

# WACKER SILICONES – HIGHLY RELIABLE OPTICAL BONDING SOLUTIONS

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

### Product Description

WACKER LUMISIL® UV series are 2-part, optically clear silicones cured by UV irradiation.

### Special Features

- Highly reliable → excellent for harsh testing conditions
- Low shrinkage → mura-free, better for large sizes
- Low E modulus → better for OGS, wide temperature range
- Low dielectric constant → less noise
- Easy to rework → saves cost
- Flexible open time → process friendly
- Odorless → user friendly
- No oxygen inhibition
- No photo-initiators used

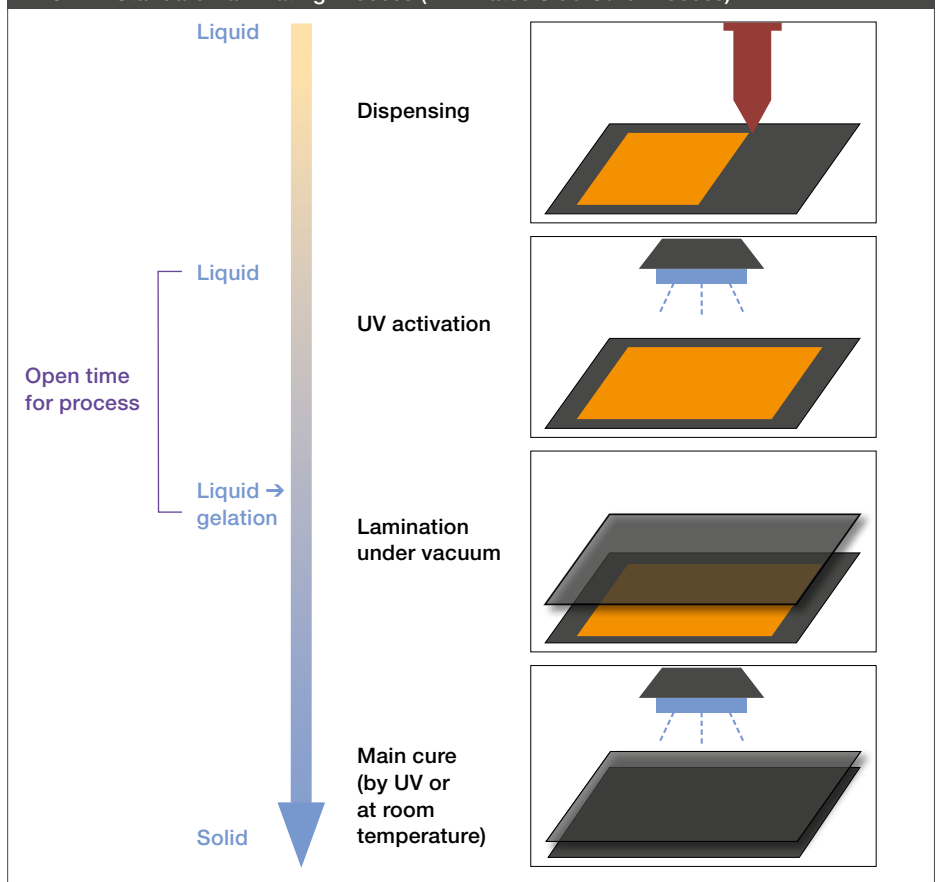
### Common Features

- Low volume shrinkage (< 0.1%, before/after cure)
- Low dielectric constant (2.7 – 2.8)
- No oxygen inhibition
- Excellent light transmittance

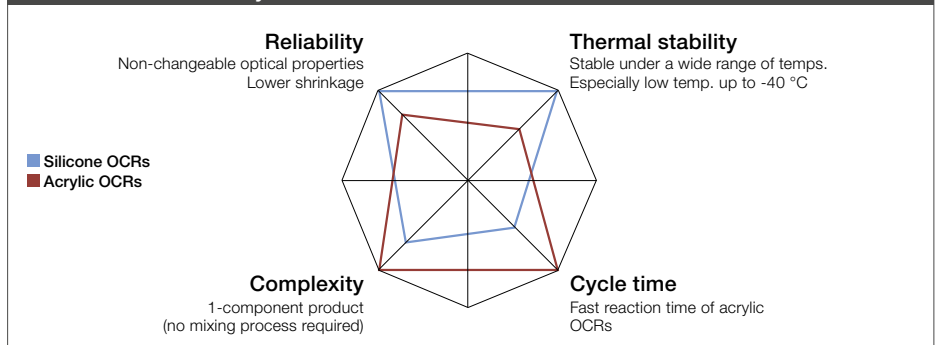
### Applications

- Optical bonding of touch-screen panels
- Encapsulation of optical & electronic components
- Production of damping elements

### WACKER Standard Laminating Process (Eliminates Side Cure Process)



### Silicone OCRs vs. Acrylic OCRs



Product Information							
Properties	Unit	WACKER LUMISIL® UV Series				Remarks	
		202UV	203UV	205UV	245UV		
Description		Low-viscosity soft gel	Low-viscosity tough gel	Middle-viscosity tough gel	High-viscosity tough gel	Silicone	
Applicable dispensing system		Dispensing	Dispensing / slit coating	Dispensing / slit coating / screen printing	Stencil printing		
<b>Product Data, Uncured</b>							
Appearance	–	Colorless clear	Colorless clear	Colorless Clear	Colorless clear	Visual inspection	
Viscosity	Part A	[mPa·s]	2,100	3,800	7,500	65,000	
	Part B		1,000	1,000	1,000	1,000	CP50-2, 20 rpm
<b>Product Data, UV Catalyzed A+B</b>							
Mixing ratio	A : B	10 : 1	10 : 1	10 : 1	10 : 1	–	
Pot life at 23 °C	[hr]	> 24	> 24	> 24	> 24	Dark place	
Viscosity of mix	[mPa·s]	2,000	3,500	5,500	45,000	CP50-2, 20 rpm	
<b>Product Data, Cured (2.2 J/cm<sup>2</sup> UV Exposure + 50 °C/30 min)</b>					<b>*Test Thickness: T = 300 µm</b>		
Density at 23 °C	[g/cm <sup>3</sup> ]	0.97	0.97	0.97	0.97	ISO 2781	
Volume shrinkage	[%]	< 0.1	< 0.1	< 0.1	< 0.1	(1-d <sub>uncured</sub> /d <sub>cured</sub> )*100	
Hardness (shore00)	–	10 ± 5	37 ± 5	48 ± 5	45 ± 5	T = 6 mm	
Modulus (shear mode, G')	[Pa]	7.0 ~ 9.0 x 10 <sup>3</sup>	1.5 ~ 3.5 x 10 <sup>4</sup>	3.0 ~ 5.0 x 10 <sup>4</sup>	2.0 ~ 4.0 x 10 <sup>4</sup>		
Pull strength	Glass/Glass	[Kgf/cm <sup>2</sup> ]	3.5	4.0	4.5	5.0	100 mm/min
Light transmittance	UV-VIS	[%]	> 99.0	> 99.0	> 99.0	> 99.0	Ref. glass
	Minolta CM-5		> 92.0	> 92.0	> 92.0	> 92.0	Ref. glass
Refractive index at 23 °C	–		1.41	1.41	1.41	1.41	ABBE
Haze	0hr	[%]	0.03	0.03	0.01	0.02	ASTM D1003-97
	85 °C/85% RH/1000 hr		< 0.2	< 0.2	< 0.2	< 0.2	
Yellow index	0hr	–	0.14	0.14	0.14	0.14	ASTM E313-73
	85 °C/85% RH/1000 hr		< 0.7	< 0.6	< 0.4	< 0.4	

Representative WACKER Product for UV-curable Optical Bonding			
LUMISIL® 202UV	LUMISIL® 203UV	LUMISIL® 205UV	LUMISIL® 245UV
Dispensing	Dispensing / slit coating	Dispensing / slit coating / screen printing	Printing
2,000 mPa·s grade	3,500 mPa·s grade	5,500 mPa·s grade	45,000 mPa·s grade
Soft gel	Tough gel	Tough gel	Tough gel
DAM – required	DAM – required	DAM – depends on process	DAM – not required



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