

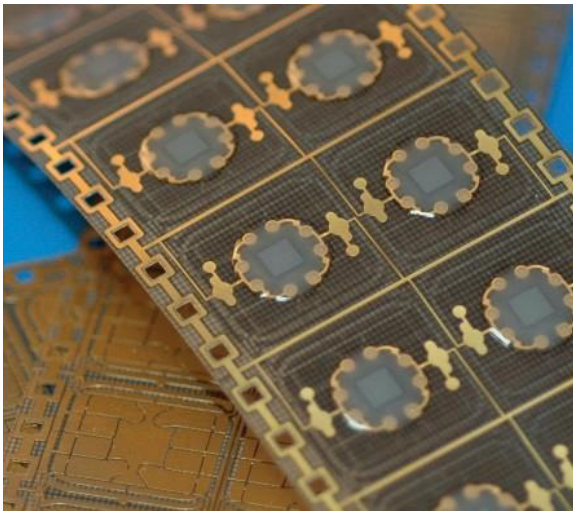


Microelectronic Encapsulants

**High Throughput Solutions with High Reliability
Low Stress Coatings**

As a global supplier of special adhesives, MicroCoat offers a range of UV and heat cure adhesives for Smart Card encapsulation and standard Glob Top/Chip-on-Board applications.

We have developed these materials to maximize efficiency in production throughput with maximum reliability and total compatibility with MicroCoat Die Attach Adhesives



Multi-Chip Modules, COB, Devices encapsulated with MCT Glob Tops:

MCT GTU1650

- UV cure one component epoxy resin
- High flexibility, low T_g
- Low ionic content
- Good environmental resistance

MCT GTUH1680

- UV and heat cure one component epoxy resin
- High T_g, low ionic content
- Low water absorption, good acid resistance
- Low coefficient of thermal expansion (α₁)

MCT GTU1688

- UV cure one component epoxy resin
- Low water absorption, good chemical resistance
- Outstanding mechanical properties
- Low warpage, low coefficient of thermal expansion

MCT GTUH1671

- One component leadframe Dam material with good edge stability
- UV and heat cure at low temperature
- Low ionic content, low water absorption
- Good thermal conductivity

Test	Test Conditions	Test Results
Temperature Cycling (TC), MIL-STD 883/1010	-55°C ~ +150°C	200 x / 0.5 hr
Temperature and humidity and bias (THB)	85°C / 85% RH, 5.5 V dc.	5.5 V 168 hrs
Temperature storage	1000 h @+125°C	Passed
Pressure cooker	+121°C, 100% RH, 2 bar, 24 h	Passed
Bend test	ISO 7816-1 and ISO /IEC 10373-1 / 58	> 1000 cycles
Torsion test	ISO / IEC 10373-1	> 1000 cycles
Mechanical Stress test	ISO / IEC 10373-3/ Annex A and more	> 100 cycles / 15 N
Line pressure test		very good
Spot pressure test		very good
Folding test		very good
Warpage test based on module after cure		very good
All Mil-Std-883 testing including outgassing specification	Mil-Std-883G/PRF-38534/5	Passes

Our products are Halogen free according to the International Electrochemical Commission's (IEC) Definition of Halogen-Free - <900ppm Bromine, <900ppm Chlorine, <1500ppm total Br/Cl

**MCT UV Cure
Dam & Fill Encapsulants**

Advantages

- Short cycle times, 10 - 60 sec
- Low ionic content
- UV curable, 320 - 405nm wavelength
- Good self-leveling characteristics
- Dam and fill adhesives create a homogeneous composition

**MicroCoat Heat Cure
Dam & Fill Encapsulants**

Advantages

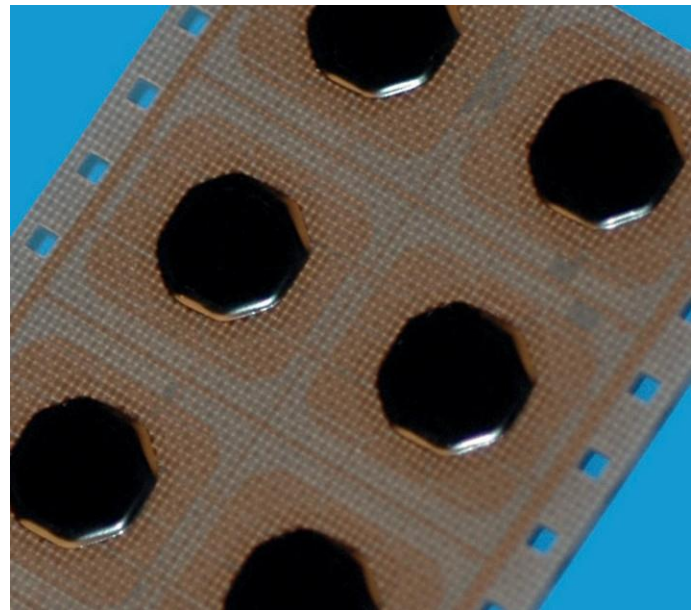
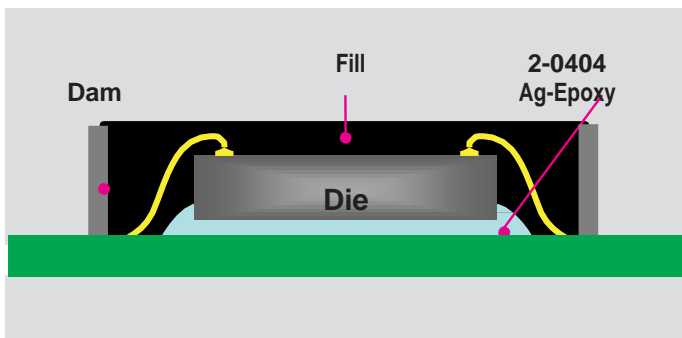
- Fast processing time and excellent dispensability
- High T_g level
- Low water absorption and good chemical resistance
- Fast cure time at moderate temperatures, 120°C-150°C
- Dam and fill adhesives create a homogeneous composition

MicroCoat GTH5071

- One component heat cure epoxy resin for Dam application
- Low water absorption, good chemical resistance
- Excellent thermal shock resistance
- Extremely high T_g

MicroCoat GTH5088

- One component heat cure epoxy resin for fill application
- High processing efficiency
- Outstanding mechanical properties, when cured same performance as mold materials
- Low coefficient of thermal expansion (α_1)



	UV/HEAT	UV	UV/HEAT	UV	Heat	Heat
	Dam	Fill	Fill	Fill	Dam	Fill
Product name	MCT GTUH1671	MCT GTU 1650	MCT GTUH1680	MCT GTU 1688	MCT GTH5071	MCT GTH5088
Typical application	Industry standard, Dam material, use in combination with all fill materials	Industry standard, Glob Top material, compatible with automated dispensing equipment	Industry standard, fill and Glob Top material, quickly becoming the industry standard, ideal in combination with GTUH1671	Most recent development of fill and Glob Top material, quickly becoming the industry standard, ideal in combination with GTUH1671	High viscosity Dam material, excellent chemical resistance, ideal in combination with St GTH5088	Medium viscosity fill material, excellent chemical resistance, ideal in combination with St GTH5071
Cure	UV and heat cure	UV cure	UV cure	UV cure	Heat cure	Heat cure
Cure @ 365nm	10 sec possible	10 sec possible	10 sec possible	10 sec possible		
Color	Light grey, translucent	Light grey, translucent	Light grey, translucent	Translucent	Black	Black
Viscosity [mPas]	250,000 - 300,000	6,000 - 9,000	6,000 - 9,000	4,000 - 5,000	300,000 - 400,000	45,000 - 55,000
Shore hardness [D]	80 - 90	70 - 80	70 - 80	70 - 80	80 - 90	75 - 90
Elasticity	Hard	Slightly elastic	Slightly elastic	Slightly elastic	Hard	Hard
Characteristics	High processing efficiency	High processing efficiency, well established Glob Top	High processing efficiency, excellent mechanical properties	Outstanding mechanical properties, good flow characteristics, fast processing due to fast cure possibility	Like dispensable mold materials	Like dispensable mold materials

