

EnSolv[®] Technical Data Sheet

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.envirotechint.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 or the EnSolv FAQs on the website 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

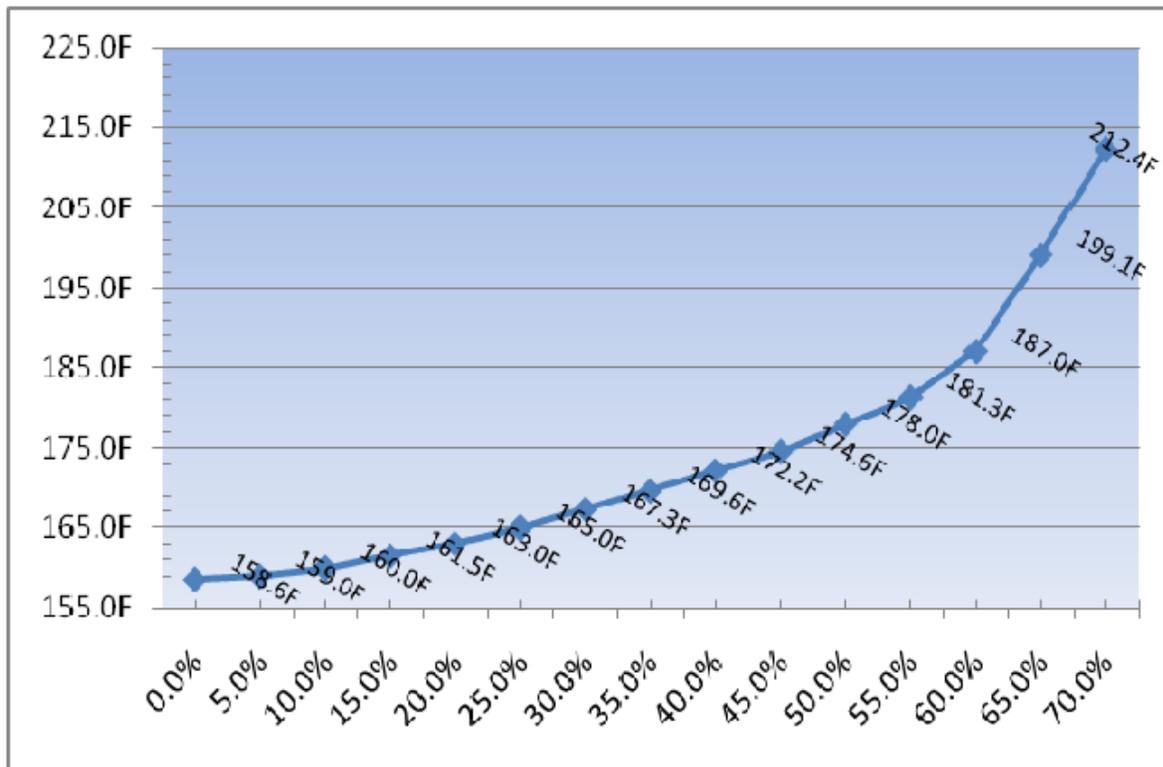
Prior to charging a piece of equipment with EnSolv, the equipment should be thoroughly cleaned and neutralized according to the procedure listed in the "Vapor Degreaser Conversion" document available for download at www.envirotechint.com. After the equipment is up and running with EnSolv[®], the acid 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), it is recommended to 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 and increased heat offers diminishing returns (see table below). Enviro Tech offers a spent EnSolv[®] disposal and/or recycling service through its partner, Veolia Environmental Services. Contact an Enviro Tech representative for more information on participating in this program.

EnSolv® Boiling Point vs. Weight % Soil Chart

(Soil consists of typical machining oils)



VAPOR DEGREASER SETTINGS

The following are suggested 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 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

Typical Physical Properties	
Boiling Point (°C / °F)	70° / 158°
Specific Gravity @ 75°F (H ₂ O=1)	1.31 +/- 0.01
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

Specifications	
EnSolv Assay (weight % min.)	99%
Color APHA (max.)	15
Water (weight % max.)	0.015 (150 ppm)
Acid Acceptance, as NaOH (weight % min.)	0.25
Non-Volatile Residue (weight % max.)	0.0010 (10 ppm)
Acidity, as HBr (weight % max.)	0.0010 (10 ppm)
Isopropyl Bromide (weight % max.)	0.0100 (100 ppm)

PACKAGING & AVAILABILITY

EnSolv[®] is available in the following container sizes and weights:

5 Gallon Pail
55 Gallon Drum
350 Gallon Tote
Bulk Tanker

55 lbs (25 kg)
551 lbs (250 kg)
3,826 lbs (1,735.5 kg)
44,000 lbs (19,958 kg)

The approximate weight of EnSolv[®] is 10.93 pounds per gallon. EnSolv[®] is maintained in inventory and most orders ship within 24 hours of receipt of the order. 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.