Product Data Sheet

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

Product

MCT3436

B-staged film for high performance wafer bonding and sealing

RoHS/WEEE, REACH, and Halogen Free

Key Features

NON-FROZEN!
High temperature resistant
Thermally conductive
Tough and flexible
Passes ASTM E595

MicroCoat Polymer "B" Stage System

Product Description

MicroCoat MCT3436 is a very special film adhesive featuring incomparable strength properties, high temperature resistance and first class thermal conductivity and electrical insulation properties. Based on the MicroCoat P3436AO formulation, this film differs from other heat resistant epoxies for it possesses far more toughness and flexibility than conventional high temperature resistant epoxies.

MCT3436 retains its very high physical strength properties profile up to 500°F. MCT3436 combines markedly enhanced thermal and mechanical shock resistance and thermal cycling capabilities. MCT3436 bonds well to a variety of substrates including metals, silicon, composites, glass and many plastics. It has good chemical resistance to water, acids, bases, fuels and oils. The service temperature range is -100°F to +500°F. Being a film, it, of course, doesn't require any mixing. The processing is very straightforward, that is heat curing at 350°F for 1-2 hours in order to obtain optimal properties. Two outstanding features of films include their uniformity of bond line thicknesses and limited squeeze out during bonding. This product is offered in three standard sizes: MCT3436-4A is 4 x 4 x 0.008 inches, MCT3436-8B is 8 x 8 x 0.008 inches and MCT3436-12C is 12 x 12 x 0.006 inches. The film can be cut with a pair of sharp scissors into various shapes and sizes. With intricate shapes, preforms can be provided; although, a technical drawing with tolerances would be required. The films are rugged, durable and not prone to cracking. Using the film is simple. The films have release paper on each side. After the substrates are surface prepared, the release paper is removed on one side to expose the adhesive. It's carefully placed onto the part and pressure is applied. The film is adhering to the surface as it possesses "tackiness" to it.

The second release lining is removed and the other substrate is affixed accordingly. The assembly is lightly fixtured and cured for 1-2 hours at 350°F. The bonded parts should be returned to 75°F before removing the fixtures. The film is black in color to provide a vivid contrast from the release papers. Unlike nearly all the thermoset films of this type, *MCT3436 does not require freezing*, although refrigeration is recommended. The cornucopia of advantages in using this film with its unique flexibilized epoxy chemistry is that it offers high temperature resistance, extraordinary toughness and flexibility and the ability to withstand rigorous thermal cycling. These properties enable it to be an excellent candidate for Semiconductor, aerospace, electronics, opto-electronic and specialty OEM applications. Also, its thermal conductivity and electrical insulation properties are integral constituents of the product property profile of MCT3436.

Product Advantages

. Provides uniform bond line thicknesses, virtually no squeeze out when curing
. Exceptionally rugged; easily cut into shapes
. Black color facilitates application; cures readily at 350°F for 1-2 hours
. After polymerization it combines high temperature resistance with flexibility and toughness
. Fantastic bond strength

Post Cure Ionics 883/5011.3.8.7 ASTM E595
Cl=<6ppm, Na+=<3.3ppm, K+=<1.1ppm
Teflon Flask 5 gm sample using 20-40 mesh, 50 gm DI H_2O, 100°C for 24 hours

1316 Somerset Drive McKinney, TX 75070 Sales@m-coat.com Tel. +1.972.678.4950 Fax +1.214.257.8890

Typical Properties

Cure schedule, 350°F	1-2 hours
Hardness, 75°F	80 Shore D
Hardness, 212°F [100°C]	27 Shore D
Hardness, 350°F [177°C]	22 Shore D
Tensile strength, 75°F	>2,000 psi
Tensile lap shear strength, aluminum to aluminum, 75°F	>4,000 psi
Elongation, 75°F	>50%
Glass transition temperature (T_g)	30°C
Thermal conductivity, 75°F	9-10 BTU•in/ft$_2$•hr•°F [1.2981-1.4423 W/(m·K)]
Coefficient of thermal expansion, 75°F	75-85 x 10^{-6} in/in/°C
Dielectric constant, 75°F, 60 Hz	4.1
Volume resistivity, 75°F	>10_{14} ohm-cm
Color	black
Service temperature range	-100°F to +500°F [-73°C to +260°C]
Shelf life at 75°F, in original, unopened containers	6 months

Preparation of Material and Bonding Surfaces

MicroCoat MCT3436 is a B-staged film adhesive, sealant that is offered as a standard product in the three sizes mentioned previously. In bonding applications, all surfaces should be carefully cleaned, degreased and dried to obtain the maximum bond strength. Metal, ceramic, PCB's, Silicon, GaAs, etc. and other surfaces should be cleaned with at the very minimum IPA

Application and Assembly

The black colored film is supplied sandwiched between two pieces of white release paper for color contrasting. It can be easily cut into various shapes and sizes. The actual application process is straightforward and easy. The release paper is removed from the lower part of the sandwich and the film is applied to the substrate. The film is sufficiently "tacky" so that it adheres readily to the substrate. The other layer of release paper is then removed and the second substrate is put into place. The pieces are then lightly fixtured. The film is easy to handle and very durable.

Cure

MCT3436 requires an elevated temperature cure. The recommended curing schedule is 1-2 hours at 350°F. Excess adhesive should not be a factor as the material has already been B-staged. Once bonded, extra care should be allowed for the parts to return to room temperature before removing the fixture.

Packaging/Film Handling and Storage

All epoxies should be used with good ventilation and skin contact should be avoided. For safe handling details, please consult the product MSDS. Optimum storage is at 40-50°F in a refrigerator. Cleanup is readily achieved with aromatic or ketone solvents employing proper precautions of ventilation and flammability.

Not to Be Used for Specification Purposes

The values contained herein are considered typical properties only and are not intended to be used as specification limits. For assistance in preparing specifications, please contact MicroCoat technical support for further details.

The information contained herein, is, to the best of our knowledge accurate. However, MicroCoat Technologies, LLC does not assume any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of the suitability of any material is the sole responsibility of the user. The information contained herein is considered typical properties and is not intended to be used as specifications for our products. This information is offered solely to assist purchasers in selecting the appropriate products for purchaser's own testing. All products may present unknown hazards and should be used with the proper precautions. Although certain hazards are described herein and in the Material Safety Data Sheets, we cannot guarantee that these are the only hazards that exist. Repeated and prolonged exposure to epoxy resins can cause sensitization or other allergic responses.

1316 Somerset Drive McKinney, TX 75070 Sales@m-coat.com Tel. +1.972.678.4950 Fax +1.214.257.8890