



TECHNICAL DATA SHEET

TDS# 2504

DATE: JUNE 2013

BACON INDUSTRIES

LOW EXPANSION ADHESIVE LCA-4

Adhesive LCA-4 is a highly filled gyro grade epoxy adhesive that has a low coefficient of thermal expansion, good dimensional stability, and excellent chemical resistance. It is proving useful in applications requiring bonding or hermetic sealing of metal, ceramic, glass and other substrates.

A lower viscosity of analog adhesive LCA-4LV, is described on Data Sheet No. 2505.

RECOMMENDED MIXING AND HANDLING PARAMETERS

Adhesive	LCA-4
Activator	BA-5
Parts by weight of activator required per hundred of adhesive	4.50
Viscosity of mixed adhesive, poise	
at room temperature	5300
at 160°F	130
Work Life at room temperature, minutes	60
Pot Life (tack-free time) at room temperature, minutes	100

TYPICAL PROPERTIES OF CURED ADHESIVE:

	Cure		
	2 hr at 200°F	8 hr at 200°F	1 hr at 140°F + 16 hr at 160°F
Specific Gravity (ASTM D792-A)	1.86	1.86	1.87
Color ¹	Lt Green	Lt Green	Lt Green
Hardness (ASTM D1706), Shore D	92	92	92
Lap Shear Strength to aluminum (ASTM D1002), psi			
at -65°F	2100	2400	2300
at 77°F	2400	2400	2400
at 200°F	2400	2500	2200
Flexural Strength (ASTM D790), psi	12000	11000	11000
Young's Modulus in Flexure (ASTM D790), 10 ⁶ psi	1.6	1.5	1.6
Glass Transition temperature			
by Dif. Scanning Calorimetry, °F	186	221	203
by Thermal Mech. Anal., °F	184	205	183
Coeff. of Linear Therm. Exp. (ASTM D831-A), 10 ⁻⁶ /°F			
between -65°F and 80°F	15	15	15
between 80°F and 135°F	21	21	20
between 250°F and 300°F	62	64	64

16731 HALE AVENUE · IRVINE, CA 92606-5092 · (949) 863-1499 · FAX (949) 863-0105

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(over)

Weight Change in water, %			
24 hr immersion (ASTM D590-A)	-0.01	-0.01	-0.01
plus drying 24 hr at 120°F	-0.01	-0.01	-0.01
Weight Change after 24 hr in solvent plus drying 24 hr at 120°F			
Methanol	-0.003	0.000	+0.008
Toluene	-0.002	+0.002	0.000
HCFC 141b	-0.002	+0.002	0.000
Acetone	-0.015	-0.006	-0.008
n-Hexane	-0.010	-0.003	+0.008
Chloroform	+0.127	+0.007	+0.243
Linear Shrinkage upon cure ² , %	0.2	---	---
Dielectric Constant at 1 kHz			
at 77°F	5.37	---	---
at 200°F	5.69	---	---
Dissipation Factor at 1 kHz			
at 77°F	0.004	---	---
at 200°F	0.007	---	---
Volume Resistivity, 10 ¹⁴ ohm-cm			
at 77°F	37	---	---
at 200°F	0.4	---	---

NOTES

¹ Activator BA-9 (BA-5 without color and thickener) may be used at a ratio of 4.2 parts by weight of Activator BA-9 per hundred parts by weight of Adhesive LCA-4. Cured properties of the adhesive are the same except the color is cream.

² This is the apparent shrinkage using a steel mold and comparing the dimensions of the cured specimen at room temperature to those of the mold at room temperature.

INSTRUCTIONS FOR USE:

Stir well the contents of the container each time before removing material. If the contents are hard or lumpy, warm to 200°F and mix thoroughly before removing material. Prolonged storage at room temperature may result in the Adhesive LCA-4 resin crystallizing. Warming to 200°F will melt the resin and restore the adhesive to its original consistency. Weigh the ingredients accurately so that each amount specified does not vary more than 5%.

FOR INDUSTRIAL USE ONLY! WARNING!!

May cause injury to skin following prolonged or repeated contact. Use with adequate ventilation. Refer to Material Safety Data Sheets for detailed health and safety information.

SHELF LIFE:

The shelf life of these materials are greater than two years when stored in unopened containers at an average temperature below 85°F.

AVAILABILITY:

Adhesive LCA-4/BA-5 and LCA-4/BA-9 are available in quart and four fluid ounce kits, and Adhesive LCA-4/BA-9 is available in One-Shot kits (see Data Sheet No. 2011). Prices are listed on Data Sheet No. 2201. These systems are available also in Freeze-Paks. See Data Sheets No. 2031 and 2032.