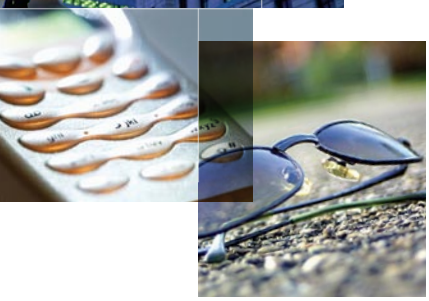
3M™ Light Cure Adhesives



3M™ Light Cure Adhesives for tough bonding challenges

3M™ Light Cure Adhesives offer an advanced new approach to bonding. Their superior depth of cure, rapid cure speed and easy dispensability can save valuable processing time in both UV and visible light curing assembly environments.

3M™ Light Cure Adhesives are ideally suited for demanding designs and sophisticated components – offering strong and durable adhesion in both indoor and outdoor applications plus clean, thin bond lines for improved aesthetics. And 3M's technical know-how and support can be a critical resource in bringing your products to market faster.

3M™ Curing Light provides a convenient, handheld visible light spot curing system

Fast, efficient & versatile

Formulations available in 1 liter bottles and 30ml EFD®-compatible syringes for precision application

Features

- Reduced processing time
- Clean, thin bond lines
- Superior depth of cure
- Cure-on-demand performance
- Cure when exposed to UV or visible light
- Resistant to corrosion
- Compatible with manual, semi-automatic or fully automatic dispensing systems

Advantages

UV Curing

- Fast curing – under 1 second
- Ideal for thin films, thin coatings and bonding applications on heat-sensitive substrates
- Provides long pot life
- No special storage required

Visible Light Curing

- Ideal for curing through thicker sections
- Cures through colored or UV-absorbing materials
- Poses fewer safety risks to eyes and skin
- Lower energy consumption and maintenance costs

Typical Applications

- Electronics assembly
- Eyewear
- Traffic lighting
- Vehicle signal and emergency lights
- Needles and syringes
- Appliances
- Indoor and outdoor lighting reflectors and housings

...plus thousands of other uses!

3M™ Light Cure Adhesives

	Product	LC-1112	LC-1113	LC-1211	LC-1212	LC-1213	LC-1214
	Cure Mechanism	UV	UV	Visible, UV	Visible, UV	Visible, UV	Visible, UV
	Cure Speed UV (sec)[1]	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Cure Speed, Visible (sec)[2]	NA	NA	<5	2	2	<5
Typical Uncured Properties	Base Resin	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate
Typical Uncured Properties	Color	Colorless	Colorless	Light Yellow	Light Yellow	Light Yellow	Red
Typical Uncured Properties	Specific Gravity	1.14	1.13	1.13	1.14	1.13	1.05
Typical Uncured Properties	Viscosity @72°F (cP)[3]	15,460	641	488	12,720	560	44,000
Typical Cured Properties	Color	Colorless	Colorless	Light Yellow	Light Yellow	Light Yellow	Yellow
Typical Cured Properties	Shore D Hardness[4]	83	71	69	83	69	40
Typical Cured Properties	Tensile Strength (psi)[5]	4600	2377	1426	4508	1929	1320
Typical Cured Properties	Elongation (%)[5]	17	57	55	15	44	219
Typical Cured Properties	2 lb Dead Lead Heat Resistance (°F/°C)	>300/149	>300/149	>300/149	>300/149	>300/149	>300/149
Typical Cured Properties	Overlap Shear Strength, PC-PC (psi)[6]	411	522	436	455	566	540
Typical Cured Properties	Max Cure Depth UV (in)[7] / Max Cure Depth Visible (in)[8]	0.69 / NA	0.56 / NA	0.94 / 2.52	>1.00 / 2.06	0.78 / 3.656	0.42 / 0.65
	Comments	Semi-rigid bond. Passes 3M corrosion test on copper and aluminum. [9]	Flexible bond. Improved glass and metal adhesion. Passes 3M corrosion test on copper and aluminum. [9]	Flexible bond. Passes 3M corrosion test on copper and aluminum. [9]	Semi-rigid bond. Improved glass and metal adhesion.	Flexible bond. Improved glass and metal adhesion.	Very flexible bond. Color change indicator (red to light yellow).

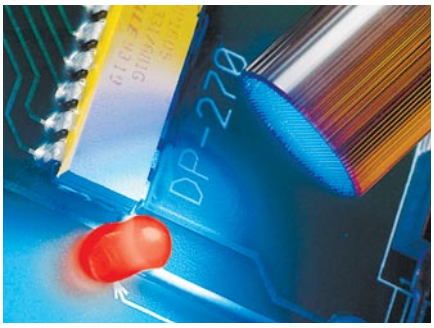
***Note:** The technical information and data on this page should be considered representative or typical only, and should not be used for specification purposes.

NA = Not Applicable
[1]EFOS Ultracure 100ss Plus, 5 mil thickness
[2]3M™ Curing Light VL1, 5 mil thickness
[3]Brookfield DV-I+, ASTM D 1084
[4]ASTM D 2240
[5]Based on ASTM D 638
[6]ASTM D1002
[7]Fusion D bulb
[8]3M Curing Light VL1
[9]3M corrosion test (non-bias): adhesive coated on metal-sputtered PET film, cured, stored at 85°C/85% R.H. for two weeks, inspected for corrosion.

Can't find what you need?

For fine bondline, low slump, low color applications please contact your 3M representative and ask for the UV/Visible light curable LC-1114. In addition, your 3M representative is also available to assist you with requests for other custom light cure applications within the range of properties below."

Viscosity (cps)	300-35,000
Shore D Hardness	30-80
Elongation %	20-180
OLSS PC-PC (psi)	400-750
OLSS Acrylic-Acrylic (psi)	400-550



Before

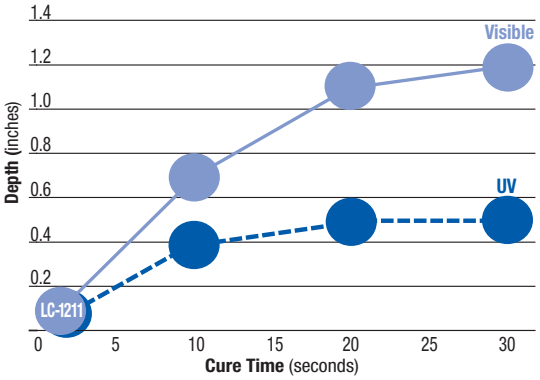
Red color of LC-1214 provides visualization aid for positioning.

After

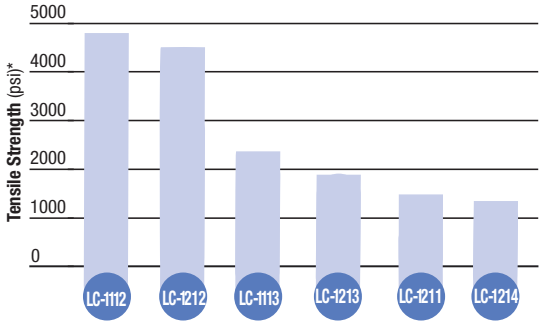
By changing from red to yellow, LC-1214 indicates full cure.

Key attribute comparisons for 3M™ Light Cure Adhesives†

Representative Visible vs. UV Depth of Cure Schedule

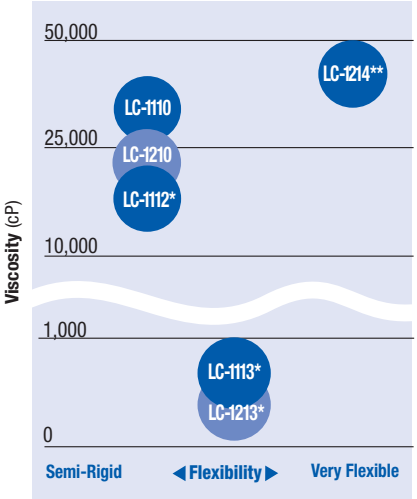


Tensile Strength



* Based on ASTM D 638

Flexibility and Viscosity Comparisons



* Improved Glass Adhesion

** Color Change Indicator

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What is your demanding assembly application?

Find out how 3M's innovative adhesives and technical expertise can provide the right solution for your operation.

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