

## EnSolv<sup>®</sup> Technical Data Sheet

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### **DESCRIPTION**

EnSolv is the perfect direct replacement for TCE, Perchloroethylene, 1,1,1-Trichloroethane and other hazardous vapor degreasing and general use solvents for critical applications such as oxygen service, precision optics, medical devices, high vacuum components and electronics. EnSolv is a superior cleaner for oxygen service lines and components that leaves virtually no residue and conforms to SAE ARP1176. It is an excellent choice for removal of a wide range of organic soils by vapor degreaser, ultrasonic cavitation, dip tank, flushing or hand wiping. EnSolv is a patented azeotropic mixture that can be distilled and reused through numerous cycles before it needs to be replaced. Although Enviro Tech offers stabilizer booster in 5-gallon pails, the synergistic action of EnSolv's patented stabilizer package typically precludes the need to ever add stabilizers to maintain the integrity of the solvent through normal use.

### **MATERIALS COMPATIBILITY**

EnSolv is compatible with all metals and many plastics and other materials typically cleaned in vapor degreasers, ultrasonic tanks or manually. For a full list of compatibility recommendations, refer to the "Materials Compatibility" document available for download at [www.ensolv.com](http://www.ensolv.com). Any materials not listed in this document should be tested for compatibility in the conditions of use.

### **HEALTH & SAFETY**

EnSolv is a non-flammable, non-carcinogenic solvent mixture that is safe to use in many applications. Enviro Tech recommends that safe work practices are implemented whenever handling chemicals of any kind to minimize exposure levels and prevent toxic effects. Please refer to the EnSolv Material Safety Data Sheet available for download at [www.ensolv.com](http://www.ensolv.com) for more specific information on workplace exposure levels, toxicity and personal safety recommendations.

### **REGULATORY INFORMATION**

EnSolv is classified as non-hazardous for transport by the U.S. DOT. For international shipments, EnSolv is exempt from classification as a flammable material per Special Provision A3 under Sub Section 4.4 in the IATA shipping manual. Spent EnSolv is classified as a non-hazardous waste unless RCRA hazardous contaminants are deposited into the material through a cleaning process.

The principal component of EnSolv, n-Propyl Bromide, is currently classified as 100% Volatile Organic Compound (VOC). Enviro Tech has petitioned the U.S. EPA for VOC exempt status based on low atmospheric reactivity derived from independent testing. The U.S. EPA has approved n-Propyl Bromide under the Significant New Alternatives Policy (SNAP) as a suitable replacement for ozone depleting chemicals. N-Propyl Bromide has been shown to neither deplete the ozone layer nor contribute significantly to global warming.

### **PROCESS CONTROLS & MAINTENANCE**

Prior to charging a piece of equipment with EnSolv, the equipment should be thoroughly cleaned and neutralized according to the procedure listed in the "Preparing Equipment to Switch to EnSolv" document available for download at [www.ensolv.com](http://www.ensolv.com). After the equipment is up and running with EnSolv, the acid acceptance levels of the solvent should be monitored on a regular basis with an Acid Acceptance Test Kit, available from Enviro Tech. EnSolv can be distilled and reused through numerous cycles before losing its capacity to neutralize acid residues. If acid acceptance levels ever reach 29 drops or greater (<0.10% NaOH by weight), remove the EnSolv from the tank and replace with virgin EnSolv.

### **DISTILLATION AND DISPOSAL OF SPENT SOLVENT**

EnSolv should be disposed of once the boil temperature reaches the 168-173°F (75-78°C) range. At this point, soil loading levels have reached approximately 35-40% by volume. Enviro Tech offers a waste disposal service through its partner, WRR Environmental Services, which will analyze a representative waste sample and prepare all shipping documents and labels in order to ship the waste EnSolv to its facility in Eau Claire, WI for processing.

### **VAPOR DEGREASER SETTINGS**

The following are recommended settings for temperature and safety sensors on a typical vapor degreaser. Certain features are optional and may not be present on a particular piece of equipment. Refer to the vapor degreaser manual from the equipment manufacturer and the document "Vapor Degreaser Settings" available for download at [www.ensolv.com](http://www.ensolv.com) for more technical information.

Refrigeration Thermostat (RT)	7°C / 45°F
Safety Vapor Control (SVC)	64°C / 148°F
High Temperature Control (HTC)	76°C / 168°F
Liquid Temperature Control/Sensor (LTC/LTS)	73°C / 163°F
Vapor Up Thermostat (VU/TH)	64°C / 148°F

**SOLVENT PROPERTIES**

<b>Typical Physical Properties</b>	
Boiling Point (°C / °F)	70° / 158°
Specific Gravity @ 75°F (H <sub>2</sub> O=1)	1.31
Flash Point TCC (°C)	None
Base material meets ASTM-D 6368	Yes
Flammability Limits (vol. %) based on n-Propyl Bromide	3.8 - 9.5 %
Vapor Pressure @ 25°C (mm Hg)	134
Vapor Density (Air = 1)	4.2
Evaporation Rate (Butyl Acetate = 1)	4.7
Specific Heat @ 25°C (cal/g)	0.26
Dielectric Strength (AC Volts)	21,000
Appearance	Clear & free of suspended matter

<b>Cleaning, Corrosivity, Residue</b>	
Kauri Butanol Number	130
Corrosion of Metals	Does not corrode carbon steel, copper, stainless steel, aluminum, magnesium or titanium.
Acid Acceptance, as NaOH (wt. % min.)	>0.19
Free Halogen	Passes Test
Non-Volatile Residue (ppm / wt. % max.)	10 / 0.0010
Acidity, as HCL (wt. % max.)	0.0010
Water (wt. % max.)	0.05

**PACKAGING & AVAILABILITY**

EnSolv is available in the following container sizes and weights:

<b>1 Gallon Pail</b>	<b>11 lbs.</b>
<b>5 Gallon Pail</b>	<b>55 lbs.</b>
<b>30 Gallon Drum</b>	<b>326 lbs.</b>
<b>55 Gallon Drum</b>	<b>600 lbs.</b>
<b>Bulk Tanker or Tote</b>	<b>Variable</b>

The approximate weight of EnSolv is 11 pounds per gallon. EnSolv is maintained in inventory and most orders received prior to 12:00 pm CST ship same day. Contact an Enviro Tech representative for pricing, availability and technical questions.

The above represents typical properties of EnSolv Vapor Degreasing and Cleaning Solvent, but do not represent any other product specification. Other EnSolv products have similar characteristics, but are not necessarily identical to the properties listed above. For specific values and specifications, consult the product's Certificate of Analysis.