



H.B. Fuller

BACON
ADHESIVES

October 1994

TECHNICAL DATA SHEET

THERMALLY CONDUCTIVE URETHANE FLEXOBOND 442 BLACK

FLEXOBOND 442 BLACK is a thermally conductive flexible urethane resin system for bonding or filleting glass diodes or other stress sensitive components while simultaneously providing a heat flow path. This material has excellent electrical properties, flexibility and is low outgassing. It is being used in aerospace applications on circuit boards and is designed for high reliability. It is available premixed and frozen in FREEZE-PAKS.

TYPICAL UNCURED PROPERTIES:

Viscosity at 77°F	Paste
Work Life at 77°F, hours	4
Recommended Cure, hr/°F	2/180

TYPICAL PROPERTIES AFTER RECOMMENDED CURE:

Color	Black
Specific Gravity	1.99
Hardness, Shore A	78
Lap Shear Strength to aluminum, psi	500
Thermal Conductivity, Btu-in/hr-ft ² -°F	6
Dielectric Strength, v/mil	370
Dielectric Constant at 1 kHz	7.16
Dissipation Factor at 1 kHz	0.11
Volume Resistivity, ohm-cm	1x10 ¹²
Total Mass Loss (ASTM E595-84) (1), %	0.471

(over)

TYPICAL PROPERTIES AFTER RECOMMENDED CURE (CONT.):

Collectible Volatile Condensable Material (ASTM E595-84) (1), %	0.011
Moisture Absorption in water, %	
7 days at 77°F	0.14
7 days at 200°F	2.91
Fungi Resistance (ASTM E21-90)	No Change

Note:

1. Cure for 2 hours at 212°F.

INSTRUCTIONS FOR USE:

Remove the syringe or tube from the freezer and allow to warm to Room Temperature for about ten minutes. Be sure that all surfaces to be bonded are clean and dry. Apply and cure as recommended. It is acceptable to gel at Room Temperature overnight before heat curing.

FOR INDUSTRIAL USE ONLY! VAPOR HAZARDOUS!

CAUTION: Use with adequate ventilation. Avoid contact with skin or clothing. In case of contact, flush immediately with plenty of water. Keep containers tightly closed when not in use. **WARNING:** FLEXOBOND 442 BLACK contains an isocyanate which is a strong skin sensitizer and may cause severe irritation to mucous membranes. Avoid contact with skin and eyes and avoid breathing vapors. In case of skin contact, wash promptly with 99% isopropyl alcohol (rubbing alcohol is NOT suitable), then soap and water. Curing ovens should be ventilated outdoors. All users should wash thoroughly. If un-cured material gets into eyes, flush with water for 15 minutes. Also, call a physician at once. See MSDS for more detailed information.

SHELF LIFE:

The Shelf Life of FLEXOBOND 442 BLACK FREEZE-PAK is at least three months when stored at a temperature of -40°F, or colder. Storage at -100°F to -120°F will extend the Shelf Life to six months.

AVAILABILITY:

FLEXOBOND 442 BLACK FREEZE-PAK is available only premixed, degassed and frozen and packaged in a variety of containers as described on Data Sheet No. 2032.