Light- and/or Heat-Curable Materials for Advanced Driver-Assistance Systems (ADAS) and Automotive Camera Module Assembly

- One-part, solvent-free environmentally friendly materials
- Materials cure in seconds with light for faster processing and increased productivity
- Positioning adhesives with very low volumetric shrinkage and low CTE for active alignment
- Products with excellent resistance to humidity and thermal shock
- UL-V0 flammability rated and fluorescing products available
- Materials formulated with secondary heat- or moisture-cure for shadow areas available
- Low moisture absorption and UV LED-curable products
- Excellent adhesion to substrates commonly used in LiDAR sensors and camera module assemblies
- Possible to set up for in-line production processes

Once considered high-end luxuries, Advanced Driver Assistance Systems (ADAS) and cameras have become standard features on most vehicles. These features can assist and alert drivers or even operate automatically to improve vehicle driving comfort and safety. These systems use a variety of "visual" and communications technologies designed to improve the driving experience. They enhance driver safety by delivering notifications and warnings of impeding dangers so that drivers may avoid them. Or, even in some cases, vehicles use a mix of camera, radar/lidar, and ultrasonic sensor technology to make features like blind spot detection, cross traffic alerts, and parking assistance possible.

Dymax offers positioning adhesives and encapsulants that improve the performance and reliability of ADAS and camera components. Our light-curable positioning adhesives are excellent for alignment of cameras and sensors, while our light-curable encapsulants can be used to protect cameras and LiDAR sensors from damaging environments. Our materials cure in just seconds with UV/Visible light, cutting down on processing time for a faster, more efficient assembly process. Many materials can be cured with LED light and/or heat, making them ideal not only for process optimization and productivity enhancements but also accommodating designs where shadow areas exist. Products are available with fluorescing for easy in-line inspection. UL-V0 flammability rated products are also available.

Suggested Materials

Product Number	Features	Viscosity, cP	Durometer Hardness	Tensile at Break, MPa [psi]	Modulus of Elasticity, MPa [psi]	Shrinkage, %
Positioning Adhesives						
9801	UV/Visible light cure and/or heat cure epoxy; low shrinkage; moisture and thermal cycle resistant; cold storage/cold ship; low temperature heat cure	60,000	D90	45 [6,600]	1,600 [230,600]	1.5 Volumetric
9803	Very low volumetric shrinkage and water absorption; greater depth of cure; UV/Visible light cure and/or heat cure epoxy; low shrinkage; moisture and thermal cycle resistant; cold storage/cold ship; low temperature heat cure	86,000	D94	36.7 [5,328]	3,983 [578,000]	1.1 Volumetric
Plastic/Structural-Bonding Adhesives						
6-621	UV/Visible light cure with secondary heat cure; activator cure; hard, clear bonds; bonds multiple substrates	800	D80	22 [3,200]	550 [80,500]	0.4 Linear
3094-T-REV-A	Low stress plastic bonder; UV/Visible light cure; low shrinkage	11,750	D65	14 [2,800]	698 [101,300]	0.7 Linear
3094-GEL-REV-A	Low stress plastic bonder; UV/Visible light cure; low shrinkage	30,000	D67	12.4 [1,800]	179 [26,000]	0.5 Linear
Encapsulants						
9008	UV/Visible light cure; remains flexible to -40°C; moisture resistant	4,500	D35	10 [1,500]	45 [6,500]	1.2 Linear
9014	UV light cure with secondary moisture cure; blue fluorescing; flexible	18,000	A70	8.2 [1,200]	119 [17,300]	1.8 Linear
9037-F	UV/Visible light cure with secondary heat cure; flexible; blue fluorescing; moisture and thermal resistance	55,000	D40	5.8 [850]	6.2 [900]	2.2 Linear
9102	UV/Visible light cure with secondary moisture cure; flexible; blue fluorescing; moisture and thermal resistance	17,000	D30-D50	4.8 [703]	18.4 [2,670]	2.0 Linear
9-20558-REV-A	Secondary heat cure; flexible; bonds well to FPCs; UL V0 Flammability rating	20,000	D50	6.2 [900]	2.3 [340]	1.8 Linear
9001-E-V3.1	Secondary heat cure; moisture and thermal cycling resistance; well suited for chip-on-board, chip-on-flex, and multi-chip modules	4,500	D45	5 [750]	17 [2,500]	2.0 Linear
Conformal Coatings						
9483	UV/Visible light cure with secondary moisture cure; excellent chemical and thermal shock resistance; blue fluorescing	750	D60	16.2 [2,350]	274 [40,000]	2.0 Linear

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