



Material Safety Data Sheet

1. Product and Company Identification

Enviro Tech International, Inc.
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PRODUCT DESCRIPTION: Patented Stabilized n-Propyl Bromide Mixture
U.S. Patents 5616549, 5824162, 5938859, 6176942 & 6402857B2. 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

2. Composition and Ingredient Information

n-Propyl Bromide CAS 106-94-5 C ₃ H ₇ Br Synonyms: 1-Bromopropane, nPB, 1-BP	OSHA PEL not established	> 93 % by weight
Patented Stabilizer Package Includes: Nitromethane CAS 75-52-5 <0.6% 1,2-butylene oxide CAS 106-88-7 <0.6%	OSHA PEL 100 ppm OSHA PEL NA	< 7 % by weight Other specific components and amounts of components comprise Trade Secrets per 1920.1200(i)(1)

3. Hazards Identification

Emergency Overview : *EnSolv-5408* 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.

5. Fire Fighting Measures

FLASH POINT (Method): None ASTM D-56 TCC, ASTM D-92 COC, 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.



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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 torch cut drums containing residual vapors, as vapors may 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 gloves when contact with product may occur. However, DO NOT use natural rubber gloves when handling this product. 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

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 an 8 hour TWA of 25 ppm based on the peer reviewed assessment of scientific data. No OSHA PEL published for n-propyl bromide. USEPA stated that an exposure level to nPB in the range of 18 to 30 ppm is protective of workers. (Federal Register May 30, 2007). ACGIH published a TLV of 10 ppm applicable to n-propyl bromide with an iPB content .1 to .2 % by weight. The iPB content of the nPB used in EnSolv-5408 products is .01% or below, so the TLV has questionable application for EnSolv-5408 products. In all cases, worker exposure to all chemicals, including EnSolv-5408, should be kept as low as possible. Nitromethane OSHA PEL 100 ppm ACGIH TLV 20 ppm 1,2

RESPIRATORY PROTECTION:

Use full face piece, NIOSH approved organic vapor respirator if ventilation is not sufficient and if mists are generated.

CLOTHING/GLOVES:

Use gloves when contact with product may occur. However, DO NOT use natural rubber gloves when handling this product. 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.

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

APPEARANCE:

Clear, colorless to yellow liquid

SPECIFIC GRAVITY (25/25° C, H₂O = 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



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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.
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.

n propyl bromide

LD50 oral rat: 4,260 mg/kg
LC50 inhalation rat: 30 min. 50,291 ppm
4 hr 14,374 ppm

nPB is not listed as a carcinogen by NTP or IARC. 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.

Stabilizer Package

Nitromethane (< 0.6% by weight of total product) NTP: Reasonably anticipated to be a human carcinogen IARC: NO OSHA: NO
1,2-Butylene oxide (< 0.6% by weight of total product) NTP: NO IARC: Group 2B OSHA: NO

12. Ecological Information

Available data on the organic carbon partition coefficient (Koc) the breakdown processes in water and hydrolysis half-life, and the volatilization half-life indicate that nPB is less persistent in the environment than many solvents and would be of low to moderate concern for movement in soil. Based on the LC50, the acute concentration at which 50% of tested animals die, nPB's toxicity to aquatic life is moderate, being less than that for ... trichloroethylene, hexane, d-limonene, and possibly some aqueous cleaners.

Koc, ORGANIC-CARBON PARTITION COEFFICIENT: 330
BREAK DOWN IN WATER: HYDROLYSIS IS SIGNIFICANT.
HYDROLYSIS HALF-LIFE: 26 DAYS
VOLATILIZATION HALF-LIFE FROM SURFACE WATERS: 3.4 HOURS - 4.4 DAYS
LC50 (96 HOURS) FOR FATHEAD MINNOWS: 67 mg/l
LOG Kow: 2.10



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BIOCONCENTRATION FACTOR: 23

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
DOT DESCRIPTION/PROPER SHIPPING NAMES: Non Hazardous Cleaning Solvent Mixture

15. Regulatory Information

NAFTA: 3814.00.50.90 Preference Criteria B - Originating in NAFTA territory
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.
STATE REGULATION: n-Propyl bromide: Known to the State of California to cause reproductive effects. CAL/OSHA PEL 5 ppm
Nitromethane: Known to the State of California to cause cancer. NJ-RTK.
1,2-Butylene oxide: NJ-RTK
SNAP: The Environmental Protection Agency (EPA) approved n-propyl bromide (nPB) as an acceptable substitute for ozone depleting compounds in the precision cleaning sector under the Significant New Alternatives Program (SNAP) Section 612 Clean Air Act. (USEPA - Federal Register May 30, 2007).
WHMIS: Class D Division 2B, WHMIS - HC-1
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. 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. 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.