

Features & Benefits

- 3.5 W/mK Thermal Conductivity (Silicone based)
- Electrically Isolating with adhesive strength
- Low Interfacial Resistance
- Superior Thermal Performance with zero outgassing

Applications

- Automotive Electronics (HEV, NEV, Batteries)
- PCBA to heatsink
- Discrete components to heat spreader
- Fiber optics and Telecom equipment

Introduction

TCLAD TCA is a thermally conductive gap filling material that is offered in a two-part silicone based thermal conductive adhesive material. The purpose of the material is to minimize thermal resistance between the heat source and the heat sink or heat spreader.

Typical properties of gap filling materials have the following characteristics: Thermal conductivity, viscosity, hardness, pot life, volume resistivity etc. It is typically offered in cartridges, or containers and can be dispensed through a static mixing nozzle with a handheld dispensing gun or by automated dispensing equipment.

Mixing the two parts (1:1) into a single material, the liquid form cures into a solid form depending on the curing time and temperature. Before the material cures into a solid form, the material should be placed in the interface and put into compression so that it can form around the surrounding surfaces to remove as much air and to wet out to the adjoining surfaces as much as possible.

How to use: Depending on storage time the material is stored from the date on manufacture, premixing prior to use may be required. Mix part A and B 1:1 and apply mixture to the surface. Apply pressure to remove the air gap as much as possible to improve heat dissipation.

Processing: After the material is exposed to air it will begin to cure. At room temperature. Curing can be accelerated by increasing the temperature.

Useable life and storage: TCA products are best if stored in a cool and dry / non-humid environment, especially where it is not exposed to any sunlight. Containers that have been stored for longer than two months should be remixed with a clean mixer and vacuum to prevent air entrapment. Whereas the cartridge containers should be flipped upside down every two weeks to prevent the particle fillers from settling to the bottom. The shelf life can be up to 6 months when properly stored.

Package Information: Typical package size, cartridges: 50cc, and 400 cc. Containers: 20L and 200L or 1Kg and 200Kg. Custom size available.

Precautions: Please review the technical datasheet of the material before use of the products in terms of the material characteristic to fit one's application. All values stated here are typical values.

We provide custom solutions for your applications. For further inquiries, please contact your local sales agent or directly TCLAD in your region.

Thermal Conductive Adhesive

TCA 3.5

Item	Condition	Unit	Value	Method
General				
Color	Visual	-	A: Gray B: Gray	1:1 Visual
Continuous Use Temp	-	°C	-50 ~ 200	-
Part A Viscosity (SI4, 10rpm)	25°C	cps	60,000 (min) 100,000 (max)	ASTM D1084
Part B Viscosity (SI4, 10rpm)	25°C	cps	80,000 (min) 120,000 (max)	ASTM D1084
Density	25°C	g/cc	2.5	ASTM D792
Hardness	Shore	A	47	ASTM D2240
Elongation at Break		%	26	ASTM D412
Adhesion Strength Al vs Al		Kgf/cm ² (MPa)	6 (0.6)	ASTM D1002
Adhesion Strength Cu vs Cu		Kgf/cm ² (MPa)	10 (0.98)	ASTM D1002
Adhesion Strength SS vs SS		Kgf/cm ² (MPa)	22 (2.16)	ASTM D1002
Electrical				
Dielectric Strength	-	kV/mm	22	ASTM D149
Volume Resistivity	-	Ω cm	> 2x10 ¹⁴	ASTM D257
Thermal				
Thermal Conductivity	-	W/m-K	3.5	ASTM D5470
Cure Schedule				
Pot Life @ 25°C	2x viscosity	Hours	12	
Cure @ 80°C	Oven	mins	60	
Cure @ 25°C	-	Hours	24	
Durability				
RoHS	-	-	Compliant	

Applications Tips:

- **Correct Mixing Ratio:** Ensure that both components (Part A and Part B) are mixed in the correct ratio (2:1) for optimal performance and reliable results. Mix for 10 mins if needed to ensure color is uniform.
- **Surface Preparation:** Thoroughly clean the surfaces before applying the liquid gap filler to ensure proper adhesion and to maximize thermal performance.
- **Consistent Mixing:** For consistent results, especially in high-volume applications, use a static mixer or an automatic mixing machine.
- **Curing Time:** Allow the gap filler to fully cure before subjecting the components to any mechanical stress, ensuring long-lasting effectiveness.
- **Proper Storage:** Store any unused materials in a cool, dry location and adhere to the manufacturer's guidelines for shelf life and storage conditions to maintain product integrity.

