RELTEK LLC
adhesives, sealants & coatings for harsh environments

BONDiT™ B-46
B-46TH & B-46CAT

Adhesive & Sealant Products

Bonds dissimilar materials

An adhesive for bonding ***un-treated*** dissimilar materials such as plastics including UHMW, HDPE, PP, PET, PEEK, PPS, PBT, Acetal, PTFE (Teflon), ETFE (Tefzel), PVC, PVCF, PVDF, ABS, ECTFE, polyamide, polyimide, rubber and urethane compounds on metal, glass, composites, cement, wood and celluose.

High chmical resistance

Superior chemical resistance for moisture and oil, acids and bases in continuous full submersion. High thermal stability in a rugged, highly flexible system used as an adhesive and re-enterable sealant.

Easy use

Two-part, primerless, highly flexible epoxy, ambient and thermal cure. Low HAZMAT impact. Excellent sealant for electronic and electrical encapsulation for harsh environments.

Harsh environments

Marine,
Civil Engineering,
Downhole oil,
Underwater,
Electronic,
Mining,
Industrial,
Automotive.

Description

BONDiT™ B-46 is a two-part, state-of-the-art 100% solids, room-temperature curing, very flexible epoxy resin system. Especially designed for adhesive and potting applications in bonding to unprepped engineering plastics and elastomers to various substrates. Bondable plastics include --UHMW, HDPE, PP, PET (Ertalite & Mylar), PEEK, PPS, PBT (Valox) Acetal (Delrin), PTFE (Teflon), ETFE (Tefzel), PVC, PVCF, PVDF (Kynar), ABS, ECTFE (Halar), polyamide and polyimide (Ultem & Torlon), fiberglass and composites. Elastomers include EPDM, butyl, neoprene, urethanes, and some thermoplastic elastomers (Hytrel). The B-46 will bond these materials to metals, glass, ceramic, cement, wood and cellulose substrates, as well as to each other.

B-46 handles harsh environments and is particularly effective against moisture, salt water, acids, alkalies, oils, gasoline and detergents. B-46 offers good corrosion resistance. The highly flexible and elastic properties of 400% elongation permits assembly of materials with very dissimilar thermal expansion properties which will survive thermal cycling. Likewise mechanical vibration, shock and impact are easily absorbed by B-46.

A substantial advantage of B-46 is its capability of excellent peel strength to unprepped dissimilar materials and difficult to bond substrates, including Teflon, and polyethylene and polypropylene films. Its very high tack at the bond interface allow adhesion to very low surface energy substrates. An interesting example is to bond polyethylene film to concrete flooring as a vapor barrier and then bond the flooring subpannels to the polyethylene film, thereby forming a completely moisture free flooring.

This product works very well as a re-enterable sealant for cable and transducer terminations that withstands years of submersion in deep-sea and other harsh chemical environments. Likewise, assemblies are re-enterable: after dissasembly the tacky surface of the adhesive will endure and allow reassembly without further preparation, just like a PSA.

Operational temperatures are from -65°C to 135°C, above which it will soften considerably, but not flow as it is a crosslinked epoxy system. B-46 is very easy to use with low HAZMAT impact as a 100% solids epoxy system—no plasticizers that bloom to the surface and no solvents causing VOC problems. The product is also availble in a thixotropic silcate filled version B-46TH which can be applied to vertical surfaces without sagging, or in paste or electrically conductive form.

Typical Properties

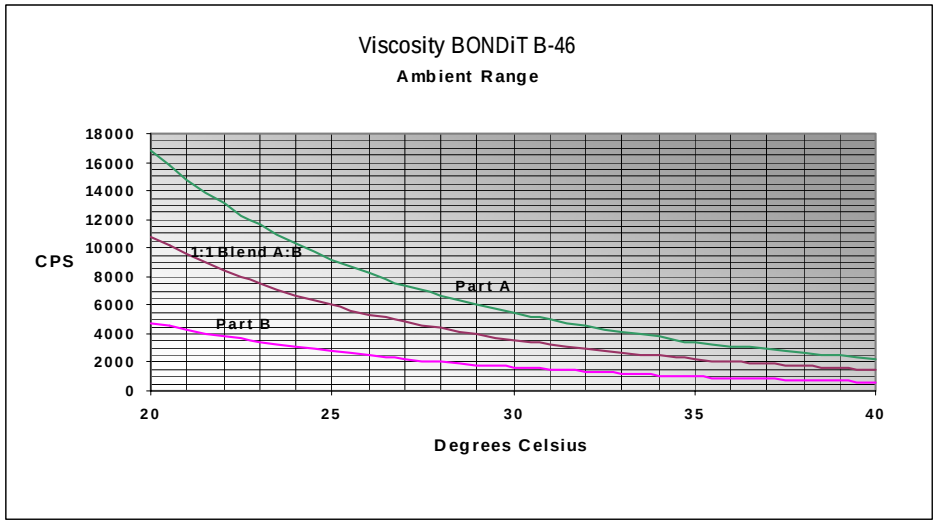
Property	***B-46***
Color	Clear with haze/slight amber
Viscosity	6000 cps @ 25°C
Moisture absorption	<1% by weight
Duromter	30 A-shore
Elongation	400 - 500%

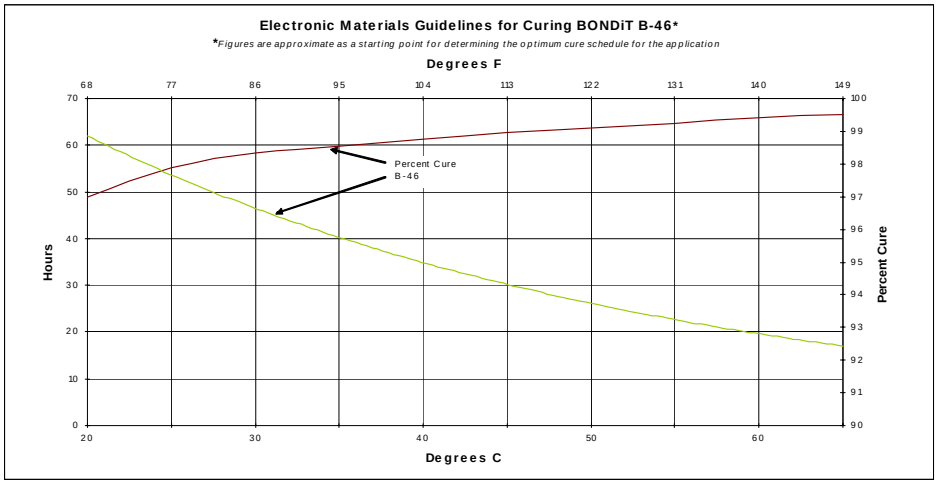
Curing, Mixing and Storage

A wide range of curing regimes may be employed: ambient set in 8 hours, tack free in 24 hours, and 95% cure in 3 days; will cure 98% in 4 hours at 200°F. B-46CAT version is catalized to set (gel) in 10 minutes at 185 degrees F.

Mix part A with part B, 1:1 ratio by volume or weight. Degassing is optional. Pot life is typically 90 minutes, at ambient temperature. Optional: Surface prep by abrading or grit blasting substrates with #100 AlOx followed by degrease and/or alcohol wipe will increase adhesion. Apply B-46 by roller or brush.

The usable shelf life of unopened containers of ***BONDiT™ B-46*** resin is one year, and should be stored in cool, dry place. When not in use, containers should be kept tightly closed. ***BONDiT™ B-46*** is available in side-by-side handheld and pneumatic actuated gun cartridges, quarts, gallons, pails and drums. Custom packaging, such as premixed and degassed frozen cartriges, is also available.





B-4X Series Epoxy Product Comparison Guide

Product	Elongation	Tensile Strength	Durometer	Key property
B-46	400% to 500%	Low Can creep but is elastic and will return to original state on release of load.	30 A-Shore	Very high tack, bonds low surface energy substrates without surface prep such as PTFE (Teflon) and LDPE. Very high shock resistance. Good electrical properties. Suitable for very low temperature adhesive and potting applications.
B-4682	200% to 300%	Low Not prone to creep and much stiffer compared to B-46 while still elastic.	45 A-Shore	High tack (but less compared to B-46), bonds low surface energy substrates without surface prep such as Delrin. Very good shock resistance. Good electrical properties. Suitable for very low temperature adhesive and potting applications.
B-45	100% to 130%	1300 PSI Flexible, urethane rubber-like properties.	80 A-Shore	Excellent balance of strength, chemical resistance, good adhesion to very wide range of substrates including Delrin and HDPE (lightly abraded), good electrical properties. Suitable for adhesive, potting and coating applications
B-482	20% to 30%	2700 to 3200 PSI Semi-flexible	72 D-Shore	High strength, toughness, shock resistance, good chemical resistance, adhesion to wide range of substrates (but less so compared to B-45,) good thermal stability, excellent electrical properties. Suitable for adhesive, potting and coating applications
B-481	2% to 17%	5600 to 6000 PSI Semi-rigid	77 D-Shore	High strength, toughness and resilience, shock and compression resistant, excellent thermal stability, high chemical resistance, good adhesion to most substrates, superior electrical properties. Suitable for adhesive, potting and coating applications

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