Product Data Sheet

MicroCoat Technologies
http:www.m-coat.com
Unparalleled in Polymer Coatings and Adhesives Technology

Product

MicroCoat 34-31-HTSM

A Single Component, Thermally Conductive, Toughened, Microelectronic Grade non-Conductive Die Attach Adhesive with a Service Temperature of <-65°C to Over >340°C and Meets NASA Low Outgassing Specifications

MicroCoat 34-31-HTSM 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.
34-31-HTSM 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 34-31-HTSM forms high strength bonds for service over the remarkably wide temperature range of <-65°C to over 300°C and is used for die attach on virtually any substrate material. As a toughened system, 34-31-HTSM 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 may be used in "down-the-hole" environments at >2K meters.

34-31-HTSM 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 34-31-HTSM 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 34-31-HTSM will meet NASA low outgassing specifications.

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)
- Good electrical insulating properties and chemical resistance.
- True thermal conductivity of 4W/mK
- 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

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Product Properties

Solids content, %. 100
Viscosity @ 25°C, Kcps 15-20
Color.....Yellow
Tensile shear on Silicon Die @ 25C psi.....(Shears Die)..... >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
Die Shear 5mm X 5mm psi ..... Die Break 100%
Maximum total mass loss (TML) ..... <1.0% of the original sample mass
Maximum collected volatile condensable material (CVCM) deposition..... <0.1%
Tg: ..... >130^{o}C
CTE ..... 130 ppm per ^{o}C
CTE below the Tg .....50-55 ppm
CTE above Tg .....>100 ppm
Youngs Modulus; 450-500K
Thermal Conductivity .....3.978 W/mK
Service temperature range ..... -100C to 340°C
Short Term High Temp ..... 375^{o}C
Post Cure Ionics 883/5011.3.8.7 .....Cl=<5ppm, Na+=<3.3ppm, K+=<1.1ppm
Teflon Flask 5 gm sample using 20-40 mesh, 50 gm DI H_2O, 100^{o}C for 24 hours

Cure Schedule Mechanical Convection Oven or Conveyor; 30 minutes @ 125^{o}C followed by 60 minutes @ 150^{o}C

Shelf life at 25°C in *UNOPENED* containers; 6 months @ RT. Usually depends on ambient conditions.

· Available in 3cc, 10cc, and 30cc syringes only.

EXTENDED SHELF LIFE UP TO 12 MONTHS IF KEPT REFRIGERATED NOT FROZEN!!

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