

MicroCoat Technologies

1316 Somerset Drive McKinney, TX 75070 www.m-coat.com +1-972-678-4950 Fax +1-214-257-8890

Unparalleled in Polymer Coatings and Adhesives Technology™



Product Data Sheet

MCT POLYMER ADHESIVE 423-06

Two Component Low Viscosity Epoxy System For High Performance Bonding, Sealing, Coating. Fast Set Up and Handling Time.

Product Description

MCT Polymer Adhesive 423-06 is a two component low viscosity epoxy resin system for high performance bonding, sealing, coating, as well as small encapsulations, potting and castings. It is formulated to cure readily at room temperature or more quickly at elevated temperatures. One notable property is its very fast curing at room temperature. It has a convenient 2 to 1 mix ratio by volume and contains no solvents or diluents. MCT Polymer System 423-06 produces high strength rigid bonds, which are remarkably resistant to chemicals including water, oil, many organic solvents, as well as cold sterilants, ETO and gamma radiation. It has a wide service temperature range of -60°F to + 250°F. It bonds well to a wide variety of substrates including metals, glass, ceramics, wood and many plastics. 423-06 has exceptionally low linear shrinkage upon cure. The cured compound is an outstanding electrical insulator. 423-06 low viscosity makes it excellent for thin line deposits. In addition, 423-06 will meet USP Class VI specifications but has not been tested as such

Product Advantages

- Convenient mixing: 2 to 1 ratio - Resin:Hardener
- Easy application: contact pressure should be enough for cure; In some cases clamping may be necessary.
- Versatile cure schedules: ambient temperature cures or fast, elevated temperature cures as required.
- Forms high strength rigid bonds to a wide variety of substrates.
- Excellent chemical resistance particularly to sterilants and solvents.
- Exceptionally low shrinkage.
- Superior electrical insulation properties. Good for potting and smaller encapsulations as well as sealing.

Product Properties

TYPICAL PROPERTIES	TEST METHOD	VALUE
Gel time (hours):		
100 Gram Mass at 75°F:		2 - 3 hrs
Thin Film at 75°F:		5 - 9 hrs
Part A:		
Viscosity (cps):	ASTM D1084-97	12000
Color: Clear		
Part B:		
Viscosity (cps):	ASTM D1084-97	4000
Color: Amber		
Mixed Product: Viscosity (cps):		8040
Color: Amber		
Tg (°C):	ASTM D3418 (2:1 Mix Ratio):	96
2:1 MIX RATIO PROPERTIES		
Lap Shear [CRS to CRS] (psi):	ASTM D1002	1800
Tensile Strength (psi):	ASTM D638	6400
Elongation at Break (%):		3.8
Flexural Modulus (psi):		3.26x10 ⁷
Coefficient of Thermal Expansion (unit/ unit /°C):		5x10 ⁻⁵
Maximum Service Temperature (°F):		500 [Intermittent]
Shelf life at 75°F: in unopened containers		12 months from ship date

- Parts A and B available in pint, quart, 1 (one) gallon and 5 (five) gallon container KITS.

Preparation of Adhesive and Bonding Surfaces

MCT Polymer Adhesive 423-06 is prepared by thoroughly mixing part A with part B. in a two (2) to one (1) mix ratio by weight. Mixing should be done slowly to avoid entrapping air. The low viscosity of the two components makes mixing easy. The working life of a mixed 100 gram batch is approximately 270 minutes. It can be lengthened by using shallower mixing vessels or mixing smaller size batches. All bonding surfaces should be carefully cleaned, degreased and dried to achieve maximum bond strengths. When bonding to certain metal surfaces, vulcanized rubbers, etc., chemical etching should be employed for optimal adhesion and environmental durability. Non-porous surfaces should be roughened with sandpaper or emery paper for hard materials.

Adhesive Application and Assembly

MCT Polymer Adhesive 423-06 can be conveniently applied with a brush, paint roller, syringe, or spatula. Enough mixed adhesive should be applied to obtain a final adhesive bond line thickness of 3-5 mils. This can be accomplished by coating one surface with adhesive film 3-5 mils thick or by coating the two surfaces, each with a 1.5 to 2.5 mil thick layer of adhesive. Porous surfaces may require somewhat more adhesive to fill the voids than non-porous ones. Thicker glue lines do not increase the strength of a joint but do not necessarily give lower results as the 423-06 adhesive system does not contain any volatiles. The parts to be bonded should then be pressed together with just enough pressure to obtain and maintain intimate contact during cure.

Cure

Full Cure Time at 75°F (hours):	16 hrs
Heat Cure: Minutes: Conventional oven: 100°C	15-20 min
Cure Addendum; Using Infrared heat	5-10 minutes

The idea behind an infrared oven is that the convection and conduction heating will properly heat the outside of the product and begin to heat the inside as well. Convection and conduction basically refer to how heat moves and is transferred between objects and are the typical methods by which product is heated in conventional ovens. In an infrared oven, infrared radiation is used to penetrate the product, much like microwave radiation in a microwave oven. The radiation begins cooking the inside of the product faster than in traditional curing techniques where the heat has to travel from the outside of the product toward the center. Experimentation is required to find the exact cure time for each product due to its mass differences

MCT Polymer Adhesive 423-06 can be cured at room temperature or at elevated temperatures as desired. At room temperature MCT Polymer Adhesive 423-06 - develops maximum bond strength within 24 hours. Faster cures can be realized at elevated temperatures, e.g., 15-20 minutes at 110°C. Polycarbonate has a Tg of about 150°C (302°F), so it softens gradually above this point and flows above about 300 °C (572 °F). Remove excess adhesive promptly before it hardens using a rag and solvent such as toluene, xylene, or acetone. The thinner the bond line or section thickness, the slower the rate of cure.

Handling and Storage

All epoxy resins should be used with good ventilation, skin contact should be minimized. To remove resin or hardener from skin, use a mild solvent or alcohol, then wash with soap and water. If material enters the eyes, flood with water and consult a physician. Optimum storage is at or below 75°F in closed containers. No special storage conditions are necessary. Containers should be kept closed when not in use to avoid contamination. Cleanup of spills and equipment is readily achieved with acetone, toluene, or xylene employing proper precautions of ventilation and flammability.

051012 Rev. 04