.
% VOLATILES: See Table 1 below
FLASH POINT: 30 °C (86 °F) TCC
AUTOIGNITION TEMP: 278 °C (532 °F)
FLAMMABILITY LIMITS: 1.3 lower (vol/vol %) unk. Upper

Table 1

Name	Product #	Specific Gravity	Volatiles (% by wt)	VOC (g/L)
LOR 0.7B	G316702	0.965	98	940
LOR 1B	G316703	0.967	96	930
LOR 2B	G316704	0.973	95	930
LOR 3B	G316707	0.980	93	920
LOR 5B	G316708	0.982	92	910
LOR 6B	G316709	0.984	91	900
LOR 7B	G316710	0.988	91	900
LOR 10B	G316711	0.990	89	880
LOR 15B	G316712	0.992	88	870
LOR 20B	G316715	1.002	86	860
LOR 30B	G316716	1.004	85	850
LOR 50B	G316719	1.007	82	830

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SECTION 10. REACTIVITY DATA

STABILITY: Stable
INCOMPATIBILITY: Strong Oxidizing Agents, Strong Bases, Strong Acids, Strong Reducing Agents, Iron, Hydrazine
HAZARDOUS POLYMERIZATION: May occur. Avoid extreme pH.
HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS: Oxides of carbon.

SECTION 11. TOXICITY HAZARDS

As cyclopentanone:

Acute Eye Irritation: eye irritation, 100mg, rabbit. Severely irritating.
Acute Skin Irritation: skin irritation, 500mg, rabbit. Mildly irritating.
Acute Dermal Toxicity: LD50 – lethal dose 50% of test species, >5000 mg/kg, rabbit.
Acute Respiratory Irritation: no test data found for product.
Acute Inhalation Toxicity: no test data found for product.
Acute Oral Toxicity: LD50 – lethal dose 50% of test species, 1180 mg/kg, rat.

As Propylene glycol monomethyl ether:

Acute Inhalation Toxicity: LC50 – 15,000 ppm, rat.
Acute Oral Toxicity: LD-50 – 6600 mg/kg, rat.

As Polyaliphatic imide copolymer:

No data available.

SECTION 12. ECOLOGICAL DATA

As cyclopentanone:

Data not available.

As Propylene glycol monomethyl ether:

It has a low potential to affect aquatic organisms.

Acute Aquatic Effects Data:
48-h EC50 (daphnia): 23,300 mg/L
96-h LC50 (fathead minnow): 20,800 mg/L
168-h EC50 (freshwater algae): 1,000mg/L

Biodegradation:
Biodegradable under aerobic or anaerobic conditions. Aerobic biodegradation of 96% after 28 days. Anaerobic biodegradation of 38% after 81 days (30 day lag period).

Bioaccumulation:
Not expected to bioaccumulate in aquatic organisms. Log Kow (calculated): -0.437

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Environmental Fate:
Vapors will photodegrade. Photochemical degradation of vapors in 3.1 hours.

SECTION 13. DISPOSAL CONSIDERATIONS-----

Comply with applicable local, state or international regulations regarding the proper disposal of this material and/or containers.

SECTION 14. TRANSPORTATION INFORMATION-----

HAZARD CLASSIFICATION: Flammable Liquid
SHIPPING NAME: Resin Solution
UN NUMBER: UN 1866
PACKING GROUP III

SECTION 15. REGULATORY INFORMATION-----

EUROPEAN INFORMATION

EINECS LISTED

EC Nos: Cyclopentanone 204-435-9, 1-Methoxy-2-Propanol 203-539-1

RISK & SAFETY PHRASES

R10 Flammable
R36/38 Irritating to eyes and skin
S2 Keep out of reach of children
S23 Do not breath vapor
S24 Avoid contact with skin

INDICATIONS OF DANGER

Xi Irritant

US AND INTERNATIONAL INFORMATION

HAZARDOUS LISTINGS: 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.

SARA Title III: This product IS NOT subject to SARA Title III, Section 313 Reporting Requirements.

Calif. SCAQMD Rule 443.1 VOC's: See Table 1 – Section 9

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SECTION 16. ADDITIONAL PRECAUTIONS AND COMMENTS

National Fire Protection Association Hazard Ratings – NFPA:

- 2 Health Hazard Rating
- 3 Flammability Rating
- 0 Reactivity Rating

To the best of our knowledge, the above information is believed to be accurate but does not claim to be all-inclusive and is intended to be used only as a guide. The supplier makes no warranty of any kind, expressed or implied, concerning the use of this product and shall not be held liable for any damage resulting from handling or from contact with the above product. User assumes all risks incident to its use.

MSDS Revision Information:

A) 3/03/06 – Review of MSDS – no changes