DOW CORNING

Electronics
Solutions

Dow Corning® TC-6020 Thermally Conductive Encapsulant

DESCRIPTION

Dow Corning® TC-6020 Thermally Conductive Encapsulant is a two-part silicone elastomer that offers easy mixing, good flowability and fast cure times for efficient encapsulating or potting of electronics that require thermal management and protection in automotive and other industry applications with harsh operating environments.

KEY FEATURES

- Two-part with 1:1 mix ratio
- Good flowability for easy processing
- Fast curing with moderate heat
- High thermal conductivity: 2.72 W/m*K
- Firm and strong with low elongation
- Excellent dielectric properties
- Wide service-temperature range

TYPICAL APPLICATIONS

- Electric vehicle control units
- Power inverters/converters
- Controller/driver modules
- Power supplies

POTENTIAL USES

- Encapsulating and potting
- Thermal management
- Moisture/contaminant protection

APPLICATION METHOD

- Manual or automated dispensing

Thermally conductive silicone elastomer for encapsulating harsh-environment electronics

Advanced power electronics solutions must deliver optimum reliability and durability in challenging energy, telecom and automotive applications. Especially developed to meet precise requirements for encapsulating or potting such electronics, *Dow Corning*® TC-6020 Thermally Conductive Encapsulant can offer designers both efficient processing and long-term performance. This two-part, easy-to-use silicone elastomer technology provides an impressive combination of manufacturing flexibility, effective thermal management and protection from harsh operating environments.

Efficient Processing

Starting with a simple 1:1 mix ratio, *Dow Corning* TC-6020 Thermally Conductive Encapsulant can help ensure efficiency and high production throughput with excellent flow characteristics and short cure times. For highly complex designs, vacuum may be needed to ensure complete void-filling. Good adhesion can be achieved on most substrates without primers.

Long-Term Performance

Properly applied and fully cured, *Dow Corning* TC-6020 Thermally Conductive Encapsulant can provide effective dissipation of generated heat; durable dielectric insulating properties; and lasting protection of electronics packages exposed to extreme heat and cold, moisture, salt spray, and airborne contaminants. Vehicle control units, power inverters and converters, electronic modules, and power supplies can benefit.

Dow Corning® TC-6020 Thermally Conductive Encapsulant can aid process efficiency for control modules and power supplies.

Dow Corning® TC-6020 Thermally Conductive Encapsulant can manage heat and help protect power inverters and converters.

Material Properties

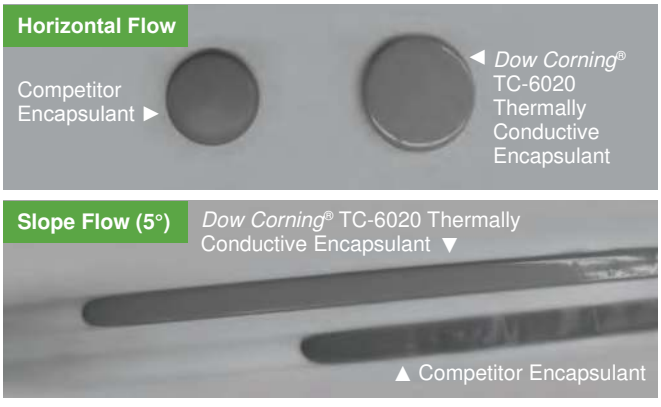
Test Method[1]		Property	*Dow Corning*® TC-6020 Thermally Conductive Encapsulant
CTM	ASTM		
		One-Part or Two-Part	Two (1:1 mix ratio)
0176 sub B	E284	**Appearance (mixed)**	Gray
0050	D1084	**Viscosity (Part A)** **Viscosity (Part B)** **Viscosity (Mixed)**	10,800 cP 9,960 cP 10,640 cP
		Pot Life	77 minutes at 25°C (77°F)
		Cure Time at 60°C (t90) **Cure Time at 80°C (t90)** **Cure Time at 100°C (t90)**	23 minutes 13 minutes 5 minutes
0001A (Hydrometer)	D1298	**Specific Gravity (cured)**	2.926
		Thermal Conductivity (hot disk, cured sample)	2.72 W/m*K
0099	D2240	**Shore A Durometer**	63
0137 sub A	D412, D638	**Tensile Strength**	139 psi
0137 sub B	D412, D638	**Elongation**	20.6%
0243	D816, D1002, MIL-S8802	**Unprimed Adhesion – Lap Shear (Aluminum)**	40.5 psi
0249 sub A	D257	**Volume Resistivity**	8.22 E+15 ohm*cm
1139	D150	**Dielectric Constant**	4.46 at 100 Hz; 4.12 at 100 kHz
1139	D150	**Dissipation Factor**	0.016 at 100 Hz; 0.002 at 100 kHz
0114 sub A	D149, MIL-S-8660B	**Dielectric Strength**	24.1 kV/mm
		Service Temperature Range	-45 to 200°C (-49 to 392°F)

[1]CTM: Corporate Test Method; copies of CTMs are available on request.
ASTM: American Society for Testing and Materials.

Specification Writers: These values are not intended for use in preparing specifications. Please contact your local Dow Corning Sales Application Engineer or Dow Corning Customer Service before writing specifications on this product.

Processability Flow Characteristics

In comparative testing of flow characteristics, *Dow Corning* TC-6020 Thermally Conductive Encapsulant outperformed a competing potting material in flowability tests conducted on both horizontal (flat) and sloped (5°) surfaces. Applying vacuum after dispensing can help ensure the filling of voids in complex devices.



How Can We Help You Today?

Tell us about your performance, design and manufacturing challenges. Let us put our silicon-based materials expertise, application knowledge and processing experience to work for you.

For more information about our materials and capabilities, visit **dowcorning.com/electronics**.

To discuss how we could work together to meet your specific needs, email **electronics@dowcorning.com** or go to **dowcorning.com/ContactUs** for a contact close to your location. Dow Corning has customer service teams, science and technology centers, application support teams, sales offices, and manufacturing sites around the globe.

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