

# OUTLAST® LATENT HEAT STORAGE (LHS) EPOXY COMPOSITE



INFORMATION SHEET | Aug 2014 | Rev: 2

Outlast® LHS thermal management materials provide energy absorption, heat storage and heat dissipation characteristics for passive thermal control. These materials are designed for thermal protection of electronic devices, along with temperature stabilization of thermo-sensitive processors and surfaces.

## TYPICAL PROPERTIES: W052214 (#14-CT3564-5) & W071814 (#12-CT3567-6)

W052214 and W071814 are highly filled, moderately thixotropic black casting resins designed for applications requiring good thermal conductivity, low shrinkage and a low CTE. It was especially formulated to a 2:1 mix ratio. The W071814 meets UL94 Vo rating.

Cure is normally achieved at room temperature although an elevated cure schedule can be used to reach final properties quickly.

### TYPICAL PROPERTIES:

	W052214 (#14-CT3564-5)		W071814 (#12-CT3567-6)	
Part A to Part B Ratio by weight:	2.13:1		1.79:1	
Part A to Part B Ratio by volume:	2.0:1		2.0:1	
Formula Specific Gravity:	1.07 g/mL		1.24 g/mL	
Viscosity:	Measured using a Malvern Bohlin Gemini Rheometer.		Measured using a Malvern Bohlin Gemini Rheometer.	
Gel Time:	2.5 hours		1.75 hrs.	
Hardness Shore D:	62		71	
Tg (DSC):	41°C		49°C	
Phase Transition Temp:	28-37 °C or 42-45°C		28-37 °C or 42-45°C	
Heat of Fusion (enthalpy):	~90 J/g		~60 J/g	
	<u>SHEAR RATE: 1/S</u>	<u>SHEAR RATE: 10/S</u>	<u>SHEAR RATE: 1/S</u>	<u>SHEAR RATE: 10/S</u>
Part A	102,000 cps	61,000 cps	162,800 cps	63,670 cps
Part B	15,000 cps	15,000 cps	182,400 cps	62,590 cps
Blended	49,000 cps	40,000 cps	140,400 cps	77,420 cps

## CONTINUED.

TYPICAL PROPERTIES:	TEST:	VALUE (W052214):	VALUE (W071814):
Flame Resistance	UL94	HB	V0
Compressive Strength:	ASTM D695	5,800 psi	7,850 psi
Compressive Modulus:	ASTM D695	64,500 psi	182,000 psi
Tensile Strength:	ASTM D638	1,450 psi	2,300 psi
Young's Modulus:		113,500 psi	248,000 psi
Lab Shear:	ASTM D1002	500 psi	1,700 psi
Thermal Conductivity:		0.5-0.6 W/mK	0.5-0.6 W/ m K
RoHS Compliance:		Compliant	

## PRODUCT DETAILS

**SUPPLIER:** Outlast Technologies LLC

**PRODUCT:** PCM thermal management composite

**END-USE:** Thermal management in electronic packaging and processor/heat sink interface

**STORAGE:** Store in cool, dry place. Best if used within 6 months

**HANDLING PRECAUTIONS:** Even though this product is considered safe and nontoxic, product safety information for safe use is not included, please refer to MSDS or inquire with qualified technical person at Outlast Technologies LLC.

**LIMITATIONS:** This product is not intended for pharmaceutical or in-vitro medical use.

Note: Outlast thermal management materials are developmental products that are furnished for R&D purposes only. The information contained herein is merely preliminary data due to continued development. Further information, including data changes, may occur as testing, process optimization, and formulation changes occur and development proceeds. The user/purchaser agrees that: use is undertaken at the users sole risk, that the material is furnished "asis, with all faults", without any warranty or guarantee; and that Outlast Technologies LLC., Outlast Europe, or Outlast Asia shall not be liable for any damages, of whatever nature, arising out of the user's / purchaser's receipt and/or use of this material. Commercialization and continued supply are not assured.