DOWSIL™ UV-Heat High Modulus Silicone Adhesives

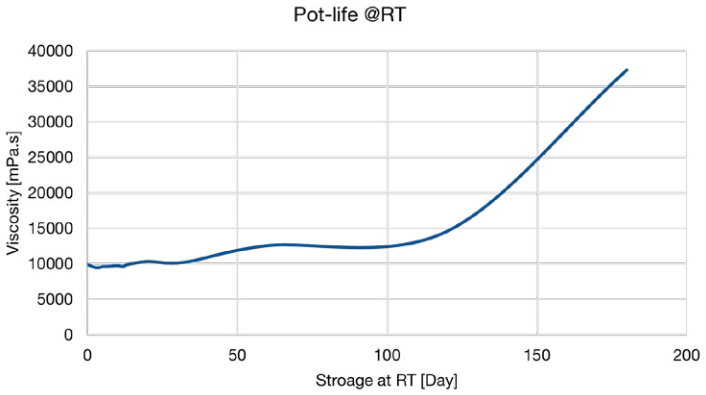
DOWSIL™ EA-8009 and DOWSIL™ 8010 High Modulus Silicone Adhesives are one-part and UV initiated low temperature curable silicone compositions and these materials also have good shelf and pot-life and B-stageable properties after UV irradiation. Those two materials initially have been developed as protective adhesives on OLED mobile device by applying under display panels.

DOWSIL™ EA-8010 is high thixotropic version for maintaining a certain shape while jetting on a designated place and colored to be distinguishable on electric devices. DOWSIL™ EA-8009 can be readily modified for market needs.

- DOWSIL™ EA-8010 maintains shape after jetting, high thixotropic and colored version
- DOWSIL™ EA-8009 general version of high modulus silicone composition, good wetting on surface

Stable silicone material

DOWSIL™ EA-8009 High Modulus Silicone Adhesive offers significantly stable pot-life at RT and long shelf-life at negative temperatures (under -5°C).



Application and target device

- Application: Protective high modulus adhesive, B-stageable applications, etc.
- Target device: OLED mobile displays, Underfill, etc.

Key features and benefits

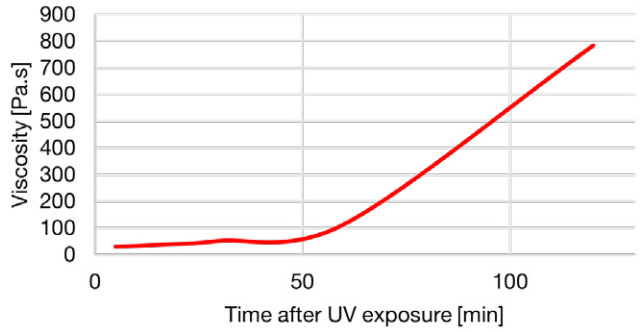
- Good pot and shelf life
- UV stability: B-stageable material
- Good mechanical strength: good hardness and storage modulus
- Good adhesion on various substrates

Property	Unit	DOWSIL™ EA-8009	DOWSIL™ EA-8010
UV cure at UV LED 365nm + Heat cure conditions		[Dual cure] UV: 5,000±1,000 mJ/cm² Heat: 74±5°C for 20min	
Appearance		Translucent	Blue
Viscosity	mPa.s	10,000	450,000
Thixotropy		2	6
Density	g/cm²	1.17	1.22
Hardness	Durometer Shore D	70	60
CTE	Ppm/°C	93.32 @ Alpha 1 187.04 @ Alpha 2	92.9 @ Alpha 1 186.8 @ Alpha 2
WVTR	g/m² day	33.65	32.92
Transmittance	%	> 84 @360nm	TBD
Refractive Index		1.548	1.523
Storage condition	Day	≤-5°C for 6 months	-5°C for 6 months

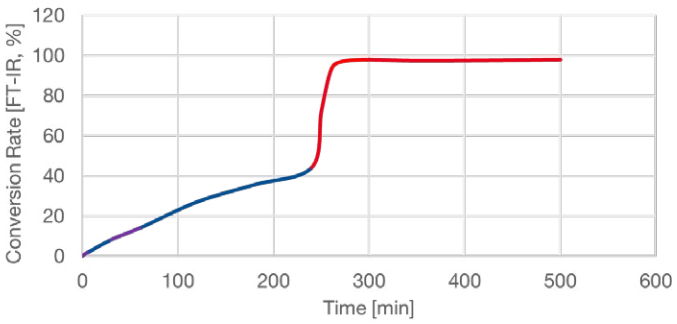
UV initiated – Fast curable silicone composition, significant UV stability

DOWSIL™ EA-8009 High Modulus Silicone Adhesive has significantly stable properties after UV exposure only. In other words, this property can provide sufficient working time for hours on applications with maintaining ‘B-stage’ state. This advanced silicone material is fully cured whenever cure completion is needed in a process at even low temperature under 80°C within 20 min.

Viscosity increase after UV exposure



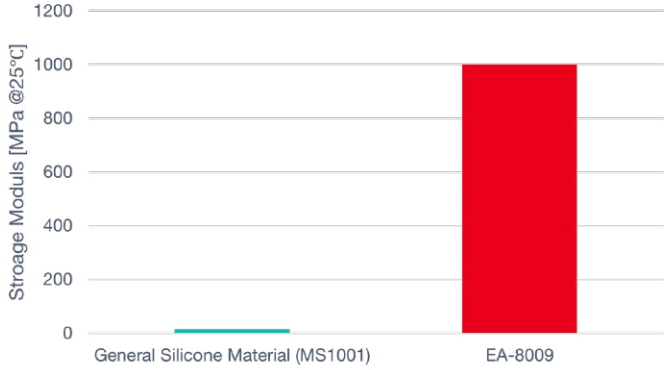
Cure Degree: UV + heat cure



Strong mechanical properties

DOWSIL™ EA-8009 High Modulus Silicone Adhesive has significantly high modulus than general silicone materials.

Storage modulus



Prominent adhesion on various substrates

DOWSIL™ EA-8009 High Modulus Silicone Adhesive can offer relatively high adhesion strength. this material particularly has excellent adhesion properties on glass and aluminum substates.

	Glass	Al	PPS	PBT
Lab shear [MPa]	4.5	4.0	2.8	1.1

Summary

DOWSIL™ EA-8009 High Modulus Silicone Adhesive

- Silicone adhesive for protective applications such as electric device, displays, etc.
- High storage modulus, 1GPa at 25°C
- Significantly long pot-life at RT & shelf-life at under -5°C
- Long working time after UV exposure, “B-stageable silicone adhesive”
- Fast full cure at low temperature at 70°C within 20 min
- Easily modifiable retaining critical properties

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