

BONDiT™ B-52

Adhesive, Sealant & Potting System

Bonds dissimilar materials

A fast cure semi-rigid adhesive for bonding dissimilar materials such as plastics to glass and metals, including acrylic and polycarbonate.

High performance

Superior chemical resistance for moisture and oil, acids and bases in continuous full submersion. High tensile and shear in a rugged flexible system.

Easy use

Two part, primerless, flexible epoxy, ambient and thermal cure. Low HAZMAT impact. Available in handheld and pneumatic gun actuated cartridges, quarts, gallons and drums.

Harsh environments

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





BONDiT™ B-52

Description

BONDiT™ B-52 is a two-part, state-of-the-art 100% solids, elevated-temperature, fast curing, semi-flexible epoxy resin system. Especially designed for adhesive applications in bonding engineering plastics and elastomers to various substrates—particularly rigid substrates such as glass, metals and ceramic, without stress buildup and joint or substrate fracture.

B-52 handles harsh environments easily and is particularly effective against moisture, salt water, acids, alkalies, oils, and detergents. B-52 offers good corrosion resistance. B-52 has good thermal stability—at elevated temperatures of 200°F the B-52 becomes rubbery and provides superior accommodation of wide thermal expansion excursions characteristic of dissimilar material bonding. The flexible properties of B-52 permit assembly of materials with dissimilar thermal expansion and survive thermal cycling. Likewise mechanical vibration, shock and impact are easily absorbed by B-52 and it protects surfaces, bonded assemblies and encapsulated sensitive electronics.

B-52 is also available in Thixotropic format, called B-521 which is a unique epoxy system having a dual glass transition temperature: at higher temperatures of 200°F the system cures in seconds to a rubbery state—a flexible solid. On cooling it transitions into a semi-rigid state, providing high strength with a good balance of impact and shock resistance and enough flexibility to handle thermal cycle.

Hence, both B-52 and B-521 offer rapid cures between glass and plastic, and on cool down joint stresses are released to produce a structural stress free bond between dissimilar materials in minutes. Stress free potting for electronics fast cure is obtained at low temperatures suitable for electronics. Eliminates warping and fractures in assemblies. Excellent for autoclave applications of composite laminates with long pot life for assembly and cure in seconds with a flexible bond line.

Examples of applications are assembly of glass to acrylic and polycarbonate lighting fixtures, consumer electronics potting, and military components exposed to harsh environments.



BONDIT™ B-52

Test Data

Lap shear test: ASTM D3163; all values mean; all failures adhesive/cohesive at plastic-adhesive interface.

Adhesive	Substrate #1/#2	Failure Mode	Dure Temp °F	Peak Stress PSI	Sample Range Hi/Lo Peak Stress PSI	Strain Peak Load %	Energy Peak Load In-Lb	Break Stress PSI	Elongation at Break %	Yield Stress PSI	Elongation at Yield %	Tangent Modulus PSI
B-52	SS/SS*	Bulk Adhesive Failure	150	1803	1963/1646	2.18	25.64	1789	2.2	1783	2.1	116527
B-52	PC*/SS	Failure at SS Interface	150	710	779/657	1.95	8.48	723	2	636	1.8	41970
B-52	PC/PC	PC Fractured	150	1084	1267/905	4.24	26.39	1129	4.5	999	3.9	27111
B-52	PC/Glass/PC	Glass Failure	150	647	681/578	2.3	8.64	647	2.3	629	2.2	31471
B-52	SS/Glass/SS	Glass Failure	150	1502	1736/1251	1.5	12.08	1453	1.7	1511	1.7	116920

Tehsile Test: ASTM D638; all values mean

B-52	Tensile	150	1902	2190/1496	8.15	14.46	1893	8.2	1902	8.2	134447
B-52	Tensile	150	2533	2785/2305	1.03	131.82	2490	51.6	2478	44.9	40279

(*) Ambient cure days.



BONDIT™ B-52

Typical Properties

Property

Color
Viscosity

B-52

Clear with slight amber
~1500 cps

B-521

Slight haze
~2500 cps, Thixotropic

Mixing, Curing, and Storage

B-521 is off-white in color, silicate filled and thixotropic, meaning a thick coating on vertical surfaces will not sag, but is easily poured from a can. Apply B-52 and B-521 by roller or brush. B-52 and B-521 are 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.

A wide range of curing regimes may be employed: ambient set in 4 hours, tack free in 12 hours, and 95% cure in 24 hours. Post curing at 150°F, after 2 hours at ambient to allow bubble escape, will cure 98% in 4 hours, or 2 hours at 200°F.

Application Notes

Mix part A with part B, 10:1 ratio by volume or weight. Pot life is typically 30 - 40 minutes, at ambient temperature. Preferred surface prep for some substrates is by abrading or grit blasting substrates with #100 AlOx followed by degrease and/or alcohol wipe. Substrates such as acrylic, polycarbonate and glass require no abrasion.

The usable shelf life of unopened containers of **BONDIT™ B-52** and B-521 resin is one year, and it should be stored in cool, dry place. When not in use, containers should be kept tightly closed.

BONDIT™ B-52 and B-521 are 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.

Information

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