

# **BONDIT™ B-45TH**

## **Adhesive & Sealant System**

### **Bonds dissimilar materials**

An adhesives 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 cellulose.

### **High chemical resistance**

Superior chemical resistance for moisture and oil, acids and bases in continuous full submersion. High thermal stability 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-45TH**

### **Description**

**BONDIT™**B-45TH is a two-part, state-of-the-art 100% solids, room-temperature curing flexible epoxy resin system. Especially designed for adhesive and sealant applications in bonding to engineering plastics and elastomers to various substrates. Bondable plastics include the polyolefins--UHMW, HDPE, and PP, PET (Ertlyite & Mylar), PEEK, PPS, PBT (Valox) Acetal (Delrin), ETFE, 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-45TH will bond these materials to metals, glass, ceramic, cement, wood and cellulose substrates, as well as to each other.

B-45TH handles harsh environments easily and particularly effective against moisture, salt water, acids, alkalies, oils, and detergents. B-45TH has high thermal stability--in exposure of rubber/metal bonds to 500°F for 8 minutes bulk-rubber-tear/cohesive adhesion was retained. B-45TH offers good corrosion resistance. The flexible properties of B-45TH permits assembly of materials with dissimilar thermal expansion and survive thermal cycling. Likewise mechanical vibration, shock and impact are easily absorbed by B-45TH and protect surfaces, bonded assemblies and encapsulated sensitive electronics. These systems are often superior in performance to urethane adhesives and sealants.

B-45TH is silicate filled and thixotropic, meaning a thick coating on vertical surfaces will not sag, but is easily poured from a can. Apply B-45TH by roller or brush. B-45TH 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 available in the unfilled version B-45, most useful for potting and clear coating applications to replace urethanes.

### **Mixing, Curing, and Storage**

A wide range of curing regime 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.

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.

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

**BONDIT™**B-45TH 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-42	HDPE	HDPE	150	295	299/290	1.65	2.96	290	1.7	295	1.7	22882
B-42	UHMW	UHMW	150	312	---	3.16	5.81	307	3.3	308	2.7	14184
B-45TH	UHMW	UHMW	150	279	325/256	2.22	3.69	279	2.4	274	2.3	14478
B-45TH	UHMW	UHMW	Ambient*	283	308/246	2.20	3.69	282	2.2	279	2.1	15760
B-45TH	UHMW	Steel	150	424	484/364	1.74	4.69	424	1.6	424	1.6	33556
B-45TH	UHMW	Steel	Ambient*	361	401/326	1.68	3.7	361	1.7	361	1.7	27291
B-45TH	PPS	SS	150	812	---	1.05	4.61	813	1.0	813	1.0	82478
B-45TH	PPS	SS	Ambient**	492	---	0.77	2.25	490	0.8	492	0.8	77347
B-45TH	ABS	PVC	150	677	677/677	2.68	10.39	676	2.8	677	2.8	27247
B-45TH	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-42	PBT	PET	cohesive/adhesive failure of PET film
B-42	PBT	Polyurethane foam	cohesive failure of PU foam
B-42	PEEK	PET	cohesive/adhesive failure of PET film
B-42	PEEK	Polyurethane foam	cohesive failure of PU foam
B-42	G10 fiberglass	PET	cohesive/adhesive failure of PET film
B-42	G10 fiberglass	Polyurethane foam	cohesive failure of PU foam
B-45TH	Neoprene	Steel	cohesive failure of rubber
B-45TH	Neoprene	Neoprene	cohesive failure of rubber
B-45TH	EPDM	Steel	cohesive failure of rubber
B-45TH	Butyl	Aluminum	cohesive failure of rubber after 500°F; 8 minute exposure

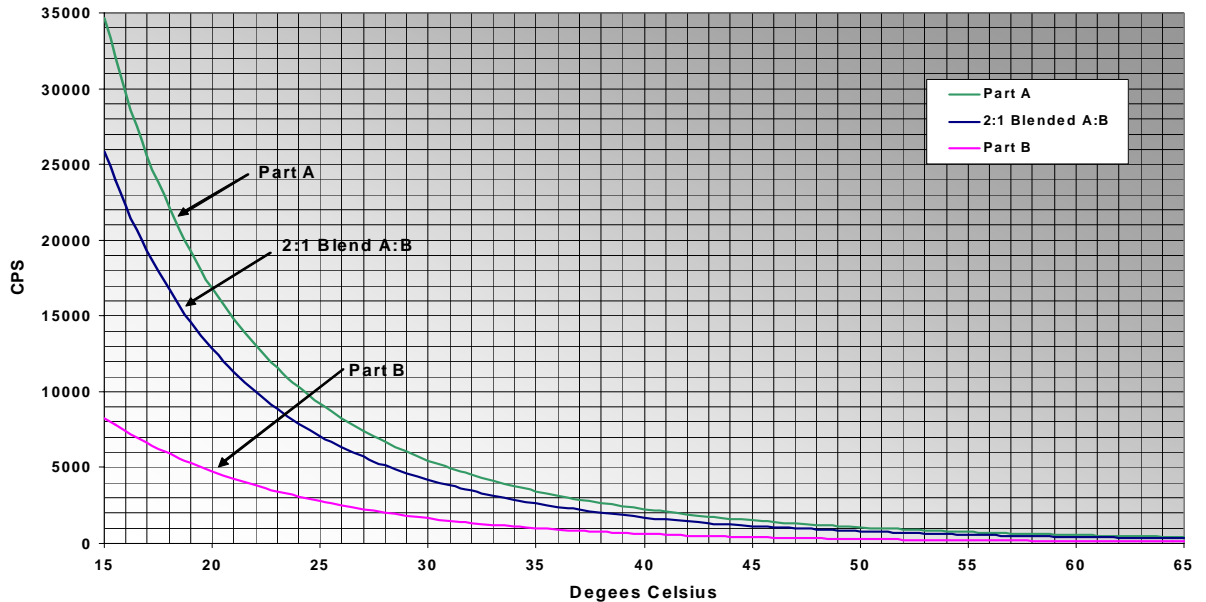


**BONDIT™ B-45TH**

## Typical Properties

Property	B-45TH	
Color	Clear with haze/slight amber	
Viscosity	~9000 cps @ 25°C, Thixotropic****	
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

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

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