

## **Preliminary Product Information Sheet**

## **EPO-TEK® ED1020 (formerly 77-189)**

Note: These are typical properties to be used as a guide only, not a specification. Data below is not guaranteed.

Different batches, conditions and applications yield differing results.

Date: September 2017 Recommended Cure: 150°C / 1 Hour

Rev: V
No. of Components: Single
Mix Ratio by Weight: N/A
Specific Gravity: 2.89
Pot Life: 28 Days

Shelf Life- Bulk: One year at -40°C

## NOTES:

- Container(s) should be kept closed when not in use.
- Filled systems should be stirred thoroughly before mixing and prior to use.
- Performance properties (rheology, conductivity, others) of the product may vary from those stated on the data sheet when bi-pak/syringe packaging or post-processing of any kind is performed. Epoxy's warranties shall not apply to any products that have been reprocessed or repackaged from Epoxy's delivered status/container into any other containers of any kind, including but not limited to syringes, bi-paks, cartridges, pouches, tubes, capsules, films or other packages.

<u>Product Description:</u> A single component, silver-filled epoxy designed for low power semiconductor LED die attach applications. Its unique features include excellent adhesion and stress relief through mechanical reliability testing. Other attributes include long pot-life, low viscosity and high thixotropy making it ideal for a wide range of application methods including wafer level stamping and syringe dispensing.

## **MATERIAL CHARACTERISTICS\*:**

PHYSICAL PROPERTIES:	Cure condition: 15	0°C / 1 Hour
Color (before cure):	Silver	
Consistency:	Smooth thixotropic paste	
Viscosity (23°C) @ 1 rpm:	28,583	cPs
@ 10 rpm:	9,569	cPs
@ 100 rpm:	1,479	cPs
Thixotropic Index:	3.0	
Glass Transition Temp:	46	°C (Dynamic Cure: 20-200°C/ISO 25 Min; Ramp -10-200°C @20°C/Min)
Coefficient of Thermal Expansion (CTE):		
Below Tg:	45	x 10 <sup>-6</sup> in/in°C
Above Tg:	181	x 10 <sup>-6</sup> in/in°C
Shore D Hardness:	40	
Die Shear @ 23°C:		
Initial:	15.4	<u> </u>
After 1000 hours 85°C/85% RH:	9.3	
Degradation Temp:	333	°C
Weight Loss:		
@ 200°C:	0.68	%
@ 250°C:	1.24	%
@ 300°C:	1.71	%
Suggested Operating Temperature:	< 250	°C (Intermittent)
Storage Modulus:	36,103	psi
Ion Content:	Cl <sup>-</sup> : 169 ppm	Na <sup>+</sup> : 0 ppm
Destide Oies	NH <sub>4</sub> +: 67 ppm	K <sup>+</sup> : 4 ppm
Particle Size:	≤ 20	microns

ELECTRICAL AND THERMAL PROPERTIES:				
Thermal Conductivity:	1.9	W/mK		
Volume Resistivity @ 23°C:	≤ 0.0004	Ohm-cm		

The data above is INITIAL only - it may be changed at any time, for any reason without notice to anyone. It is provided only as a guide for evaluation/consideration.

<sup>\*</sup> These material characteristics are typical properties that are based on a limited number of samples/batches. All properties are based on the cure indicated above. Some properties may vary as manufactured quantities are scaled up to commercialized production levels.