

WACKER

CREATING TOMORROW'S SOLUTIONS

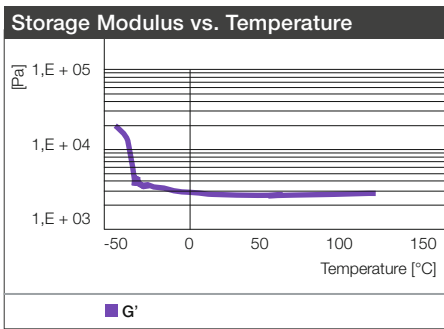
LUMISIL®

ELECTRICS & ELECTRONICS

SILICONE SOLUTIONS FOR OPTICAL BONDING

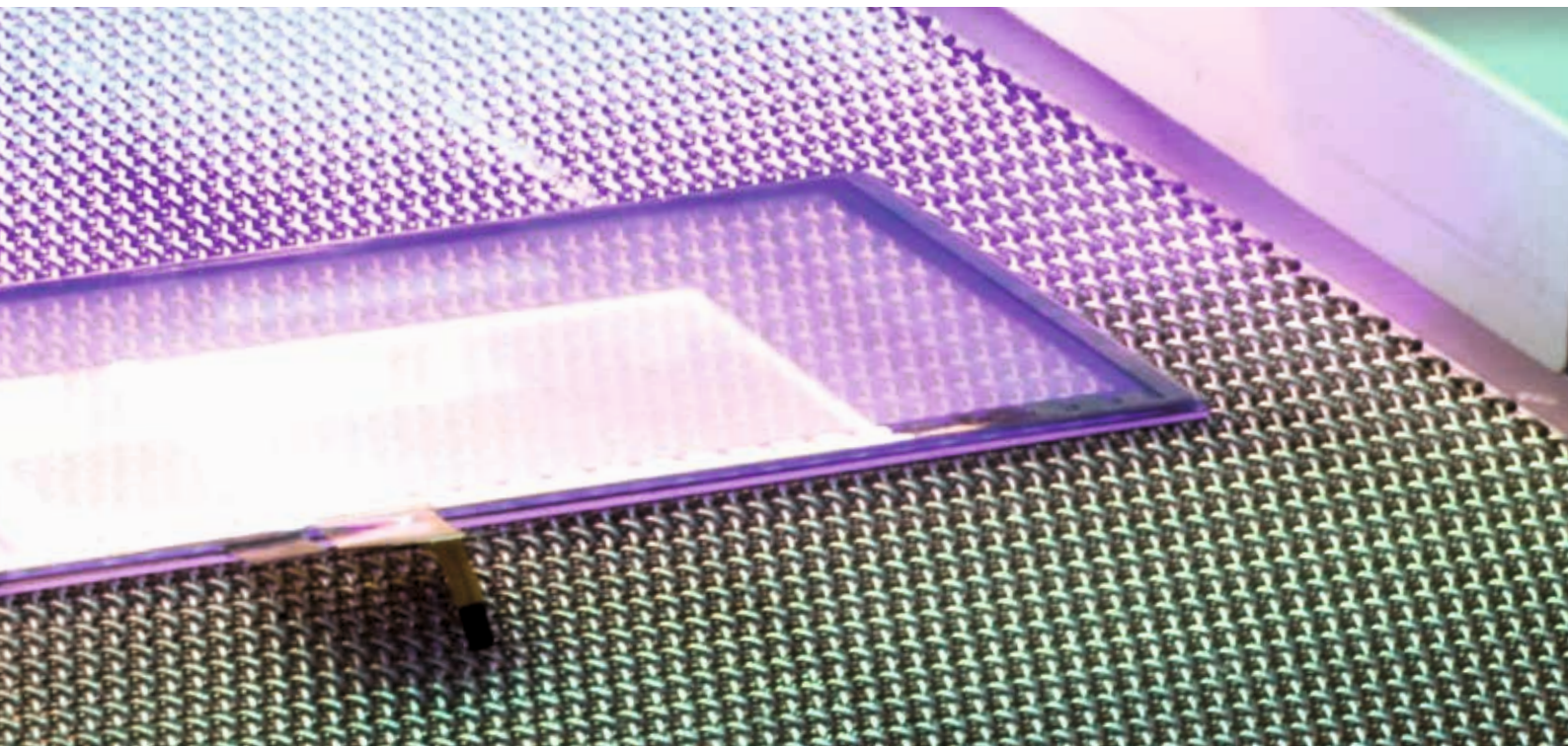
THERMAL STABILITY OF SILICONE OCR

Due to their well established position in automotive electronics, silicones also fit the critical requirements for bonding automotive displays.



Properties	Unit	LUMISIL® 307 UV DAM
Description	-	Optically clear silicone, flowable, fast curing
Product Data, Uncured		
Color	-	Colorless
Viscosity of component A	[mPa·s]	8,500
Viscosity of component B	[mPa·s]	1,000
Product Data, A+B Part		
Mixing ratio (A:B)	-	10:1
Pot life of mix at 23 °C	[h]	> 24
Viscosity of mix	[mPa·s]	7,000
Product Data, Fully Cured		
Density at 23 °C	[g/cm³]	0.98
Volume shrinkage	[%]	< 0.1
Hardness (Shore 00)	Shore 00	45
Transmittance*, Minolta CM-5	[%]	99.7
Haze*	Initial	0
	85 °C/85% RH/1000 h	0.12
Yellow index*	Initial	0.1
	85 °C/85% RH/1000 h	0.48
Refractive index at 25 °C		1.41

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



LUMISIL® PRODUCTS FOR OPTICAL BONDING – HIGHLY RELIABLE SOLUTIONS WITH SILICONES

The WACKER LUMISIL® Series are 2-part, optically clear silicones with high transparency, low haze and low yellowness. Moreover, these properties show very little change in reliability tests conducted under severe conditions. The products can fully meet your display requirements for indoor or outdoor such as portable displays, public information displays or navigation devices

LUMISIL® UV and Thermal Series

The WACKER LUMISIL® Series are superior to acrylic OCRs in a number of ways: Excellent reliability, low volume shrinkage, perfect dielectric constant, odorless, harmless and many others.

Especially, LUMISIL® UV products have a different curing mechanism than that of acrylic OCRs. No side cure process is needed for curing the shadow area, which simplifies the lamination process and increases versatility for different structural designs.

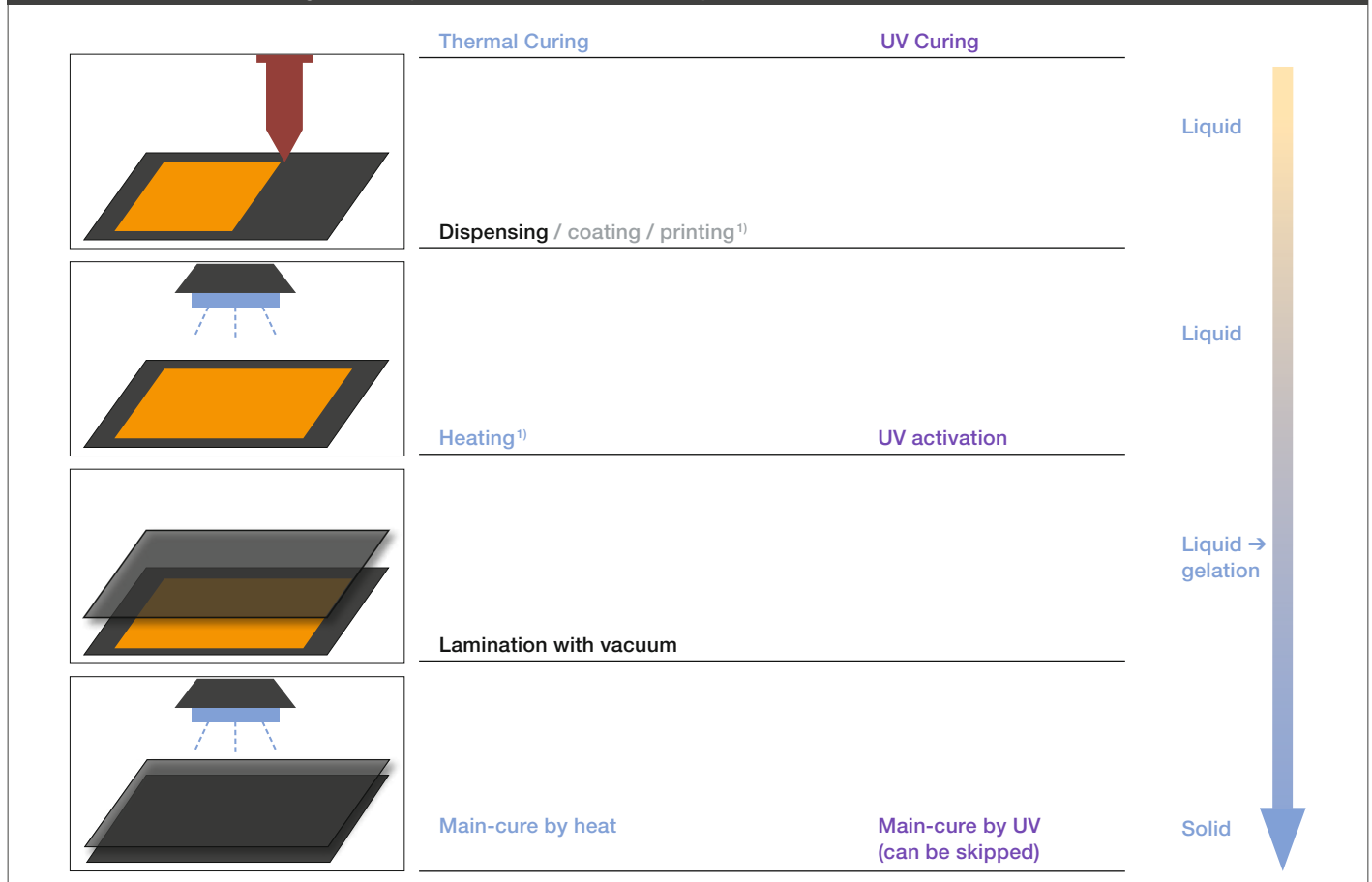
Applications

- Optical bonding of touch-screen panels
- Encapsulation of optical & electronic components
- Production of damping elements
- Large-screen displays
- Navigation devices

Special Features

- Highly reliable: Excellent for harsh testing conditions
- Low shrinkage (< 0.1%, before/after cure): Mura-free, better for large sizes
- Low E modulus: Better for OGS, wide temperature range
- Low dielectric constant (2.7 – 2.8): Less noise
- Easy to rework: Cost saving
- Flexible open time: Process friendly
- Odorless: User friendly
- No oxygen inhibition
- No photo-initiators used

WACKER Standard Laminating Process (Eliminates Side Cure Process)



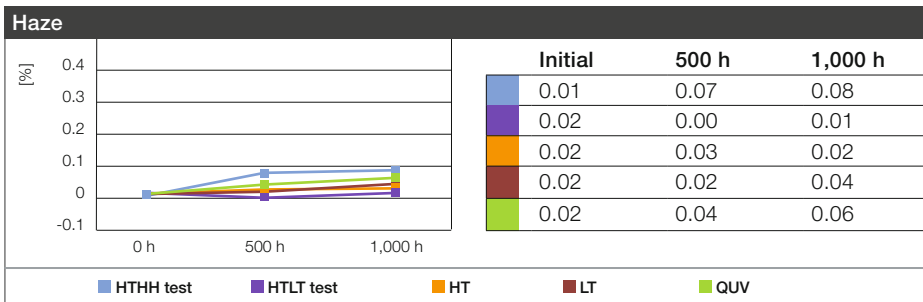
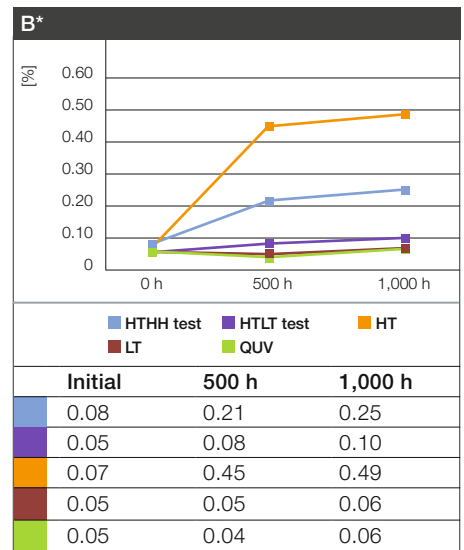
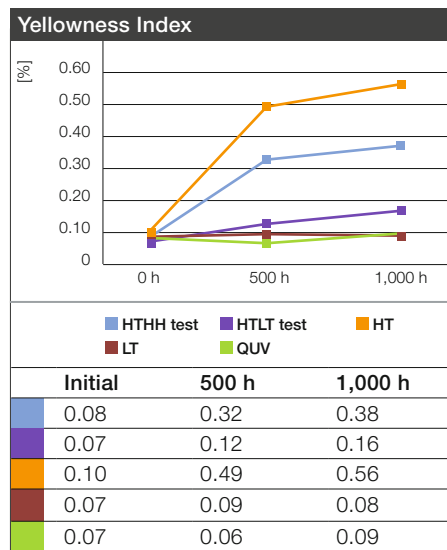
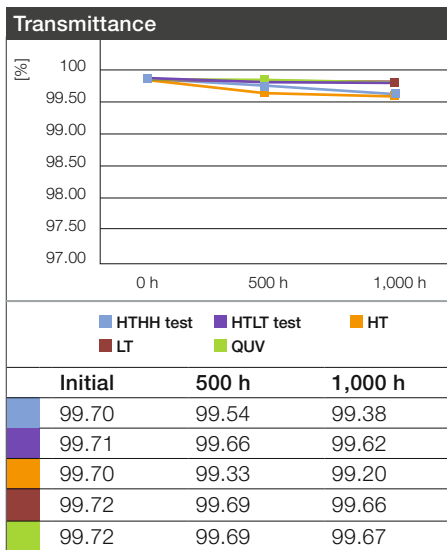
¹⁾ Order of 2nd and 3rd step can be reversed and additionally autoclaving process can be carried out if necessary. LUMISIL® is a registered trademark of Wacker Chemie AG.

LUMISIL® UV Series

Properties	Unit	LUMISIL® 202 UV	LUMISIL® 203 UV	LUMISIL® 205 UV	LUMISIL® 245 UV
Description		Low-viscosity soft gel	Low-viscosity soft tough gel	Middle-viscosity tough gel	High-viscosity tough gel
Applicable dispensing system		Dispensing	Dispensing/slit coating	Dispensing/slit coating/screen printing	Stencil printing
Product Data, Uncured					
Color		Optically clear, colorless			
Viscosity	[mPa·s]	A: 2,100 B: 1,000	A: 3,800 B: 1,000	A: 7,500 B: 1,000	A: 65,000 B: 1,000
Product Data, A+B Part					
Mixing ratio		10 : 1	10 : 1	10 : 1	10 : 1
Pot life at 23 °C	[h]	> 24	> 24	> 24	> 24
Viscosity of mix	[mPa·s]	2,000	3,500	5,500	45,000
Product Data, Fully Cured					
Density at 23 °C	[g/cm³]	0.97	0.97	0.97	0.97
Volume shrinkage	[%]	< 0.1	< 0.1	< 0.1	< 0.1
Hardness (Shore 00)		10 ± 5	37 ± 5	48 ± 5	45 ± 5
Pull strength	[Kgf/cm²]	3.5	4.0	4.5	5.0
Transmittance*, Minolta CM-5	[%]	> 99.0	> 99.0	> 99.0	> 99.0
Haze*	Initial	< 0.2	< 0.2	< 0.2	< 0.2
	85 °C/85% RH/1000 h	< 0.2	< 0.2	< 0.2	< 0.2
Yellow index*	Initial	< 0.2	< 0.2	< 0.2	< 0.2
	85 °C/85% RH/1000 h	< 0.5	< 0.4	< 0.3	< 0.3
Refractive index at 25 °C		1.41	1.41	1.41	1.41

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

Optical Properties in Reliability Test (LUMISIL® 203 UV)



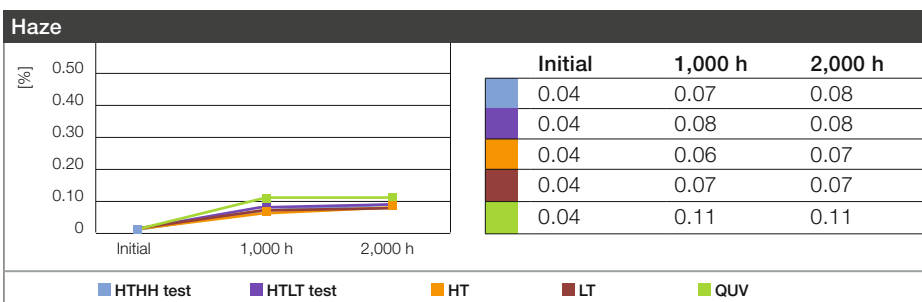
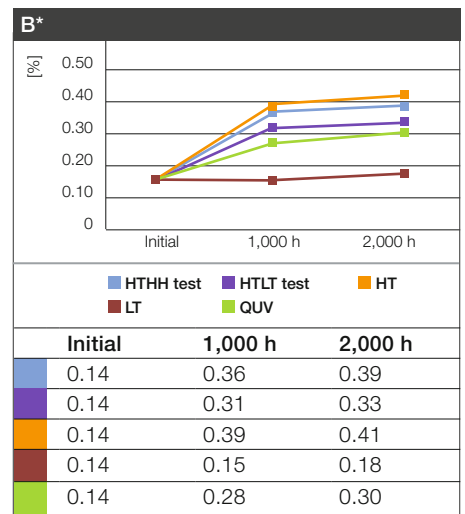
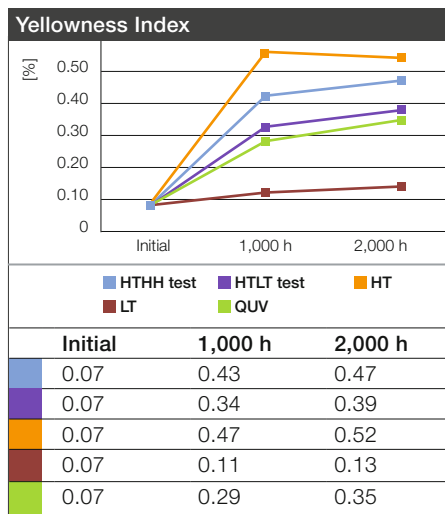
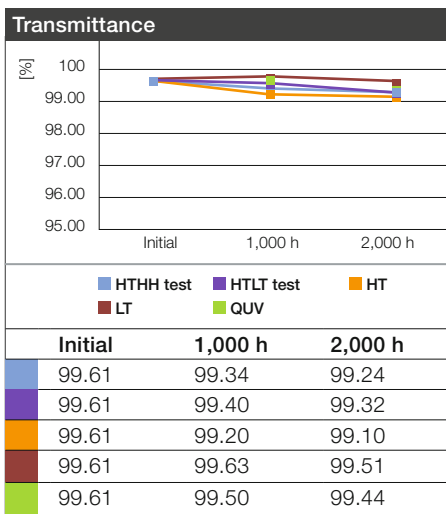
■ HTHH test: high temperature, high humidity, 85 °C at 85% rH
■ HTLT test: high temperature, low temperature, -45 °C 30 min. to +90 °C 30 min.
■ HT: high temperature test 105 °C
■ LT: low temperature test - 40 °C
■ QUV: accelerated weathering test 0.5 W/m² at 45 °C

LUMISIL® Thermal Series

Properties	Unit	LUMISIL® 100	LUMISIL® 102	LUMISIL® 102 FC	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 (T90)	[min]	60	46	10	38	20
Product Data, Fully Cured						
Density at 23 °C	[g/cm ³]	0.97	0.97	0.97	0.97	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	> 99.4	> 99.4	> 99.3	> 99.3	> 98.8
Haze*	Initial	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	1,000 h	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Yellowness index*	Initial	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
	1,000 h	< 0.3	< 0.3	< 0.4	< 0.4	< 0.6
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)

Optical Properties in Reliability Test (LUMISIL® 102 FC)



■ HTHH test: high temperature, high humidity, 85 °C at 85% rH
■ HTLT test: high temperature, low temperature, -45 °C 30 min. to +90 °C 30 min.
■ HT: high temperature test 105 °C
■ LT: low temperature test - 40 °C
■ QUV: accelerated weathering test 0.5 W/m² at 45 °C

WACKER

Wacker Chemie AG
Hanns-Seidel-Platz 4
81737 München, Germany
Tel. +49 89 6279-1741
info@wacker.com

www.wacker.com

www.wacker.com/socialmedia



The data presented in this medium are in accordance with the present state of our knowledge but do not absolve the user from carefully checking all supplies immediately on receipt. We reserve the right to alter product constants within the scope of technical progress or new developments. The recommendations made in this medium should be checked by preliminary trials because of conditions during processing over which we have no control, especially where other companies' raw materials are also being used. The information provided by us does not absolve the user from the obligation of investigating the possibility of infringement of third parties' rights and, if necessary, clarifying the position. Recommendations for use do not constitute a warranty, either express or implied, of the fitness or suitability of the product for a particular purpose.