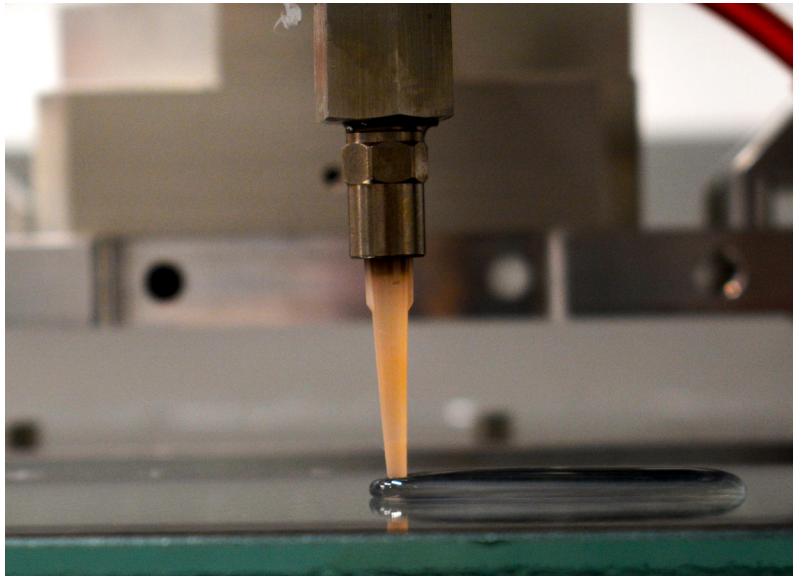
LIQUID OPTICALLY CLEAR ADHESIVES

LOCA

Vivid Cure™

HumiSeal®

www.HumiSeal.com



		Avionics	Military	Medical	Commercial	Automotive	Computer	Monitor	Large Format	Computer Devices	Auto-Bonding
OPTICAL BONDING ADHESIVES	UV6041 & HV	✓	✓	✓	✓	✓				✓	✓
	UV7041	✓	✓	✓	✓	✓				✓	✓
	UV806-UVA			✓		✓	✓	✓	✓	✓	✓
	UV806-VLS			✓		✓	✓	✓	✓	✓	✓
SEALANTS	UV6061T	✓	✓	✓	✓	✓				✓	✓
	UV7061T	✓	✓	✓	✓	✓				✓	✓
	UV9118T-Black	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

HumiSeal manufactures a complete line of Liquid Optically Clear Adhesives (LOCA). These products are single component, UV curable adhesives that have become the industry standard in the manufacture of optical displays and devices. LOCA adhesives are excellent for high speed or high volume applications where fast or immediate curing is required. In addition, their single-component curing mechanism results in consistent and reliable performance without concerns about mix ratios or generation of heat. Features and benefits of HumiSeal LOCA adhesives include:

FEATURES	BENEFITS
A Suite of Products	Various applications - Touch panel, direct bonding, large format, cover lens, damming
Low Energy UV Cure	Low temperature during application reduces stress on the LCD
Low Shrinkage	Minimizes deformation induced stresses on the LCD for ultra-low MURA
Low Modulus	In combination with shrinkage reduced internal stress on LCD for ultra-low MURA
High Adhesion	Good adhesion to multiple substrates for ultimate ruggedizing adhesive
Low Haze	Low light scattering for sharp, crisp, image quality
High Transmission	Ultra-clean manufacturing leading to minimal particulate build up in liquid for high transmittance
Index Matching	Elimination of lateral displacement and reflective glare for high contrast results
Low Dielectric Constant	Optimal for the use with various technology touch screen displays

LIQUID OPTICAL BONDING MATERIALS - PRODUCT GUIDE

	TEST ITEM	TEST METHOD/CONDITION	VIVID CURE 6041 & HV	VIVID CURE UV7041	VIVID CURE 806-UVA	VIVID CURE 806-T-VLS
LIQUID	Viscosity (mPa.s)	at 25°C, 10 rpm	2000-HV 4000	2000-3000	1900-3100	1900-3100
	Density (g/cc)	at 25°C	0.88 - 0.92	0.88 - 0.92	0.87 - 0.93	0.87 - 0.93
PHYSICAL PROPERTIES (CURED)	Modulus of Elasticity at -60°C (MPa)	DMA	100-500	100-500	100-500	100-500
	Glass Bond/Shear Strength (psi)	Glass/Glass	>16	>16	>16	>16
	Shore Hardness, 00	ASTM D2240	< 10	< 10	< 10	< 10
	Density (g/cc)	at 25 °C	0.90 - 0.94	0.90 - 0.94	0.90 - 0.94	0.90 - 0.94
	Linear Shrinkage (%)	at 25 °C	< 1.0%	< 1.0%	< 1.0%	< 1.0%
	Tg (°C)	DSC	- 40 to -45 °C	- 40 to -45 °C	- 40 to -45 °C	- 40 to -45 °C
	TEST ITEM	**TEST METHOD/CONDITION**				
ELECTRIC PROPERTIES (CHURED)	Dielectric Constant	200KHz	2.94 ± 0.045	2.94 ± 0.045	2.94 ± 0.045	2.94 ± 0.045
		400KHz	2.65 ± 0.044	2.65 ± 0.044	2.65 ± 0.044	2.65 ± 0.044
		800KHz	2.86 ± 0.042	2.86 ± 0.042	2.86 ± 0.042	2.86 ± 0.042
		1MHz	2.79 ± 0.046	2.79 ± 0.046	2.79 ± 0.046	2.79 ± 0.046
OPTICAL PROPERTIES (CHURED)	Refractive Index	@ 589.3nm	1.46 -1.47	1.46 -1.47	1.46 -1.47	1.46 -1.47
	Transmittance %	ASTM D1003 380 — 780mm (cured)	> 99%	> 99%	> 99%	> 99%
	Haze %	ASTM D1003	< 0.02	< 0.02	< 0.02	< 0.02
	Color (Colorimeter)	b*	0.03	0.03	0.03	0.03
OPERATION	Range of Temperature (°C)	- 50 to 125**	- 50 to 125**	- 50 to 125**	- 50 to 125**	- 50 to 125**
	Curing wavelength	Range	UVA	UVV	UVA	UVV
	Curing Energy	≥ (mJ/cm2@EIT Powerpuckll)*	1700	5000	1700	5000

Notes:
* Curing Energy (mW/cm²) is considered minimum values, total cure dosage values are in mj/cm². Higher energy cure sources can be used affecting total cure energy/time.
** Subjected to 110°C or 5000 hours without failure

	TEST ITEM	VIVID CURE UV6061T	VIVID CURE UV7061T	VIVID CURE UV9118T BLACK
LIQUID	Viscosity (mPa.s) at 25°C, 10 rpm	30,000 - 80,000	30,000 - 80,000	30,000 - 80,000
	Density (g/cc)	0.87 - 0.93	0.87 - 0.93	0.87 - 0.93
PHYSICAL PROPERTIES (CURED)	Glass Bond/Shear Strength (psi)	> 35	> 35	> 36
	Shore Hardness, 00	25 - 40	25 - 40	26 - 40
	Linear Shrinkage (%)	TBD	TBD	TBD
	Tg (°C)	- 45 to - 50 °C	- 45 to - 50 °C	- 45 to - 50 °C
OPERATION	Range of Temperature (°C)	- 50 to 125**	- 50 to 125**	- 50 to 125**
	Curing wavelength	UVA	UVV	UVA
	Curing Energy, ≥ (mJ/cm2@EIT Powerpuckll)*	1700	5000	5000

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