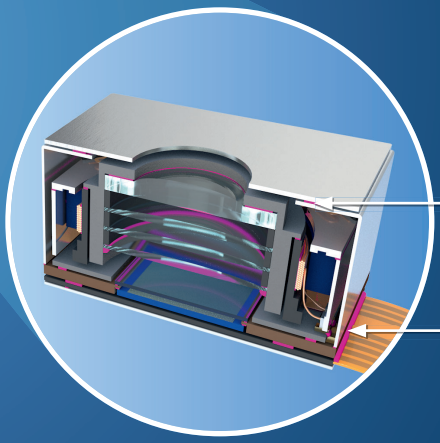
DELO

Low-tension bonding of temperature-sensitive components for compact cameras



Cooler Than Ever: Heat-Curing Adhesives

Low-tension curing at +140 °F (+60 °C)

DELO® has developed low-temperature-curing adhesives with optional light fixation for temperature-sensitive components. These products achieve full strength when cured at just +140 °F (+60 °C).
Heat-curing adhesives are used for many applications requiring high strength and permanent chemical and environmental resistance. To achieve these properties, most adhesives must be cured at temperatures between +212 °F and +302 °F (+100 °C and +150 °C) – but not DELO®'s adhesives.

Application areas

Low-tension bonding and casting of temperature-sensitive materials in the following sectors and many more:

- Compact camera modules (CCM)
- Electronic assembly
- Mobile assembly
- Optical packaging (including infrared LEDs, image sensors)
- Wearables

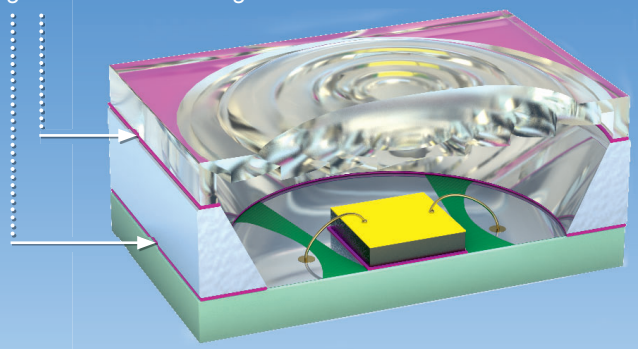
Customer's benefits

- Used in applications requiring high precision: Extremely low warpage due to low heat input
- Low thermal stress enables the use of cost-efficient substrates
- High efficiency due to low energy consumption during heat curing
- High positioning accuracy by light fixation

Product properties

- One-component, modified epoxy resins, solvent-free
- Optional prefixation (from an irradiation time of 0.5 s) Low curing temperature: +140 °F (+60 °C)
- Dispensing of very fine structures with standard dispensing needles (for example, 200 µm dia.)
- Excellent adhesion to many plastics (such as ABS, LCP, PA, PBT, PMMA, PPS), metals and FR4
- High strength and permanent environmental resistance

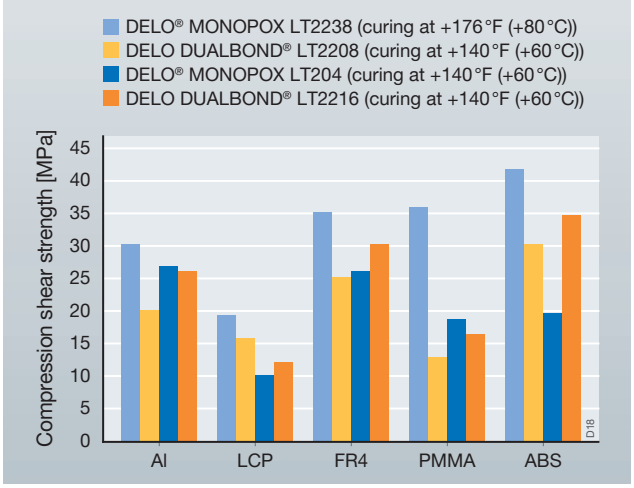
Optical packaging – Bonding of housing to PCB and glass cover to housing



	DELO® MONOPOX LT2238	DELO DUALBOND® LT2208	DELO® MONOPOX LT204	DELO DUALBOND® LT2216
Color	black	yellowish	black	beige
Viscosity	21,000 cp (= mPas)	1,500 cp (= mPas)	28,000 cp (= mPas)	14,000 cp (= mPas)
Processing time	72 h/rt	48 h/rt	72 h/rt	48 h/rt
Curing temperature	+140 °F to +302 °F (+60 °C to +150 °C)			
Curing conditions until final strength	30 min @ +140 °F (+60 °C)	45 min @ +140 °F (+60 °C)	90 min @ +140 °F (+60 °C)	
Tensile strength	8,120 psi (56 MPa)	3,190 psi (22 MPa)	2,900 psi (20 MPa)	3,770 psi (26 MPa)
Elongation at tear [%]	2	70	35	13.5
Young's modulus [MPa]	812.2 ksi (5,600 MPa) DMTA	26 ksi (180 MPa)	58 ksi (400 MPa)	275.6 ksi (1,900 MPa)
Shore hardness	D 84	D 69	D 77	D 75
Glass transition temperature T_g	+133 °F (+56 °C)	+90 °F (+32 °C)	+86 °F (+30 °C)	+100 °F (+38 °C)
Shrinkage [Vol. %]	4	5	4	4.9
Storage life	4 months/ −0.4 °F (−18 °C)	6 months/ −0.4 °F (−18 °C)	4 months/ −0.4 °F (−18 °C)	6 months/ −0.4 °F (−18 °C)
Container sizes	30 cc	10 cc	10 cc, 30 cc	10 cc

LT = **L**ow **T**emperature

In addition, various modifications of these products are available. These have, for example, a different flexibility/strength ratio or cure even faster. Please feel free to contact our Product Management for further details and inquiries.



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