

Material Safety Data Sheet

1. Product and Company Identification

Enviro Tech International, Inc.
2525 W. LeMoyné Avenue
Melrose Park, Illinois 60160
www.dctco.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 (888) 255-3924
INTERNATIONAL CALLS: +01-813-248-0573
Non-emergency: (708) 343-6641

2. Composition and Ingredient Information

n-Propyl Bromide (stabilized) Molecular Formula: C ₃ H ₇ Br CAS Number: 106-94-5 Synonyms: 1-Bromopropane, nPB, 1-BP	OSHA PEL not established	>95 % by weight
Patented Stabilizer Package Includes: nitromethane CAS 75-52-5 <0.6% 1,2 butylene oxide CAS 106-88-7 <1.2%	100 ppm Not established	Total <5 % 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>DrySolv</i> mixture based on the assessment of the scientific data relevant to <i>nPB</i> and stabilized mixtures.		

3. Hazards Identification

Emergency Overview : *DrySolv* has no flash point and is non-flammable per OSHA and DOT regulations. However, vapors will form a flammable mixture at a concentration estimated to be in the range of 3.8% to 9.5% by volume with air based on nPB.

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.

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5. Fire Fighting Measures

FLASH POINT (Method): None (ASTM D-56 TCC)
 None (ASTM D-92 COC)
 None (ASTM D-93 TCC)

FLAMMABLE LIMITS: Estimated 3.8 to 9.5 % by volume in air based on NPB

AUTO-IGNITION TEMPERATURE: Not Available

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 *DrySolv* 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 *DrySolv* mixture based on the assessment of scientific data relevant to *nPB* and related 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.

9. Physical Properties

APPEARANCE: Clear, colorless to yellow liquid

SPECIFIC GRAVITY (25/25E C, H₂O = 1): 1.33 ± 0.01

BOILING POINT: Not Available

VAPOR PRESSURE, mm Hg: Not Available

PH LEVEL (water extract): Not Available

EVAPORATION RATE: Not Available

WATER SOLUBILITY g/100ml @25E C: 0.24 estimated based on NPB

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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 alkalies, 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

DrySolv

In human liver cell bioassays, the mixture 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 patented stabilizing package to n propyl bromide showed the same results as neat n propyl bromide.

n propyl bromide

LD₅₀ oral, rat: 4,260 mg/kg LC₅₀ 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. Ames bacterial mutation study using five strains of Salmonella typhimurium were negative. 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 OSHA exposure level has been set for 1,2-butylene oxide.

12. Ecological Information

The Environmental Protection Agency (EPA) determines that n-propyl bromide (nPB) is an acceptable substitute for methyl chloroform and chlorofluorocarbon (CFC)-113 in the solvent cleaning sector under the Significant New Alternatives Policy (SNAP) program under section 612 of the Clean Air Act. (USEPA - Federal Register May 30, 2007).

Available data on the organic carbon partition coefficient (K_{OC}) 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. Based on EPA's criteria for listing under the Toxics Release Inventory (U.S. EPA,1992), we believe that nPB would not be sufficiently toxic to aquatic life to warrant listing under the Toxics Release Inventory. Based on its relatively low bioconcentration factor and log K_{OW} value, nPB is not prone to bioaccumulation. . (USEPA - Federal Register May 30, 2007).

K_{OC}, 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 K_{OW}: 2.10
 BIOCONCENTRATION FACTOR: 23

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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 <1.2 % by weigh.
CERCLA:	40 CFR 302.4 Component: 1,2-butylene oxide CAS 106-88-7 <1.2 % by weight.
STATE REGULATION:	n propyl bromide: Known to the State of California to cause reproductive effects. nitromethane: Known to the State of California to cause cancer. NJ-RTK. 1,2, butylene oxide: NJ-RTK
SNAP:	The Environmental Protection Agency (EPA) determines that n-propyl bromide (nPB) is an acceptable substitute for methyl chloroform and chlorofluorocarbon (CFC)-113 in the solvent cleaning sector under the Significant New Alternatives Policy (SNAP) program under section 612 of the Clean Air Act.
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. 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.