Technical Data Sheet

DOWSIL™ TC-3015 Re-workable Thermal Gel

Description

One-part, thermally conductive re-workable gel

Uses / Applications

- Thermal interface material used for smartphone CPU and memory chips
- Dispensed or screen printed to various thickness and shapes for general thermal management of PCB system assemblies

Composition

- One-part
- Silicone gel

Benefits

- Re-workable
- Can be cured at room temperature or accelerated cure at 60°C or higher temperature for shorter curing time
- Use as printable or dispensable gel to replace fabricated pad
- Cures to a soft thermal gel for thermal transferring, stress relieving and shock damping
- Resists humidity and other harsh environments without cracking and slumping
- Low volatile content

Sustainability Attribute:

Circulibrium
Designing for circularity with DOW

Typical Properties

Specification Writers: These values are not intended for use in preparing specifications.

Property	Unit	Result
Color		Light pink
Viscosity (CP52, 1 rpm)	mPa•s	220,000
Extrusion Rate	g/min	320
Specific Gravity (Cured)		2.6
Curing Time at 60°C	hrs	8
Curing Time at 100°C	mins	60
Durometer Shore 00		72
Tensile Strength	MPa	0.3

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Typical Properties (Cont.)

Property	Unit	Result
Elongation	%	72
Dielectric Strength	kV/mm	14.7
Volume Resistivity	ohm*cm	5.9 E+14
Thermal Conductivity	W/mK	2.0
Shelf Life from Date of Manufacturing (Storage Temperature: -25°C to -10°C)	months	12

Description

DOWSIL™ TC-3015 Re-workable Thermal Gel is one part, heat cure silicone based thermally conductive gel with good re-workability. It's supplied as non-flowable paste and can be pressed lower to 100 um thickness in thermal management application. It can be cured to elastic pad with certain tensile strength and elongation which can make sure the material can be peeled off easily and completely without residue in rework process.

Processing/Curing

DOWSIL™ TC-3015 Re-workable Thermal Gel can be dispensed or screen printed to various thickness and shapes and cured within 8 hours at 60°C. To accelerate the curing speed, higher curing temperature can be adopted, for example the material can be cured within 60 minutes at 100°C.

Before application, the suggested thawing time is 1.5 hours at room temperature (23°C).

Working Time (Open Time)

DOWSIL™ TC-3015 Re-workable Thermal Gel starts curing slowly after being dispensed on substrates at room temperature. The viscosity increases over time, which means higher pressure is needed when pressing the gel to a certain thickness. The working time depends on the highest pressure applied on the devices allowed by the application. Generally the working time is 6 hours at room temperature.

Adhesion and Re-workability

In the manufacture of PCB system assemblies, it is often desirable to salvage or reclaim damaged or defective units. DOWSIL™ TC-3015 Re-workable Thermal Gel has a good balance of adhesion and re-workability. On one hand, the adhesion strength to general substrates of thermal devices like heat sink (Aluminum, Al/Mg alloy) and encapsulated chip (epoxy surface) can resist the mechanical and climate reliability ageing test, on the other hand, the cured material can be peeled off completely without residue in rework process.

Useful Temperature Ranges

For most uses, silicone adhesives should be operational over a temperature range of -45 to 200°C (-49 to 392°F) for long periods of time. However, at both the low- and high-temperature ends of the spectrum, behavior of the materials and performance in particular applications can become more complex and require additional considerations. For low-temperature performance, thermal cycling to conditions such as -55°C (-67°F) may be possible, but performance should be verified for your parts or assemblies. Factors that may influence performance are configuration and stress sensitivity of components, cooling rates and hold times, and prior temperature history. At the high-temperature end, the durability of the cured silicone elastomer is time and temperature dependent. As expected, the higher the temperature, the shorter the time the material will remain usable.

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Handling Precautions

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Usable Life and Storage

The product should be stored in its original packaging with the cap tightly fastened to avoid any contamination. Stored at -25°C to -10°C, DOWSIL™ TC-3015 Re-workable Thermal Gel has a shelf life of 12 months after the manufacturing date. The recommended shipment condition is below 10°C and less than 6 days.

Packaging Information

Multiple packaging sizes are available for this product. Please contact your local distributor or Dow representative for information on packaging size and availability.

Limitations

This product is neither tested nor represented as suitable for medical or pharmaceutical uses.

Health and Environmental Information

To support customers in their product safety needs, Dow has an extensive Product Stewardship organization and a team of product safety and regulatory compliance specialists available in each area.

For further information, please see our website, dow.com or consult your local Dow representative.

Disposal Considerations

Dispose in accordance with all local, state (provincial) and federal regulations. Empty containers may contain hazardous residues. This material and its container must be disposed in a safe and legal manner.

It is the user's responsibility to verify that treatment and disposal procedures comply with local, state (provincial) and federal regulations. Contact your Dow Technical Representative for more information.

Product Stewardship

Dow has a fundamental concern for all who make, distribute, and use its products, and for the environment in which we live. This concern is the basis for our product stewardship philosophy by which we assess the safety, health, and environmental information on our products and then take appropriate steps to protect employee and public health and our environment. The success of our product stewardship program rests with each and every individual involved with Dow products - from the initial concept and research, to manufacture, use, sale, disposal, and recycle of each product.

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