

1 DESCRIPTION

UNIMEC H9890-6 is a low-temperature sintered die attach paste using our Metallo-Organic (MO) technology. This high thermal conductive paste does not require pressure while curing, and the fragile, porous sintered structure has been reinforced by our proprietary resin system. This material has been developed for replacing eutectic solders offering the same thermal performance as AuSn solder.

2 APPLICATIONS

- IGBT for Motor Control
- HBLED (High Brightness LEDs)
- Power Amplifiers for RF & Microwave
- Power semiconductors
- Laser diodes
- RF Power devices
- GaAs devices
- MMICs
- Power hybrids
- Solder replacement

3 KEY FEATURES

- High thermal and electrical performance.
- Strong adhesion to metalized surfaces (Au or Ag).
- Low bleeding and extended pot life.
- Formulated for longer open and staging time.
- Low storage modulus.

4 TYPICAL PROPERTIES *

Parameter		Unit	Note / Condition
PASTE PROPERTIES (before curing)			
Viscosity	30	Pa·s	Viscometer type EHD 3° Cone R9.7 (25°C) @5rpm
Thixotropic index	7.0	--	0.5 rpm / 5 rpm
Non-volatiles content	90	%	
Silver content	82	%	Calculated
Density	4.0	g/cc	Calculated
CURED PROPERTIES (60 min. ramp to 200C, and 60 min. hold at 200°C)			
Volume resistivity	15	μΩcm	LCR Meter
Die Shear strength	RT	35	Si chip (2x2mm, backside Au)/ Ag plated CuLF
	@260°C	8	
Coefficient of Thermal Expansion (CTE)	45	ppm/°C	TMA
Water Absorption	< 0.1	%	After 96 hours at 85°C 85% RH exposure
Storage Modulus	RT	6	DMA
	200°C	3.5	
Impurities concentration	Na	< 5	NATS
	K	< 5	
	Cl ⁻	< 35	
Thermal conductivity	1 layer	60	Laser Flash, 0.7 mm thickness
	3 layer	30	Laser Flash, 35 μm BLT
Thermal Resistance	0.7	K/W	JEDEC JESD51-1 static test method (T3Ster, 3x3mm Si chip (backside: Au)/Ag plated Al ₂ O ₃)
SYRINGE PROPERTIES			
Pot Life	2	days	25% increase in viscosity @ 5rpm @ 25°C

* These data are only for reference and are not guaranteed

5 DIE SHEAR STRENGTH

Substrate Surface	@ RT	@ 260°C
Ag Plated	35 N/mm ²	8 N/mm ²
Ni/Pd/Au Plated	35 N/mm ²	8 N/mm ²

6 STORAGE AND HANDLING

- Store in freezer -40°C or below.
- Shelf life 12 months from date of manufacture.
- Bring the material to room temperature before use.
- Wear gloves when handling product.
- Clean contaminated skin with soap and water.

7 PROCESSING GUIDELINES

- Application method: Dispensing
- Curing Conditions: Ramp up 60 min. to 200°C + hold for 60 min. @200°C or ramp up to 60 min. to 175°C + hold for 90 min. @175°C.
*Nitrogen atmosphere is preferable.
- Can be used with standard dispense equipment.

10 MORE INFORMATION

For more information on H9890-6 and other NAMICS products contact your local NAMICS sales office below:

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8 OPEN AND STAGING TIME INFORMATION

- Open time is the time between applying adhesive and placing die.
H9890-6 has an open time of 24 hours.
- Staging time is the time between die placement and curing.
H9890-6 has a staging time of 48 hours.

The following table shows the time needed to thaw the syringes of each size:

Syringe Size	-40°C Storage Condition
5cc, 10g syringe	1 to 1.5 hours
10cc, 15g syringe	1 to 1.5 hours

9 ORDERING INFORMATION

Ordering Number	Key Product Characteristics
UNIMEC H9890-6	High thermal & electrical performance
<ul style="list-style-type: none"> ■ Available in syringes only. ■ Standard syringe sizes and fill amounts are 5cc filled with 10 grams, and 10cc filled with 15 grams. ■ Contact your local NAMICS office. 	

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