

## Material Safety Data Sheet

### 1. Product and Company Identification

Enviro Tech International, Inc.  
2525 W. LeMoyne Avenue  
Melrose Park, Illinois 60160  
[www.eti-solvents.com](http://www.eti-solvents.com)

PRODUCT DESCRIPTION: Patented Stabilized n-Propyl Bromide Mixture  
U.S. Patents 5616549, 5824162, 5938859, 6176942 & 6402857B2. European Patent 781842:  
France, Great Britain, Italy, Netherlands; Sweden 781842. Germany 69604477.3 Canadian  
Patent 2284792. Israeli Patent 132000. Australian Patent 720172. Mexican Patent No. 212927.

PRODUCT GENERAL USE: Precision Vapor Degreasing, Ultrasonic Cleaning, Cold Wipe Cleaning

GENERAL DESCRIPTION: Non-flammable Azeotropic Solvent Mixture

CHEM-TEL 24-HR EMERGENCY CONTACT:  
U.S., CANADA, Puerto Rico,  
U.S. Virgin Islands (800) 255-3924  
INTERNATIONAL CALLS: (800) 248-0585  
Non-emergency: (708) 343-6641

### 2. Composition and Ingredient Information

n-Propyl Bromide (stabilized) Molecular Formula: C <sub>3</sub> H <sub>7</sub> Br CAS Number: 106-94-5 Synonyms: 1-Bromopropane, nPB, 1-BP	OSHA PEL not established	>90 % by weight
Patented Stabilizer Package Includes: nitromethane CAS 75-52-5 >0.6% 1,2 butylene oxide CAS 106-88-7 >0.6%	100 ppm Not established	Total <10 % by weight Other specific components and amounts of components comprise Trade Secrets per 1920.1200(i)(1)
Enviro Tech International, Inc. recommends a workplace exposure guideline of 100 ppm 8 hour for the <i>EnSolv EX</i> mixture based on the assessment of the scientific data relevant to <i>nPB</i> and <i>EnSolv EX</i> mixtures.		

### 3. Hazards Identification

Emergency Overview : *EnSolv EX* has no flash point and is non-flammable per OSHA and DOT regulations. However, vapors will form a flammable mixture at a concentration of 3.8% to 9.5% by volume with air (ASTM E-681).

#### Potential Health Effects:

INHALATION: High concentrations are irritating to the respiratory tract and may cause headache, dizziness, nausea, vomiting or narcosis. Chronic overexposure at high levels may cause adverse effects in the central nervous system, reproductive system, respiratory system, kidney, and liver. Persons having pre-existing diseases of the lungs, eyes or skin may have an increased susceptibility to the hazards of excessive exposure.

OCULAR: Irritant to eyes

DERMAL: Irritant. May de-fat skin and/or cause rash

INGESTION: Irritant to mouth, mucous membranes and gastro-intestinal tract.

### 4. First Aid Measures

INHALATION: Remove person to fresh air. Give oxygen if breathing is difficult. Apply CPR respiration if individual is not breathing.

EYE: Flush eyes with water for at least 15 minutes. Seek emergency medical attention.

SKIN: Wash contaminated areas with soap and water.

INGESTION: Drink large amounts of water. DO NOT induce vomiting. Seek emergency medical attention.

# Material Safety Data Sheet

## 5. Fire Fighting Measures

FLASH POINT (Method):	None (ASTM D-56 TCC) None (ASTM D-92 COC) None (ASTM D-93 TCC)
FLAMMABLE LIMITS:	3.8 to 9.5 % by volume in air (ASTM E-681)
AUTO-IGNITION TEMPERATURE:	860° F (460° C)
EXTINGUISHING MEDIA:	Extinguishing media should be chosen based on surrounding conditions.
FIRE FIGHTING PROCEDURE:	Use NIOSH approved self-contained breathing apparatus. Use water spray or fog to cool exposed equipment and containers.
UNUSUAL FIRE AND EXPLOSION HAZARDS:	Do not weld or cut any drum with a torch that contained <i>EnSolv EX</i> because residual vapors in the drum could be in the flammable range and an explosion could occur. Thermal decomposition may produce carbon monoxide, carbon dioxide, hydrogen halide and bromides.

## 6. Accidental Release Measures

Contain spillage or leakage with dikes or absorbent material to prevent migration into sewer or waterway. For large spills, evacuate and ventilate the area. Wear self-contained breathing apparatus and recommended personal protective equipment. Absorb with earth, sand, or other non-combustible absorbent material and place in closed container for disposal.

## 7. Handling and Storage

HANDLING:	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 splash protection only. DO NOT use natural rubber gloves when handling this product.
STORAGE:	Store in well ventilated, cool, dry area. Keep container closed when not in use. Minimize introduction of water or moisture into the product.

## 8. Exposure Controls and Personal Protection

EXPOSURE LIMITS:	Enviro Tech International, Inc. recommends a workplace exposure guideline of 100 ppm 8 hour for the <i>EnSolv EX</i> mixture based on the assessment of the scientific data relevant to <i>nPB</i> and <i>EnSolv EX</i> mixtures.
RESPIRATORY PROTECTION:	Use full face piece, NIOSH approved organic vapor respirator if ventilation is not sufficient and if mists are generated.
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 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.

# Material Safety Data Sheet

## 9. Physical Properties

APPEARANCE:	Clear, colorless to yellow liquid
SPECIFIC GRAVITY (25/25° C, H <sub>2</sub> O = 1):	1.31± 0.01
BOILING POINT:	158° F (70°C)
VAPOR PRESSURE, mm Hg:	134 @ 25° C
PH LEVEL (water extract):	6.8 estimated based on nPB
EVAPORATION RATE:	4.7
WATER SOLUBILITY g/100ml @25° C:	0.24 estimated based on NPB

## 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

### EnSolv

In human liver cell bioassays, *EnSolv* mixtures showed no effects to DNA or for altered enzyme function at all cell concentrations tested and no effects for acute cytotoxicity at cell concentrations below 500 ppm. The addition of the *EnSolv* patented stabilizing package to n propyl bromide showed the same results as neat n propyl bromide.

### n propyl bromide

LD <sub>50</sub> oral, rat:	4,260 mg/kg
LC <sub>50</sub> inhalation, rat:	50,291 ppm / 30 min.; 14,374 ppm / 4 hr

In human liver cell bioassays, nPB showed no effects to DNA or for altered enzyme function at all cell concentrations tested and no effects for acute cytotoxicity at cell concentrations below 500 ppm. nPB gave no adverse results in the Ames bacterial mutation study using five strains of *Salmonella typhimurium*. Based on the results of three different developmental studies in rats, nPB is not expected to be a developmental toxicant at recommended exposure levels. nPB was found to have caused reduced weight of the epididymis and prostate of male rats at an exposure equivalent to three and one half times the recommended workplace exposure level and showed effects on sperm motility in rats at 500 ppm and above. NIOSH study of workers exposed to nPB or more for one year found no adverse effects except for headaches reported in the highest exposure group. NPB is not listed as a carcinogen by NTP or IARC.

### Stabilizer Package

Nitromethane and 1,2 butylene oxide have been classified by the NTP and/or IARC (IARC 2B - possibly carcinogenic to humans). Each compound individually comprises less than 0.6% by weight of the *EnSolv* mixture. At a 100 ppm 8 hr TWA workplace exposure level, the exposure to each of these compounds is about 0.06 ppm or less, well under the OSHA PEL of 100 ppm set for nitromethane. No exposure level has been set for 1,2 butylene oxide.

## 12. Ecological Information

The Ozone Depletion Potential of n-propyl bromide has been determined to be in the range of 0.006 to 0.019.

# Material Safety Data Sheet

**13. Disposal Considerations**

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

**14. Transportation Information**

HAZARDOUS MATERIAL DESCRIPTION:	Not regulated for transportation by US DOT or USPS
DOT DESCRIPTION/PROPER SHIPPING NAMES:	Cleaning Solvent Mixture
UN NUMBER:	UN 2344 - Special Provision A3
IATA:	UN 2344 - Special Provision A3
NAFTA:	3814.00.50.90 Preference Criteria B - Originating in NAFTA territory

**15. Regulatory Information**

TCSA:	All of the components of this product are in the EPA TSCA inventory and are in compliance with 15 USC 2601-2629.
NESHAP:	N/A
RCRA:	N/A
HAP:	N/A
VOC:	1,314.2 g/l - 11 lbs/gal
SARA:	SARA 313 Components subject to reporting: 1,2, butylene oxide CAS 106-88-7 >0.6% by weight; Sec. Butyl Alcohol CAS 78-92-2. > 1.3% by weight.
CERCLA:	40 CFR 302.4 Component: 1,2, butylene oxide CAS 106-88-7 >0.6% by weight. Requires a discharge of 20,000 pounds (about 1,800 gallons) of the <i>EnSolv EX</i> mixture to reach RQ of 100 lbs.
STATE REGULATION:	: n propyl bromide is known to the State of California to cause reproductive effects. NJ & PA - RTK. WHMIS - HC-1 nitromethane is known to the State of California to cause cancer. NJ-RTK. 1,2, butylene oxide NJ-RTK Proposed Approved by USEPA June 3, 2003 Class D Division 2B
SNAP:	
WHMIS	Class D Division 2B
EEC (EINECS):	Ingredients Listed
CANADA (DSL):	Ingredients Listed
JAPAN (MITI):	Ingredients Listed
AUSTRALIA (AICS):	Ingredients Listed
SOUTH KOREA (ECL):	Ingredients Listed

**16. Other Information**

Each user of this product should study this MSDS carefully and consult appropriate expertise as necessary, to become aware of and understand the data contained in this MSDS and any hazards that may be associated with this product. The information provided in this Material Safety Data Sheet relates only to the specific material designated herein. Enviro Tech International, Inc. makes no warranty, express or implied, including the warranty of merchantability and fitness for a particular purpose, and assumes no liability or responsibility for the accuracy, completeness, timeliness or usefulness of this information. Enviro Tech International, Inc. assumes no liability for any damages incurred, whether directly or indirectly, as a result of any errors, omissions or discrepancies in this information. Enviro Tech International, Inc. assumes no liability for reliance on this data and assumes no liability for damages related to the use or misuse of this product. The user is responsible for determining the conditions of safe use of this product and for complying with all Federal, State and Local governmental laws and regulations concerning its use.