

WACKER LUMISIL® PRODUCTS FOR OPTICAL BONDING – EXCELLENT RELIABILITY WITH SILICONE

Thermally Curing Silicone OCR for the LUMISIL® Thermal Series

What do you expect from your optically clear resin? As you may already know, the Si-O-Si bond (bond energy: 101 kcal/mL, silicone) is stronger than the C-C bond (83.2 kcal/mL, acrylic). Consequently, silicone exhibits excellent thermal stability over a wide range of temperatures, giving your products a potential advantage over acrylics in hostile environments.

The LUMISIL® Thermal Series from WACKER offers high transparency, low haze and low yellowness. Moreover, these properties show very little change

in reliability tests conducted under severe conditions. The product can fully meet your display requirements for indoor or outdoor uses such as portable displays, public information displays or navigation devices.

Advantages of the LUMISIL® Thermal Series

- Self-leveling due to low viscosity
- Fast cure at low temperatures (below 70 °C)
- Good optical clarity
- Excellent reliability
- Excellent thermal stability
- Low shrinkage

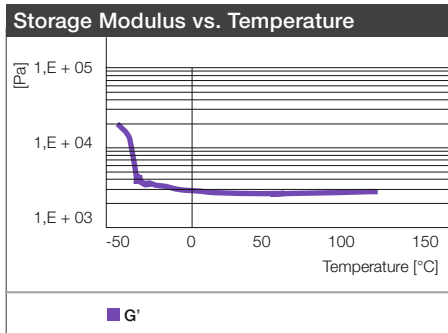
Applications

- Touch-screen panels
- Large-screen displays
- Public information displays
- Navigation devices
- Production of optical damping elements

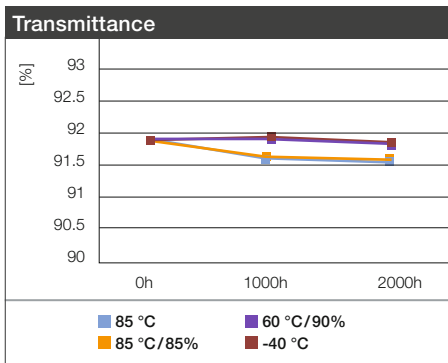
Product Information						
Properties	Unit	LUMISIL® 100	LUMISIL® 102	LUMISIL® 102FC	LUMISIL® 105	SilGel® 612 PT
Product Data, Uncured						
Color		Optically clear	Optically clear	Optically clear	Optically clear	Optically clear
Viscosity	[mPa·s]	A: 530 B: 420	A: 2,050 B: 1,900	A: 2,000 B: 2,300	A: 4,950 B: 4,500	A: 1,000 B: 1,000
Product Data, A+B Part						
Mixing ratio		1 : 1	1 : 1	1 : 1	1 : 1	1 : 1
Pot life at 23 °C	[hr]	3	3	0.4	3	0.5
Viscosity of mix	[mPa·s]	480	1,900	2,200	4,800	1,000
Gel timer at 65 °C	[min]	13	11	3.7	10	3.7
Curing time at 65 °C (T ₉₀)	[min]	60	46	10	38	20
Product Data, Fully Cured						
Density at 23 °C	[g/cm ³]	0.98	0.98	0.98	0.98	0.97
Hardness (Penetration)	[mm/10]	50	50	50	50	50
Pull test	[Kgf/cm ²]	2.5	3.5	3.5	3.5	2.2
Transmittance*	[%], Minolta CM-5	> 99	> 99	> 99	> 99	> 98.8
Haze*	[%]	< 0.2	< 0.2	< 0.2	< 0.2	< 0.1
Yellowness index*		< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Refractive index at 23 °C		1.41	1.41	1.41	1.41	1.41

*Silicone thickness: 300 µm, double sided with 0.7 mm LCD bare glass (Corning Eagle XG)

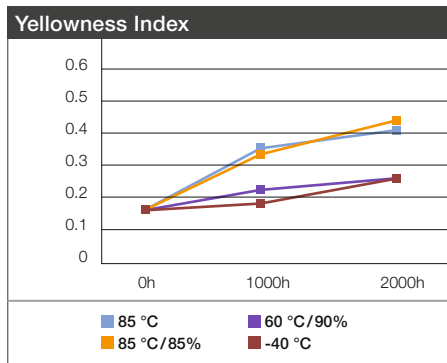
Thermal Stability of Silicone OCR



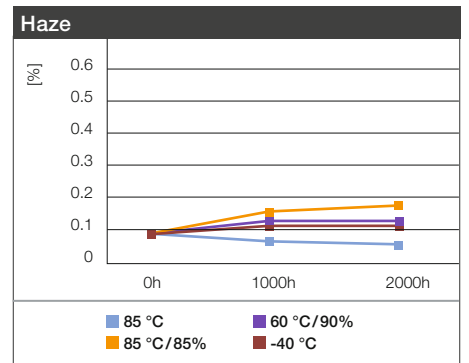
Optical Properties in Reliability Test (2000h)



	0h	1000h	2000h
85 °C	91.94	91.64	91.58
60 °C/90%	91.94	91.9	91.84
85 °C/85%	91.94	91.69	91.6
-40 °C	91.94	91.96	91.85



	0h	1000h	2000h
85 °C	0.16	0.35	0.41
60 °C/90%	0.16	0.23	0.26
85 °C/85%	0.16	0.33	0.44
-40 °C	0.16	0.17	0.26



	0h	1000h	2000h
85 °C	0.09	0.07	0.06
60 °C/90%	0.09	0.12	0.12
85 °C/85%	0.09	0.17	0.18
-40 °C	0.09	0.11	0.11



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