



1254 Chestnut Street
Newton, MA 02464-1418
Tel: (617) 965-5511
Fax: (617) 965-5818

MATERIAL SAFETY DATA SHEET

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SECTION 1. CHEMICAL IDENTIFICATION -----

CHEMICAL NAME: Organic Solvent Mixture
TRADE NAME: EBR PG
Positive Radiation Resist Edge Bead Remover
PRODUCT #: G042075

SECTION 2. COMPOSITION-----

HAZARDOUS
INGREDIENTS: 1,3-Dioxolane (CAS: 646-06-0); 70-80%
Propylene glycol monomethyl ether (CAS: 107-98-2); 20-30%
OTHER
INGREDIENTS: None

SECTION 3. HAZARD DATA-----

INFLAMMABILITY: Flammable liquid.
SKIN CONTACT: May cause skin irritation and/or dermatitis.
EYE CONTACT: Causes eye burns. Corrosive to the eyes and may cause severe damage including blindness.
INGESTION: Causes irritation of upper respiratory system and gastrointestinal disturbance.
INHALATION: Breathing of mists, vapors, or fumes may irritate the nose, throat and lungs.
MUTAGENICITY: Not known to be mutagenic.
CARCINOGENICITY: Not considered carcinogenic by NTP, IARC and OSHA
TARGET ORGANS: Skin, Eyes, Liver, Kidneys, Lungs and Nerves

SECTION 4. FIRST AID MEASURES-----

INHALATION: If inhaled, remove to fresh air. If patient has stopped breathing, give artificial respiration. If breathing is difficult give oxygen. Consult a physician.
INGESTION: Drink plenty of water if conscious. Do not induce vomiting. Consult a physician.
SKIN CONTACT: Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes.
EYE CONTACT: Rinse immediately with water, flush for 15 min. lifting eyelids frequently. Consult a physician.

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SECTION 5. FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA: Dry chemical, carbon dioxide, water spray or alcohol foam.
SPECIAL FIRE FIGHTING PRECAUTIONS: Wear self-contained breathing apparatus (SCBA) and full personal protective equipment to prevent contact with skin and eyes.

UNUSUAL FIRE OR EXPLOSION HAZARDS: Extremely flammable. Vapors are heavier than air and may spread along floors to source of ignition and flash back. Formaldehyde may form when burned or in contact with strong acids.

SECTION 6. ACCIDENTAL RELEASE PROCEDURES

EVACUATION PROCEDURES & SAFETY: Wear appropriate protective gear for the situation. See Personal Protection information in Section 8. Eliminate all sources of ignition. Do not breathe vapors or dust.

CLEANUP & DISPOSAL OF SPILL: Absorb with an inert absorbent. Sweep up and place in an appropriate closed container. Use clean, non-sparking tools to collect absorbed material.

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

SECTION 7. STORAGE AND HANDLING PRECAUTIONS

STORAGE: Store in inert atmosphere or keep well sealed to prevent the development of peroxides and other oxidation products.

HANDLING: Highly flammable. Keep away from heat, sparks, and flames. Take precautions against static discharge. Do not breathe vapors or spray mist. Use with adequate ventilation. Do not contact with skin, eyes, and clothing. Avoid prolonged or repeated exposure. Wear heavy rubber (butyl or neoprene) gloves. Wash with soap and water after handling. Have safety shower and eye wash available.

SECTION 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

RESPIRATORY PROTECTION: Use NIOSH approved respirator when ventilation is inadequate.
VENTILATION: Local or general mechanical ventilation is required.

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SKIN PROTECTION: Lightweight protective clothing. Chemical resistant apron. Solvent-resistant gloves (butyl or neoprene).
 EYE PROTECTION: Tightly fitting safety goggles are highly recommended.

SECTION 9. PHYSICAL AND CHEMICAL DATA

APPEARANCE: Colorless to pale yellow liquid
 ODOR: Ethereal
 BOILING POINT: 74-120 °C (168-248 °F)
 SPECIFIC GRAVITY: 1.030
 VAPOR PRESSURE: 70 mm @ 20 °C (68 °F)
 VAPOR DENSITY: 2.6 (air=1)
 H₂O SOLUBILITY: 100% @ 20 °C, by wt.
 % VOLATILES: 100% by wt
 EVAPORATION RATE: 3.5 (BuAc=1)
 FLASH POINT: -6 °C (21 °F) COC
 AUTOIGNITION TEMP: 274 °C (525 °F)
 EXPLOSION LIMITS: 2.1 lower (vol%)
 20.5 upper (vol%)

SECTION 10. REACTIVITY DATA

STABILITY: If exposed to air, organic peroxides will develop.
 INCOMPATIBILITY: Strong Oxidizing Agents, Strong Acids
 HAZARDOUS POLYMERIZATION: Can occur.
 HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS: Formaldehyde may form when burned or in contact with strong acids.

SECTION 11. TOXICITY HAZARDS

CHRONIC TOXICITY: Chronic exposure may cause headache, confusion, tremors, memory loss, slurred speech and anorexia. Prolonged or repeated exposure may cause injuries to liver, kidneys, lungs, nerves and hereditary factors. Chronic inhalation causes tiredness, headache and rhinitis.

ORAL: LD50 (rat) 3000 mg/Kg as 1,3-Dioxolane
 LD50 (rat) 6600 mg/Kg as Propylene glycol monomethyl ether

INHALATION: LC50 (rat) 20,650 mg/m³; 4hr; as 1,3-Dioxolane
 LC50 (rat) 15,000 ppm; as Propylene glycol monomethyl ether

TLV: ACGIH (TWA) 100 ppm as Propylene glycol monomethyl ether
 (STEL) 150 ppm as Propylene glycol monomethyl ether

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PEL: OSHA (8hr TWA) 100 ppm as Propylene glycol monomethyl ether
(STEL) 150 ppm as Propylene glycol monomethyl ether

SECTION 12. ECOLOGICAL DATA

No data available at this time

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: Dioxolane Solution
UN NUMBER: UN 1166
PACKING GROUP II

SECTION 15. REGULATORY INFORMATION

EUROPEAN INFORMATION

EINECS LISTED

EC Nos: 1,3-Dioxolane 211-463-5; 1 Methoxy-2-propanol 203-539-1

RISK & SAFETY PHRASES

R11 Highly flammable
S2 Keep out of the reach of children
S16 Keep away from sources of ignition – No smoking
S24 Avoid contact with the skin

INDICATIONS OF DANGER

F Flammable

US AND INTERNATIONAL INFORMATION

HAZARDOUS LISTINGS: All ingredients appear on the TSCA Inventory of Chemical Substances, EINECS, DSL and the Japan Hazardous Chemical Listing.

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

Calif. SCAQMD Rule 443.1 VOC's: 1030 g/l; vapor pressure 70 mm Hg @ 20 °C

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SECTION 16. ADDITIONAL PRECAUTIONS AND COMMENTS

National Fire Protection Association Hazard Ratings – NFPA:

- 2 Health Hazard Rating
- 3 Flammability Rating
- 1 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) Section 1, Page 1: Removed trademark name “NANO” from Trade Name.
- B) Header, Pages 2 – 5: Removed trademark name “NANO” from Trade Name.