

# SAFETY DATA SHEET

## ENTRON-AE® Non-Flammable Asphalt Extraction Solvent

### 1. Product and Company Information:

**Product Name:** ENTRON-AE

**Chemical Family:** Akyl Bromide


**Product General Use:** Non-Flammable Solvent for Asphalt Extractions and Other Industrial Uses

**Manufacturer:** Reliance Specialty Products, Inc.,  
855 Morse Ave., Elk Grove Village, IL 60007  
Ph. 847-640-8923 www.relspec.com

**Emergency Telephone Number:** CHEM-TEL 24 HOUR EMERGENCY RESPONSE  
USA and CANADA: Ph. (800) 255-3924

**Non-Emergency Telephone Number:** Reliance Technical Support Dept. at 847-640-8923

### 2. Hazards Identification

Signal Word	Danger
Symbol	
Hazard Statements	May damage fertility (reduced sperm motility and increased estrous cycle length) May cause cancer in animals - with unknown relevance to humans May cause damage to the central nervous system through prolonged or repeated over-exposure May cause serious eye irritation May cause respiratory irritation May cause skin irritation May cause drowsiness or dizziness Harmful to aquatic life – Do not dispose into public sewer or waterways
Precautionary Statements	Keep away from heat/sparks/open flames/hot surfaces. - No smoking Do not breathe dust/fume/gas/mist/vapors/spray Wear protective gloves/protective clothing/eye protection/face protection Avoid release to the environment IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower In case of fire: Use carbon dioxide, dry chemical powder, alcohol foam or polymer foam for extinction IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing IF INHALED: Remove person to fresh air and keep comfortable for breathing Call a POISON CENTER or doctor/physician if you feel unwell Store in a well-ventilated place. Keep container tightly closed Dispose of contents/container in accordance with national and international Regulations

**Occupation Exposure Limits:** See Section 8 of this SDS

**Additional Toxicological Information:** See Section 11 of this SDS

### 3. Composition and Ingredient Information

Component	CAS Number	Weight Percentage
n Propyl Bromide (stabilized) (synonym: 1-Bromopropane)	106-94-5	>90.0%
1,2 Butylene Oxide (synonym: 1,2 Epoxybutane)	106-88-7	<2.0%
Proprietary Components - Trade Secret	N/A	<8.0%

### 4. First Aid Measures

**Eye contact:** Holding the eyelids apart, flush eyes promptly with copious flowing water for at least 20 minutes.

Get medical attention immediately.

**Skin contact:** Remove contaminated clothing. Wash skin thoroughly with mild soap and plenty of water for at least 15 minutes.

Wash clothing before reuse. Get medical attention immediately.

**Inhalation:** In case of mist inhalation or breathing fumes released from heated material, remove person to fresh air. Keep him quiet and warm. Apply artificial respiration if necessary and get medical attention immediately.

**Ingestion:** If swallowed, wash mouth thoroughly with plenty of water. Get medical attention immediately.

NOTE: Never give an unconscious person anything to drink

#### Most important symptoms and effects of short term overexposure:

**Eye:** Causes serious eye irritation

**Skin:** Causes skin irritation

**Inhalation:** May cause respiratory irritation. May cause drowsiness or dizziness

**Ingestion:** Large doses or repeated intake of bromides may affect the central nervous system.

**Symptoms of short-term overexposure:** Symptoms of short-term overexposure may include drowsiness, dizziness, muscular incoordination and respiratory depression.

### 5. Fire Fighting Measures

#### FLASH POINT:

NONE by ASTM D-56 TC

NONE by ASTM D-92 COC

NONE by ASTM D-93 TCC

**FLAMMABLE LIMITS:** 3.0 to 9.0% by volume in air

**AUTO-IGNITION TEMPERATURE:** 490° C

**Extinguishing Media:** Use dry chemical, chemical foam, or carbon dioxide as dictated by the surrounding circumstances.

**Special Fire Fighting Procedures:** Wear NIOSH approved self-contained breathing apparatus (set on positive pressure mode) and personal protective equipment. Avoid skin and eyes contact in fire situations.

**Unusual Fire and Explosions Hazard:** In fires, toxic and corrosive gases may be released. Vapor will form a flammable mixture in a narrow concentration range of 3.0% to 9.0% by volume in air.

### 6. Accidental Release Measures

Contain spillage or leakage with dikes or absorbent material to prevent migration into sewer or waterway. Absorb spill with an inert material and place in a chemical waste container for disposal. For large spills, evacuate and ventilate the area. Wear self-contained breathing apparatus and recommended personal protective equipment. Observe government regulations.

### 7. Handling and Storage

Store in well ventilated, cool, dry area. Store in original container only. Keep container closed when not in use. Minimize introduction of water or moisture into the product.

## 8. Exposure Controls and Personal Protection

Component	Weight Percentage	Non-Governmental Recommendations	U.S. Federal Workplace Exposure Limits / Workplace Exposure Recommendations
n Propyl Bromide (stabilized) CAS No. 106-94-5 (synonym: 1-Bromopropane)	>90.0%	ACGIH TLV: A3, 0.10 ppm ACGIH TLV-STEL: None	OSHA PEL: Not Established OSHA STEL/ Ceiling: Not Established US EPA SNAP Program: 18 to 25 ppm
1,2 Butylene Oxide CAS No. 106-88-7 (synonym: 1,2 Epoxybutane)	<2.0%	ACGIH TLV: None ACGHI TLV-STEL: None	OSHA PEL: Not Established OSHA STEL/Ceiling: Not Established US EPA SNAP Program: Not Applicable
Proprietary Components - Trade Secret	<8.0%	ACGIH TLV: 20 ppm ACGHI TLV-STEL: None	OSHA PEL: 100 ppm OSHA STEL/Ceiling: Not Established US EPA SNAP Program: Not Applicable

**RESPIRATORY PROTECTION:** Use NIOSH approved organic vapor respirator if ventilation is not sufficient. Of particular concern is when filling, emptying, operating or maintaining your cleaning equipment and at other instances where there is a likelihood of inhalation of solvent vapors.

**VENTALATION AND PROPER EQUIPMENT CONTROLS:** Exposure to the product can be minimized through use of appropriate ventilation and emission controls and proper equipment maintenance.

**CLOTHING/GLOVES:** Wear safety glasses. Use of gloves is recommended. Viton or Silvershield gloves offer the best extended protection. Nitrile, neoprene, or butyl gloves offer less protection and should be used for incidental splash protection only. **DO NOT** use natural rubber gloves when handling this product.

**EYE PROTECTION:** Always wear safety goggles or full face shield.

**WORK/HYGIENIC PRACTICES:** Do not eat, drink, or smoke while working with this product. Launder soiled clothes. Provide emergency eye bath and safety shower.

## 9. Physical Properties

**FLASH POINT:** NONE by ASTM D-56, D-92 and D-93

**FLAMMABLE LIMITS:** 3.0 to 9.0% by volume in air

**AUTO-IGNITION TEMPERATURE:** 490° C

**APPEARANCE:** clear liquid

**VAPOR PRESSURE:** (mm Hg @ 25° C): 139

**ODOR:** Ether/Alcohol Like

**RELATIVE VAPOR DENSITY:** (Air =1): 4.3

**pH:** 6.5 to 7.5

**SOLUBILITY IN WATER:** Negligible (0.25 g/100ml)

**MELTING POINT/FREEZING POINT:** -110° C

**BOILING POINT:** (760 mm Hg): 160 °F (71 °C)

**PARTION COEFFICIENT; N-OCTANOL/WATER:** Not Determined

**EVAPORATION RATE:** (n-Butyl Acetate = 1): 4.5

**DECOMPOSITION TEMPERATURE:** Not Determined

**VISCOSITY:** cps at 25° C: 0.5

**SPECIFIC GRAVITY:** (25/25° C, H2O = 1): 1.26 to 1.31

**REACTIVITY IN WATER:** Not Readily Hydrolyzed

## 10. Stability and Reactivity

**STABILITY:** Stable under normal conditions.

**CONDITIONS TO AVOID:** Avoid open flame, electric arc and other high energy ignition sources. Prolonged contact with free water may result in diminished stabilizer and corrosion.

**INCOMPATIBILITY:** Incompatible with strong alkalis, oxidizers, bases, reactive metals and natural rubber.

**HAZARDOUS DECOMPOSITION:** Thermal decomposition produces carbon monoxide, carbon dioxide, and hydrogen bromide.

**HAZARDOUS POLYMERIZATION:** Will not occur.

---

## 11. Toxicological Information

### n-Propyl bromide

LD50 Oral/Rat > 2,000 mg/kg

LD50 Dermal/Rat > 2000 mg/kg

LC50 Inhalation/Rat = 72,306 mg/m<sup>3</sup>

Chronic Toxicity: Chronic or Prolonged over-exposure may cause adverse affects to the liver, kidneys, reproductive system and central nervous system

Reproductive: Male: BMDL of reduced sperm motility F0 at 282ppm - rat/inhalation\*

Female: LOAEL of increased estrous cycle length at 250ppm -rat/inhalation\*

\*USEPA SNAP Proposal conclusions based on outcome of Wil (2001).

Mutagenicity: Not mutagenic by the Ames Test

Carcinogenicity: IARC: Not listed

ACGIH: A3 – Animal carcinogen with unknown relevance to humans

Teratogenicity: NOEL is 100 ppm for maternal and fetal toxicity and for teratogenicity is 996 ppm (inhalation, rat, 6h/day, gestation day 6-19)

### 1,2 Butylene Oxide

LD50 Oral/Rat = 1,180 mg/kg

LD50 Dermal/Rabbit = 1,760 mg/kg

LC50 Inhalation/Rat = 6,300 mg/m<sup>3</sup> – 4 hours

Carcenogenicity: IARC: 2B

### **Symptoms of Over-exposure:**

**Short Term Over-exposure:** Symptoms of short-term overexposure may include drowsiness, dizziness, muscular incoordination and respiratory depression.

**Long Term/ Chronic Over-exposure:** Long term chronic over-exposure may cause adverse effects in the liver, respiratory system, kidney, reproductive system and central nervous system.

---

## 12. Ecological Information

**Ozone Depletion Potential (ODP):** The ODP of n-propyl bromide has been determined to be in the range of 0.006 to 0.013

**Aquatic Toxicity:** 96 Hour-LC50 Fish, 23.3 mg/l (rainbow trout)

48 Hour – EC50, Daphnia magna 99.3 mg/l

**Mobility:** Due to low affinity to soil and sediment (low Koc), expected to be mobile in soil

**Persistence and degradability:** Not readily biodegradable. n Propyl Bromide was shown to degrade in water by hydrolysis with a half-life of 562 hours (23.4 days).

**Bio-accumulative Potential:** Predicted BCF's are significantly below 2000, indicating a negligible potential for bioaccumulation or subsequent bio-magnification in the food chain.

---

## 13. Disposal Considerations

Follow all Federal, State and Local governmental regulations. DO NOT flush into sanitary sewer or waterway.

---

## 14. Transportation Information

CLASSIFICATION: Not regulated for transportation by US DOT or USPS

PROPER SHIPPING NAMES: Cleaning Solvent Mixture

---

## 15. Regulatory Information

**TCSA:** All of the components of this product are in the EPA TSCA inventory.

**NESHAP:** N/A

**RCRA:** N/A

**HAP:** N/A

**SARA:** Section 304 (RQ): None of the components have a RQ

Section 302 (TPQ): None of the Components have a TPQ

Section 313: The following components are subject to the reporting requirements of Section 313 of SARA Title III: 1,2 Butylene Oxide (106-88-7).

**CERCLA:** RQ of 100 lbs. for 1,2, Butylene Oxide (CAS 106-88-7), Note: that an RQ of 100 lbs at the component's weight % in composition requires approximately 1,500 gallons of ENTRON mixture to reach RQ's threshold.

### USEPA SNAP PROGRAM:

- **FINAL USE APPROVAL:** USEPA SNAP Program Final Approval was received in May 2007 for use in Metal Cleaning, Electronics Cleaning and Precision Cleaning.
- **INTERIM USE AUTHORIZATION:** USEPA SNAP Program interim authorization for use in the Use Sectors in Carriers, Adhesive Carriers and Aerosols was issued in 2003 pending a final determination by the SNAP Program for continued use in those Use Sectors.

**EEC (EINECS):** Ingredients Listed

**CANADA (DSL):** Ingredients Listed

**STATE REGULATION:** Listed Ingredients: CA, MA, NJ, PA

---

## 16. Other Information

**HMIS RATING (Scale 0 to 4):**

	HMIS
Health	2
Flammability	1
Physical Hazards	0



\*Chronic Hazard (Long-term health effects may result from repeated overexposure.)

0= Minimal Hazard, 1= Slight Hazard, 2= Moderate Hazard, 3 = Serious Hazard, 4= Severe Hazard

Reliance Specialty Products, Inc.'s offers the information and opinions contained in this Safety Data Sheet as a guide to the physical characteristics and use of this Product and believe it to be accurate as of the date of this document. However, it is the responsibility of the user to establish the suitability of the Product for their particular application and to establish the conditions for safe use of the product and compliance with all applicable laws and regulations. Reliance Specialty Products, Inc. disclaims all warranties, express or implied, including merchantability, fitness for a particular purpose or of any other nature in connection with the opinions and information contained herein and the use of the Product.

**END OF SDS**