RELTEK LLC
adhesives, sealants & coatings for harsh environments

BONDiT™ B-482

Adhesive, Sealant & Coating System

Bonds dissimilar materials

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

High chemical resistance

Superior chemical resistance for moisture and oil, acids and bases in continuous full submersion. High stability to 350°F continuous as a rugged system.

Easy use

Two part, primerless, semi-rigid epoxy, high tensile strength, ambient and thermal cure. Available in handheld and pneumatic gun actuated cartridges, quarts, gallons and drums.

Harsh environments

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

Description

BONDiT™ *B-482* is a two-part, state-of-the-art 100% solids, room-temperature curing flexible epoxy resin system. Especially designed for potting, coating, and adhesive applications for electronics and electrical assemblies, environmental sealing, hard coating for corrosion resistance, bonding engineering plastics and elastomers to various substrates.

B-482 handles harsh environments easily and is particularly effective against moisture, salt water, acids, alkalies, oils, and detergents. B-482 has high thermal stability, readily handling 350°F continuous. B-482 offers good corrosion resistance. The intrinsic flexible resin properties of B-482 permit assembly of materials with dissimilar thermal expansion and survive thermal cycling. Yet it offers high tensile strength with the flexibility. Likewise mechanical vibration, shock and impact are easily absorbed by B-482 and while protecting surfaces, bonded assemblies and encapsulated sensitive electronics. The B-482 system is often superior in performance to urethane adhesives, sealants and coatings.

B-482 is unfilled and low viscosity, while B-482TH is silicate filled and thixotropic, meaning a thick coating on vertical surfaces will not sag, but is easily poured from a can. Apply B-482 by roller or brush. B-482 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. B-482 as the unfilled version is most useful for potting and clear coating applications to replace urethanes while the filled version B-482TH is most useful as an adhesive.

Mixing, Curing, and Storage

A wide range of curing regimes may be employed: ambient set in 6 hours, tack free in 12 hours, and 95% cure in 24 hours; cure at 150°F tack free in 2 hours 98% in 4 hours; or 3 hours full cure at 200°F with no ambient incubation time.

Mix part A with part B, 2:1 ratio by volume or weight. Degassing is optional. Pot life is typically 40 minutes, at ambient temperature. Surface prep by abrading or grit blasting substrates with #100 AlOx followed by degrease and/or alcohol wipe.

The usable shelf life of unopened containers of ***BONDiT™*** *B-482* resin is one year, and should be stored in cool, dry place. When not in use, containers should be kept tightly closed.

BONDiT™ *B-482* 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 cartridges, is also available.

Test Data

Tensile Test: ASTM D638; all values mean

Mix Ratio	Cure Method	Peak Stress	Peak Stress Hi/Lo	Strain @ Peek Load	Energy to Peak Load	Break Stress	Break Elongation	Energy to Break	TEA	Energy/Vol @ Break	Yield Stress	Yield Elong	Tangent Modulus
2:1 A/B	°F	PSI	PSI	%	PSI	PSI	%	In-Lb	Ft-Lb /Sq.In	Ft-Lb /Cu.In	PSI	%	PSI
Volume 2:1 cartridge	2 hours @ 200ºF + 45 days @ ambient	2716	n/a	12.90	29.45	2602	23.9	65.51	5.37	45.38	2717	11.3	53535

BONDiT™ B-482

Typical Properties

Property	***B-482***
Color	Clear with slight amber
Viscosity	~7000 cps @ 25°C
Moisture absorption*	<1% [24 Boiling DI water]

Application Notes

When interpreting adhesion test data care must be taken. The data is highly dependent on a number of factors, particularly curing regime and geometry of the bond joint. The test data differences between ambient cure and post cure demonstrate significant variation in adhesive tensile strength. Increased tensile strength tends to produce higher bond strength. Higher temperature cure also produces higher adhesion to the substrate, a consequence of chemical reactions being more active at higher temperatures.

Time of cure also is an important factor. The adhesive bulk will continue curing for thirty days, becoming stronger. But also, the adhesive links to the substrate continue to develop in number and cross-link density…thus continuing to increase the bond strength over a long period…even months as the adhesive may actually slowly migrate into the substrate. So, an ambient cure will continue to develop until, for example, reaching something in the neighborhood of 75% of ultimate bond strength by high temperature curing.

Geometry of the bond joint is critical for maximizing the joint strength, as seen in comparing the difference in lapshear data of UHMW/UHMW with that of UHMW/Steel. Both tests are identical, except the steel substrate is rigid. Under increasing load the more flexible UHMW/UHMW joint rotates out of 180° shear angle, and peel forces take affect…thus lowering the break strength of the joint. The stiff UHMW/Steel joint stays nearly 180° parallel to the direction of force and thereby maintains almost true shear angle. That results in much higher test values.

The caution is the test data is comparative, rather than absolute for any particular application.

Information

For further information, engineering support and sales service, contact ***RELTEK*** sales office.

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