



# Product Data Sheet

## Product

### MicroCoat 3417-HT3

#### **A Single Component, Toughened, Microelectronic Grade Package Sealant with a Service Temperature of <-65°C to Over >340°C and Meets NASA Low Outgassing Specifications**

MicroCoat 3417-HT3 features a unique blend of performance properties including both high shear and peel strengths along with convenient handling and high/low temp properties. This is a one component system formulated to cure at elevated temperatures.

3417-HT3 has a number of outstanding processing advantages;

- No mixing is necessary prior to use
- This material is ***not*** "Pre-mixed and Frozen"
- The viscosity remains constant with time (i.e. it will not thicken over time)
- Working life is unlimited at room temperature, and the material is room temperature storable
- No cleanup required in-between shifts

MicroCoat 3417-HT3 forms high strength bonds for service over the remarkably wide temperature range of <-65°C to over 300°C and is used for Microelectronic Package Sealing for Kovar/Ceramic, Ceramic/Ceramic, Liquid Crystal Polymers, Ceramic/Thick Film Gold, Pd/Au, Pt/Pd/Au, etc sealing and as a coating for components. As a toughened system, 3417-HT3 offers superior resistance to impact, thermal shock, vibration and stress fatigue cracking. It is 100% reactive and does not contain any diluents or solvents and is used in several "down-the-hole" environments at >2K meters.

3417-HT3 is remarkably resistant to severe thermal cycling and many chemicals including water, oil, fuels and most organic solvents even upon prolonged exposures. Adhesion to metals, glass, and ceramics is excellent. The cured epoxy is a superior electrical insulator and is colored is tan (*this material will darken when exposed to high temperature with NO adverse effects on the adhesive*). MicroCoat Polymer System 3417-HT3 high performance coupled with its convenient handling make it widely used in a variety of applications in the aerospace, electronic, microelectronics, electrical, automotive and chemical industries. MicroCoat 3417-HT3 will meet NASA low outgassing specifications. For substrate attach to heatsink a 3 mil minimum bondline is suggested

#### **Product Advantages**

- A single component system; no mixing required prior to use, no viscosity changes over time.
- Room temperature storable; not premixed and frozen!
- Versatile cure schedules.
- High shear and peel strength to similar and dissimilar substrates over the remarkably wide temperature range of -65°C – 340°C. (Note: Color changes to slightly amber >300°C)
- Passes Gross Leak – Seal Integrity - Mil-Std-883 Method 5005 Sub Group 3 Mil-Std-883 1014 2) Gross Leak Test
- Passes Gross Leak after 500 cycles -65°C to +150°C
- Good electrical insulating properties and chemical resistance.
- Superior thermal shock, impact and stress cracking fatigue resistance,
- Will meet NASA low outgassing per ASTM E-595, NASA MSFC 1443, Mil-Std-883 5011.4 (3.8.6)
- RoHS Compliant

# MicroCoat Technologies

## MicroCoat 3417-HT3

### Product Properties

Solids content, % .....	100
Viscosity @ 25°C, cps.....	>25,000
Color.....	Tan
Tensile shear, aluminum to aluminum, 25°C, psi.....	>3,200
Tensile strength, 25°C, psi .....	>8,500
Flexural strength, 25°C, psi.....	>9,700
Compressive strength, 25°C, psi.....	>30,000
Elongation .....	3.8%
Shore hardness (Shore D) .....	80
Tensile modulus, 25°C, psi .....	350,000
Maximum total mass loss (TML) .....	<1.0% of the original sample mass
Maximum collected volatile condensable material (CVCM) deposition.....	<0.1%
Tg: .....	+230°C
CTE .....	50-55 ppm per °C
CTE below the Tg .....	35-40 ppm
CTE above Tg .....	125 ppm
Youngs Modulus; .....	450-500K
Thermal Conductivity .....	3.13 W/mK
Service temperature range .....	-100C to 340°C
Short Term High Temp .....	480°C
Post Cure Ionics 883/5011.3.8.7 .....	Cl=<6ppm, Na+<3.3ppm, K+<1.1ppm
Teflon Flask 5 gm sample using 20-40 mesh, 50 gm DI H <sub>2</sub> O, 100°C for 24 hours	

### Typical Customer Evaluations;

The following tests were completed successfully on 3417-HT3 as a Sealing Adhesive:

- |   |                                |
|---|--------------------------------|
| (1) Temp Cycling (TC);                  | 500 Cycles, -65°C to +150°C    |
| (2) Temperature Humidity Bias (THB);    | 85% RH, 85 degrees C, 1000 hrs |
| (3) Gross Leak                          | Pass 100%                      |
| (4) Solder reflow temperature exposure; | 260°C for 90 seconds           |

Cure Schedule Mechanical Convection Oven; 30 minutes @ 125°C followed by 60 minutes @ 150°C  
Shelf life at 25°C in UNOPENED containers; 4 months. Usually depends on ambient conditions.

· Available in 3cc, 5cc, and 10cc syringes only.

**EXTENDED SHELF LIFE UP TO SIX MONTHS IF KEPT REFRIGERATED NOT FROZEN!!**

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