

BONDiT™ B-45

Encapsulant, Potting & Coating System

Coats & seals dissimilar materials

A protective coating, conformal coat, electronic - electrical encapsulant and potting epoxy that bonds to 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 as well as metal, glass, composites, cement, wood and cellulose.

High chemical resistance

Superior chemical resistance for moisture, gasoline, oil, acids and bases in continuous full submersion. High thermal stability in a rugged flexible system. Excellent for exterior and interior applications

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-45

Description

BONDiT™ B-45 is a two-part, state-of-the-art 100% resins, room-temperature curing flexible epoxy system. Especially designed for protective coating and electrical / electronic potting applications with bonding to engineering plastics, elastomers, and mineral substrates. Bondable plastics include the polyolefins--UHMW, HDPE, and PP, PET (Ertlyte & Mylar), PEEK, PPS, PBT (Valox) Acetal (Delrin), ETFE, PVC, PVCF, PVDF (Kynar), ABS, ECTFE (Halar), polyamide and polyimide (Ultem & Torlon), polyimid (VespeI), fiberglass and composites. Elastomers include EPDM, butyl, neoprene, urethanes, and some thermoplastic elastomers (Hytrel). The B-45 bonds well to metals, glass, ceramic, cement, wood and cellulose substrates.

B-45 handles harsh environments easily and is particularly effective against moisture, salt water, acids, alkalies, oils, gasoline and detergents. B-45 has high thermal stability, with a continuous operational rating of -50°F to +350°F. B-45 offers good corrosion resistance. The flexible properties of B-45 permit assembly of materials with dissimilar thermal expansion and will survive thermal cycling. Likewise mechanical vibration, shock and impact are easily absorbed by B-45 and it protects surfaces, bonded assemblies and encapsulated sensitive electronics. It is superior in performance to urethane adhesives, sealants and coatings.

B-45 is useful as a direct replacement for urethane elastomers with the superior benefits that it requires no primer for adhesion and offers high chemical resistance. B-45 is also available as a paste or caulking compound and electrically or thermally conductive compounds. Apply B-45 by roller or brush. B-45 is very easy to use with low HAZMAT impact with no plasticizers that bloom to the surface and no solvents causing VOC problems. The product is also available in the thixotropic version B-45TH, providing a thick coating on vertical surfaces which will not sag, and yet is easily poured from a can.

Mixing, Curing, and Storage

A wide range of curing regimes may be employed: ambient set in 4 hours, tack free in 12 hours, and 97% 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 3 hours at 200°F for 100% cure.

Mix part A with part B, 2:1 ratio by volume or weight. Degassing is optional. Pot life is typically 30 - 40 minutes, at ambient temperature. Surface prep by abrading or grit blasting substrates with #100 AlOx followed by degrease and/or alcohol wipe for optimum adhesion.

The usable shelf life of unopened containers of **BONDiT™ B-45** resin is one year, and should be stored in cool, dry place. When not in use, containers should be kept tightly closed.

BONDiT™ B-45 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

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

Adhesive	Substrate #1	Substrate #2	Cure 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-45	HDPE	HDPE	150	295	299/290	1.65	2.96	290	1.7	295	1.7	22882
B-45	UHMW	UHMW	150	312	---	3.16	5.81	307	3.3	308	2.7	14184
B-45	UHMW	UHMW	150	279	325/256	2.22	3.69	279	2.4	274	2.3	14478
B-45	UHMW	UHMW	Ambient*	283	308/246	2.20	3.69	282	2.2	279	2.1	15760
B-45	UHMW	Steel	150	424	484/364	1.74	4.69	424	1.6	424	1.6	33556
B-45	UHMW	Steel	Ambient*	361	401/326	1.68	3.7	361	1.7	361	1.7	27291
B-45	PPS	SS	150	812	---	1.05	4.61	813	1.0	813	1.0	82478
B-45	PPS	SS	Ambient**	492	---	0.77	2.25	490	0.8	492	0.8	77347
B-45	ABS	PVC	150	677	677/677	2.68	10.39	676	2.8	677	2.8	27247
B-45	ACETAL	ACETAL	150	339	362/323	1.50	3.20	339	1.5	333	1.5	24759

*Ambient cure 31 days **Ambient cure 7 days

Peel tests

Adhesive	Substrate #1	Substrate #2	Failure mode
B-45	PBT	PET	cohesive/adhesive failure of PET film
B-45	PBT	Polyurethane foam	cohesive failure of PU foam
B-45	PEEK	PET	cohesive/adhesive failure of PET film
B-45	PEEK	Polyurethane foam	cohesive failure of PU foam
B-45	G10 fiberglass	PET	cohesive/adhesive failure of PET film
B-45	G10 fiberglass	Polyurethane foam	cohesive failure of PU foam
B-45	Neoprene	Steel	cohesive failure of rubber
B-45	Neoprene	Neoprene	cohesive failure of rubber
B-45	EPDM	Steel	cohesive failure of rubber
B-45	Butyl	Aluminum	cohesive failure of rubber after 500°F; 8 minute exposure

Note that the above test results were obtained from testing B-45TH; however B-45 should show the same results.



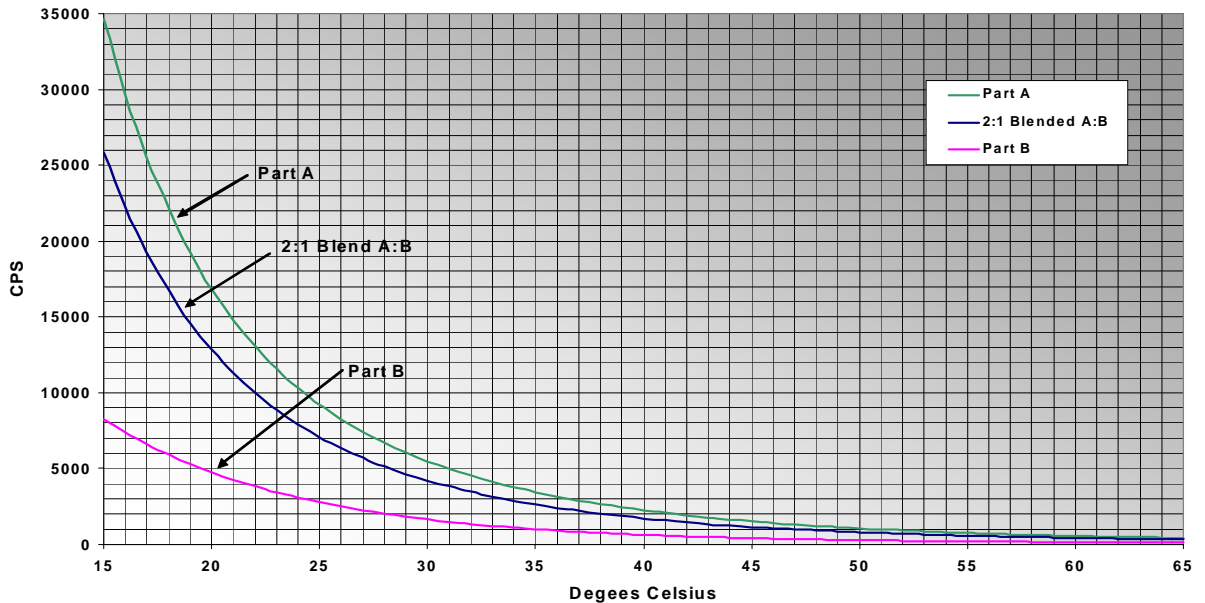
BONDIT™ B-45

Typical Properties

Property

Color	Clear with haze/slight amber	
Viscosity	7000 cps @ 25°C	
Moisture absorption*	< 1%*	
Oil absorption**	< 1%***	
Gasoline	No effect to slight increase in durometer, ambient	
Acids	Little or no effect, > pH 4, < 85%, ambient	
Bases	Little or no effect, < 13 pH, < 85%, ambient	
Tensile strength		
Peak stress	1438 PSI	
Break stress	1422 PSI	
Elongation at break	130%	
Yield stress	1438 PSI	
Elongation at yield	130%	
Durometer, ultimate	80 A-Shore	
Insulation Resistance	> 500 VDC / .001"	
Temperature range	-50°F to 350°F	
*90 days ambient DI water	** Isopar M by Shell Oil	*** 60 days ambient

Viscosity BONDIT B-45



Information

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