FD503-TG60E

Low-Viscosity Silicone Potting Compound

A low-viscosity, two-part addition-cure silicone for potting and thermal protection of power modules. Its mixed viscosity is 1,500-2,500 mPa·s and its thermal conductivity is ≥0.6 W/(m·K). No cure by-products are produced.

Uncured properties

Property	Value	Method / reference
Appearance	A: grey liquid; B: white liquid	Q/GZJTHG42-2022
Viscosity, parts A and B	1,500-2,500 mPa·s	GB/T 2794
Mix ratio, A:B	1:1 by weight (see notes)	Not specified
Mixed viscosity	1,500-2,500 mPa·s	GB/T 2794
Working time at room temperature	30-50 min	Q/GZJTHG42-2022
Cure time at ambient T + 5°C	1-3 h	GB/T 531*
Cure time at ambient T	3-5 h	GB/T 531*
Cure time at ambient T - 5°C	5-9 h	GB/T 531*

Cured properties

Property	Value	Method / reference
Hardness	Shore A 40-50	GB/T 531
Thermal conductivity	≥0.6 W/(m·K)	ASTM D5470
Dielectric strength	≥18 kV/mm	GB/T 1695
Dielectric constant at 1 MHz	2.4-3.0	GB/T 1693
Volume resistivity	≥1.0 × 10^{13} Ω·cm	GB/T 1692
Density	1.56 ± 0.02 g/cm^3	GB/T 533

Test conditions. Uncured properties: freshly produced material tested at room temperature on the day of production. Mechanical and electrical properties: fully cured specimens.

Data notes. The mixing instructions specify 1:1 by weight. The original table labels the ratio as weight/volume; a volume ratio has not been verified. The ambient reference temperature T is not numerically defined. Confirm the actual temperature and cure schedule before production.

* Cure-time method references are retained as printed in the original data. They do not define a validated cure-time test. Viscosity is expressed in mPa·s (1 mPa·s = 1 cP).

Application and processing

Applications and substrate compatibility

Power modules requiring potting, electrical insulation and thermal protection. Suitable substrates listed in the product data include PC, PP, ABS, PVC and metals. Check compatibility with the actual assembly before use.

Operating temperature range: -40°C to +200°C.

Processing

1. Pre-mix. Stir parts A and B thoroughly in their separate containers. Mechanical stirring is recommended. Use separate tools for each part to prevent cross-contamination.

2. Mix. Weigh parts A and B at a ratio of 1:1 and mix until uniform.

3. Degas. Vacuum-degas the mixture for 1-3 minutes.

4. Dispense. Pour promptly into the assembly before the mixture thickens and loses flow.

5. Cure. The table gives 1-3 hours at T + 5°C, 3-5 hours at T, and 5-9 hours at T - 5°C. T is an unspecified ambient reference temperature. The processing section calls for heated cure, while the product description also permits room-temperature cure. Confirm a suitable schedule for the application.

Cure inhibition

Partially cured condensation-cure silicones, amine-cured epoxies, and wax or rosin residues on solder joints may inhibit cure. Test compatibility before use and clean the application area where necessary.

Packaging and storage

Packaging: 10 kg or 20 kg per component, supplied in drums for parts A and B.
Shelf life: 12 months at 0-35°C in tightly sealed containers in a dry place. Separation may occur during storage; stir each part thoroughly before use. Use mixed material promptly. Use material beyond its shelf life only after checking and confirming it is suitable for use.

Handling and application guidance

Do not ingest. Avoid eye contact. Obtain the current Safety Data Sheet for handling and transport information. Evaluate the product under the intended application and processing conditions before production use. Performance may vary with use conditions. Contact DBSilco at sales@dbsilco.com for pricing and orders.

RoHS compliance is stated in the original product data. Obtain current supporting documentation for your application.