

# THERMALLY RESISTANT NRI SILICONES

## LUMISIL® 740/770 – NRI Silicones for LEDs

WACKER has extended its LUMISIL® product portfolio to meet the requirements of demanding LED manufacturers. The transparent LUMISIL® series for normal refractive index (NRI) applications offers excellent performance and is highly reliable under high thermal stress.

### Product Description

The LUMISIL® series for NRI applications are transparent, addition-curing and two-part silicone elastomers.

### Features of the LUMISIL® Series

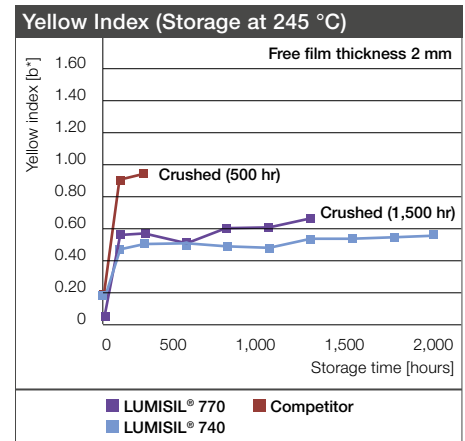
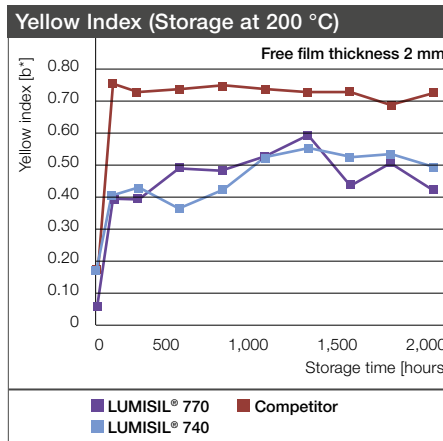
- Good processability with low viscosity and no stickiness
- Good optical performance to improve the light efficiency of LEDs
- Good adhesion force on PPA, W-EMC and silver
- Remarkably reliable heat and moisture protection for the LED chip
- Excellent thermal stability to withstand high temperatures for long periods

### Applications

- Encapsulation of optical components
- LED lens production










Product Information				
Property	Test Method	Unit	LUMISIL® 740	LUMISIL® 770
<b>Uncured</b>				
Viscosity: comp. A at 25 °C	ISO 3219, D=0.5 /sec	[mPa·s]	5,000	6,400
Viscosity: comp. B at 25 °C		[mPa·s]	2,500	3,700
<b>After Mixing A and B</b>				
Mixing ratio (parts by weight)		A : B	1 : 1	1 : 1
Viscosity: catalyzed, at 25 °C	ISO 3219, D=0.5 /sec	[mPa·s]	3,500	5,300
Platinum-catalyst in component			A	A
<b>Cured</b>				
Appearance			Transparent	Transparent
Hardness, Shore 4 hours/ 150 °C	ISO 868		A 50	A 70
Refractive index	nD <sup>25</sup>		1.41	1.41
Transmittance (2 mm thickness)	400 – 700 nm	[%]	> 90	> 90

### Thermal Stability



**Test conditions:**  
Storage at 200 °C and 245 °C, free film (thickness 2 mm)

**Result:**  
Yellow index of LUMISIL® 770 and LUMISIL® 740 changed less when stored at hightemperatures.

Appearance	LUMISIL® 740	LUMISIL® 770	Competitor
220 °C, 2,000 hours	 Pass	 Pass	 Pass
245 °C, 200 hours	 Pass	 Pass	 Crack
245 °C, 1,000 hours	 Pass	 Crack	 Crushed

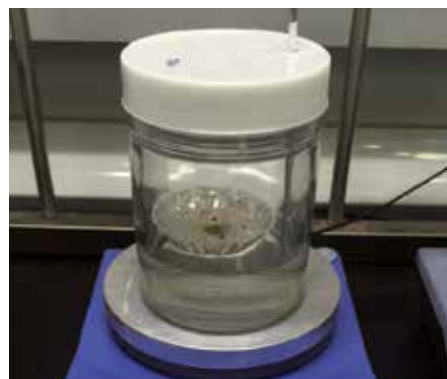
**Test conditions:**

Storage at 200 °C and 245 °C, free film (thickness 2 mm)

**Result:**

LUMISIL® 740 exhibits advanced thermal stability at 245 °C.

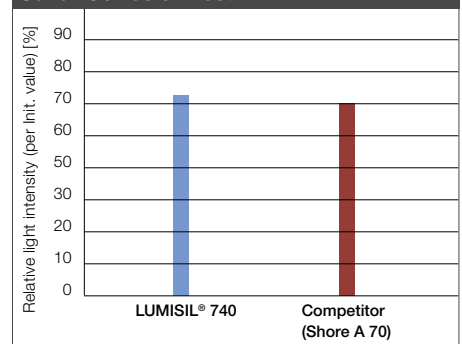
**Reliability: Accelerated Conditions**



**Test conditions:**

Storage with sulfur powder and water for 4 hours at 85 °C (0.2 g K<sub>2</sub>S with 100 mL water / 500 mL bottle).

**Sulfur Corrosion Test**



**Result:**

2% higher than competitor's result



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