



## Technical Data Sheet

### ACS Material Polyurethane Thermal Conductive Structural Adhesive

#### Table of Contents

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[1 – Features](#)

[2 – Characterizations](#)

[3 – Storage Conditions](#)

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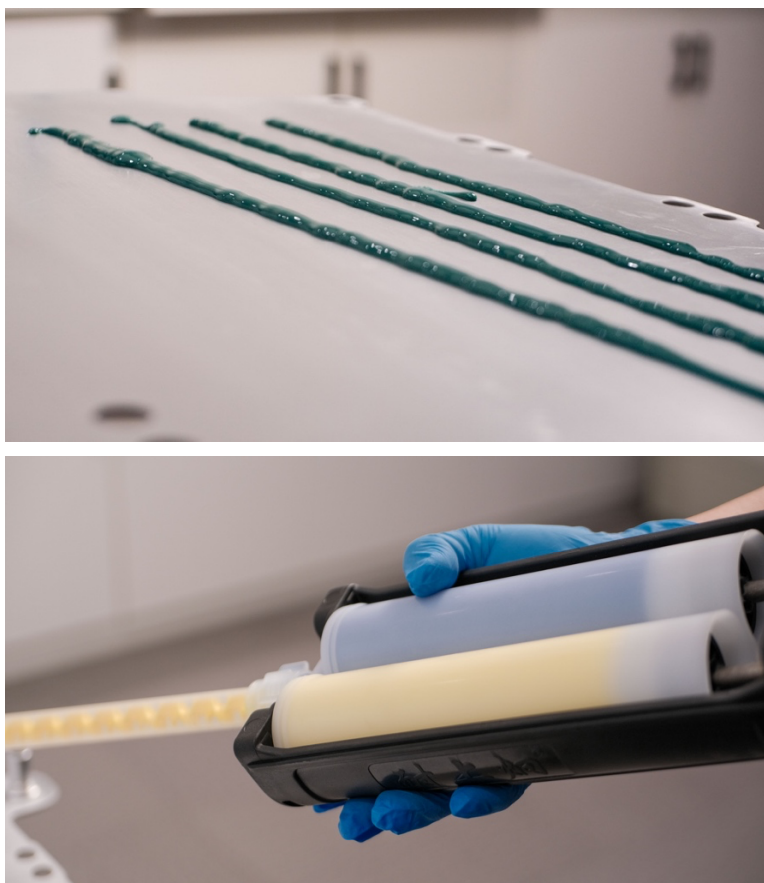
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The Polyurethane Thermal Conductive Structural is a dual-component polyurethane thermal conductive structural adhesive with a thermal conductivity available in 1.2 W/m-K and 2.0 W/m-K. It is suitable for bonding between battery cells and cooling plates; and can be utilized for automated adhesive assembly. This material is mixed thoroughly by A and B components through a helical mixing tube. It can cure at room temperature as well at high temperatures. The adhesive surface stress is extremely low (virtually absent), ensuring excellent adhesion to the material interface and resulting in low thermal resistance. Once cured, it securely bonds the battery cells to the cooling plate. Its exceptional structural performance and weather resistance make it particularly suitable for adhesive applications in new energy vehicles. Moreover, the thermal conductive structural adhesive adopts a polyurethane formulation system. It is non-toxic, odorless, non-corrosive, and complies with RoHS directives and relevant environmental requirements.



## 1. Features

- Good insulation and high/low temperature resistance.
- Flame retardant rating of UL94 V0
- Good maneuverability and flexibility

## 2. Characterizations

Before Curing					
Type	A		B		Testing Standard
	Tube 1	Tube 2	Tube 1	Tube 2	-
Color	Off-White	Black	Red/Optional (color can be changed)	White	-
Viscosity @25°C 7#rotor 5rpm	1.0x10 <sup>5</sup> cps - 3.0x10 <sup>5</sup> cps	1.0x10 <sup>5</sup> cps - 3.0x10 <sup>5</sup> cps	2.0*10 <sup>5</sup> cps	2.3*10 <sup>5</sup> cps	ASTM D445
Density	1.75 g/cc	1.82 g/cc	2.0 g/cc	2.0 g/cc	ASTM D792
Mixing Ratio	1	1	1	1	-
After Curing					
Thermal Conductive	1.2 W/m*K		2.0 W/m*K		ISO22007-2
Density	1.8 g/cc		2.0 g/cc		ASTM D792
Hardness	≥60 Shore00		70 Shore00		ASTM D2240
Flame Retardant Rating	V0		V0		UL94
Surface Dry Time @23°C	60-90 min		20 min		Manual
Curing Time @ 25°C	7 D		7 D		Hardness Test
Tensile Strength	10 MPa		8.0 MPa		GB/T528   ASTM D412
Aluminum-Aluminum Bond Shear Strength	9 MPa		8/0 MPa		GB/T 7124   ASTM D412
Shear Strength (untreated, PET/ET Film)	2 MPa		5 MPa		GB/T 7124   ASTM D412
Volume Change Rate	1%		12%		ISO 10563   ASTM D149
Breakdown Voltage	12 kV/mm		10 <sup>12</sup> kV/mm		ASTM D149   ASTM D257
Volume Resistivity	>10 <sup>12</sup> Ohm*cm		1500 Ohm*cm		ASTM D257   GC
Recommended using temperature range	-40 ~ 80°C		-40 ~ 80°C		-

### 3. Storage Conditions

Shelf life: 6 months

Storage conditions: Temperature:  $15^{\circ}\text{C} < T < 30^{\circ}\text{C}$

Relative humidity:  $\text{RH} < 70\%$

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