# FD503-TG101

## Thermally Conductive Silicone Potting Compound

A low-viscosity, two-part addition-cure silicone for potting and thermal protection of power modules and electronic components. It cures at room temperature or with heat, without producing cure by-products.

### Uncured properties

| Property | Value | Method / reference |
|---|---|---|
| Appearance | A: grey liquid; B: light yellow liquid | Q/GZJTHG42-2022 |
| Viscosity, parts A and B | 2,500 ± 1,000 mPa·s | GB/T 2794 |
| Mix ratio, A:B | 1:1 by weight | Not specified |
| Mixed viscosity | 2,500 ± 1,000 mPa·s | GB/T 2794 |
| Working time | ≥30 min | Q/GZJTHG42-2022 |
| Cure time | ≤6 h | GB/T 531* |

### Cured properties

| Property | Value | Method / reference |
|---|---|---|
| Hardness | Shore A 45-55 | GB/T 531 |
| Thermal conductivity | ≥0.9 W/(m·K) | ASTM D5470 |
| Dielectric strength | ≥15 kV/mm | GB/T 1695 |
| Volume resistivity | ≥1.0 × $10^{13}$ Ω·cm | GB/T 1692 |
| Tensile strength | ≥1.0 MPa | GB/T 528 |
| Elongation | ≥50% | GB/T 528 |
| Coefficient of linear thermal expansion | ≤220 ppm/°C | ASTM E831 |
| Density | 1.72 ± 0.05 g/$cm^3$ | GB/T 533 |

**Test conditions.** Uncured properties: 25°C and 55% relative humidity. Mechanical and electrical properties: fully cured specimens.

**Data notes.** The ≤6 h cure value has no specified cure temperature. Confirm the cure schedule for the intended assembly.

* 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 and electronic components 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. Minimum poured thickness: 0.5 mm.

## 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.** Room-temperature or heated cure is possible. Higher temperatures accelerate cure. The listed cure time is ≤6 hours; a corresponding cure temperature is not specified.

## Cure inhibition

Contact with the following materials may inhibit cure. Check compatibility with the intended substrates and residues before use.

- Release agents and detergents.
- Certain plasticizers in insulating plastics, wire and cable insulation, and grommets.
- Materials containing nitrogen, phosphorus, sulfur or halogens, including natural rubber and neoprene.
- Soldering flux residues, including rosin.
- Organometallic compounds containing lead, tin or mercury, and condensation-cure silicones.
- Amine-containing materials, including polyurethane and epoxy systems.

## Packaging and storage

**Packaging:** 10 kg or 25 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.