



Consumer Solutions

Dow Protection, Assembly and Optical Materials Solutions for Lighting

LED Lighting Product Selection Guide

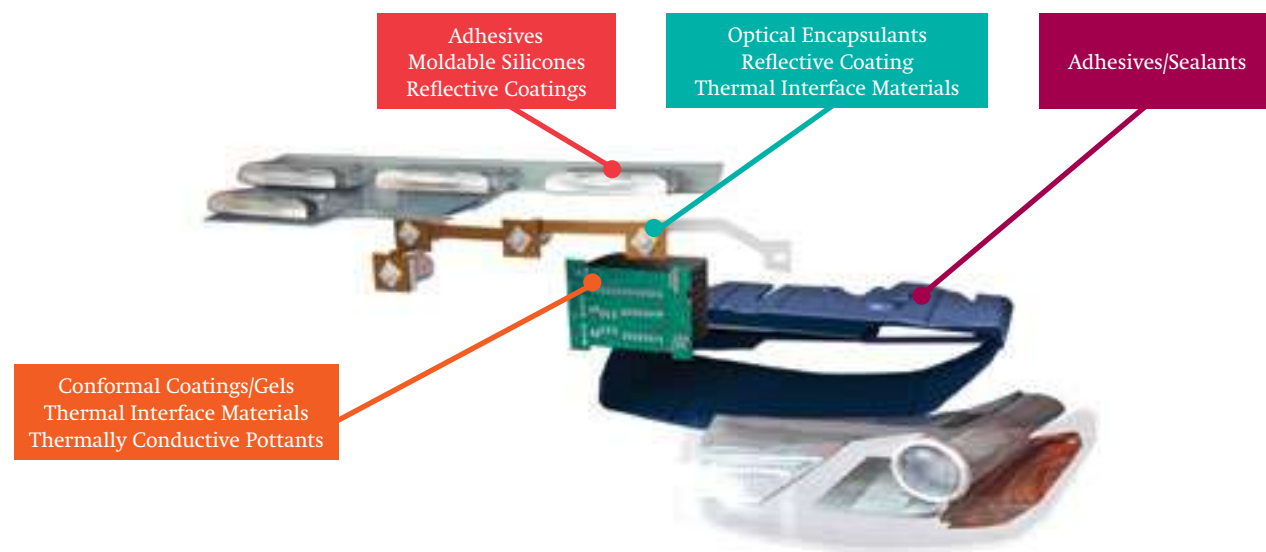
DOWSILTM



WE MAKE your ideas

brighter

LED Headlamp Assembly



LED Luminaire Assembly



Dow Solutions for LED Lighting

Silicone innovations for high-performance lighting

Your customers and end users demand brighter, more energy-efficient, more unique and longer-lasting lighting systems. You can meet that demand – and shape the future of lighting – with the right materials and the right help. Dow’s innovative, high-performance silicone materials for protection and assembly and secondary optics – backed by a global network of lighting, technical, optical and process experts – can help make your ideas brighter.

Rely on the durable adhesion and protection from moisture, humidity, dirt, thermal and physical damage you will get from Dow silicones for **Protection & Assembly**. They offer superior reliability and long lifetime performance, even in the most demanding applications.

Design entirely new ways to control the shape, color and intensity of light with Dow **Optical Silicones**. They allow you to create optics in complex shapes with fine details and integrated mechanical features that may not be possible in traditional plastics.

The combination of innovative silicone protection and assembly and optical materials – and Dow’s technical expertise – offers solutions that help you develop products that offer end users longer product life cycles and greater efficiency.

Protection & Assembly

- Adhesives and Sealants
- Clear Encapsulants
- Conformal Coatings
- Gels
- Thermal Pottants
- Thermal Interface Materials

Optical Silicones

- Moldable Optics
- Optical Coating
- Secondary Optics Encapsulant

MAKING BRIGHT IDEAS *last longer.*

Dow Solutions for Lighting Protection & Assembly

No matter what the application, your design must remain intact and be protected from ultraviolet light, moisture, dust, corrosion, impact and vibration, operational heat and environmental thermal extremes.

You can draw from Dow's decades of industry-leading experience in encapsulating, assembling, sealing and providing thermal protection for sensitive electronics in demanding applications, from implanted medical devices to aircraft instrumentation and from automotive electronics to solar energy systems. We can help you select the right material from a broad portfolio of time-tested high-performing products:

- Adhesives and Sealants
- Clear Encapsulants
- Conformal Coatings
- Gels
- Thermal Pottants
- Thermal Interface Materials

Together, Dow products and expertise can help you increase your design's functional lifespan and lower its cost of ownership.

Talk to one of our experts about Dow materials for LED applications – and find out how to make your idea even brighter.

Adhesives & Sealants

By forming durable, low-stress elastomers, DOWSIL™ silicone adhesives and sealants provide you with excellent bonds and seals between a variety of common LED lighting materials. This increases your design flexibility while providing reliable long-term performance at temperatures up to 150°C. These solventless materials cure at room temperature to greatly simplify processing, and their low volatility helps your design maintain lumen output over its lifespan.



Key Properties	Units	DOWSIL™ 832 Multi-Surface Adhesive Sealant	DOWSIL™ 3140 RTV Coating	DOWSIL™ 3165 Fast Tack RV Adhesive Sealant	DOWSIL™ 7091 Adhesive Sealant	DOWSIL™ 3-1944 RTV Coating	DOWSIL™ EA 2900 Sealant	DOWSIL™ EA-4900 White RTV Adhesive	DOWSIL™ SE 9186 Sealant	DOWSIL™ SE 9187 L Adhesive	DOWSIL™ SE 9189 L RTV
One- or Two-Part		One	One	One	One	One	One	One	One	One	One
Color		Off-white	Translucent	Gray	White	Translucent	White	White	Translucent	Translucent	White
Viscosity	cP	Non-Slump Paste	34,400	Non-Flow	Non-Slump Paste	63,775	N/A	N/A	64,000	1,100	22,000
Extrusion Rate	g/min	133	N/A	212	208	N/A	190	1,900	N/A	N/A	N/A
Specific Gravity		1.33	1.05	1.35	1.4	1.03	1.52	1.7	1.03	1.00	1.19
Tack-Free Time at 25°C	Minutes	70	116	5	28	14	20	5	8	8	8
Durometer, Shore A		40	32	35	32	36	50	73	20	17	33
Tensile Strength	psi	350	434	125	363	325	304	530	360	65	284
Elongation	%	420	419	185	680	145	400	31	550	160	220
Adhesion		36 ppi (Peel Strength, Al)	40 ppi (180° Peel Strength)	200 psi (Lap Shear, Al)	–	5 ppi (180° Peel Strength)	217 psi (Lap Shear, Al)	160 psi (Lap Shear, Al)	185 psi (Lap Shear, Glass)	–	174 psi (Lap Shear, Glass)
Linear CTE	ppm/°C	–	325	250	–	–	–	–	–	–	–
Dielectric Strength	Volts/mil	–	385	505	400	525	434	625	575	500	625
	kV/mm	–	15	20	16	21	17.1	25	23	20	25
Volume Resistivity	ohm*cm	–	2.10E+14	2.40E+15	1.00E+10	1.60E+15	1.02E+14	1.00E+16	2.00E+16	3.00E+15	9.00E+14
Agency Listing		UL 94 UL 746 UL 746C	IPC Mil Spec UL 94 UL 746 UL 746C	UL 94 UL 746	UL 94 UL 746 UL 746C	IPC Mil Spec UL 94 UL 746	UL 94 UL 746	UL 94 UL 746	–	UL 94 UL 746	UL 94 UL 746

Clear Encapsulants

Protection and performance go hand-in-hand DOWSIL™ encapsulants help you balance both. In addition to moisture resistance, they absorb thermal cycling stress, protecting the sensitive components. Their high transmittance and thermal stability help your design maintain light quality over a longer time, while their unique chemistry offers minimal yellowing and degradation.

With a selection of cure profiles, viscosities and hardnesses, you can explore new design options in a variety of applications. DOWSIL™ encapsulants also expand processing options, from dispensing materials to enabling overmolded lens designs.

Key Properties	Units	DOWSIL™ CI-9012 Clear Coating*	DOWSIL™ CI-9014 Clear Coating*	DOWSIL™ EG-4131 Dielectric Gel**	DOWSIL™ EI-1184 Optical Encapsulant
One- or Two-Part		Two	Two	Two	Two
Color		Transparent	Colorless	Clear/Colorless	Clear
Mix Ratio		10:1	10:1	1:1	1:1
Viscosity (Part A)	cP	–	–	750	4,400
Viscosity (Part B)	cP	–	–	650	3,500
Viscosity (Mixed)	cP	4,570	3,500	650	5,300
Specific Gravity (Cured)		1.03	1.03	0.97	1.04
Cure Time		48 Hours (25°C) 30 Minutes (100°C)	48 Hours (25°C) 35 Minutes (100°C)	Tack-Free Time 80 Minutes (25°C) <10 Minutes (50°C) <5 Minutes (100°C)	4 Hours (25°C) 70 Minutes (50°C) ≤5 Minutes (100°C) ≤5 Minutes (150°C)
Working Time at 25 °C (Pot Life)		8 Hours	1.5 Hours	30 Minutes	24 Minutes
Durometer, Shore A		51	43	N/A	61
Gel Hardness	g	N/A	N/A	730	N/A
Tensile Strength	psi	1,100	980	–	1,375
Elongation	%	105	123	175	55
Linear CTE	ppm/°C	315	340	460	–
Transmission		–	–	89.4% at 380 nm, 3.2 mm 91.1% at 450 nm, 3.2 mm 93.3% at 760 nm, 3.2 mm	93% at 380 nm, 3.2 mm 94% at 450 nm, 3.2 mm 94% at 760 nm, 3.2 mm
Refractive Index		1.41 at 632.8 nm	1.4118 at 589 nm 1.4225 at 632.8 nm 1.4028 at 1321 nm 1.3997 at 1544 nm	1.41 at 632.8 nm	1.42 at 632.8 nm
Dielectric Strength	Volts/mil	486	500	13.7	500
	kV/mm	19	19	0.54	19
Volume Resistivity	ohm*cm	1.60E+15	2.90E+14	6.32E+13	3.50E+16
Agency Listing		UL 94 UL 746	UL 94 UL 746 UL 746C	–	UL 94 UL 746 UL 746C

*Available only in Asia
**Available in United States and Asia

Conformal Coatings

The delicate electronics of your design need protection from humidity, moisture and physical stress. DOWSIL™ silicone conformal coatings can provide that protection – and deliver excellent insulation against shock and short circuits. You will also find them helpful for protecting circuitry in severe service environments and they are available in a number of viscosities and cure chemistries.



Key Properties	Units	DOWSIL™ 3140 RTV Coating	DOWSIL™ 1-2577 Low VOC Conformal Coating	DOWSIL™ 1-2620 Low VOC Conformal Coating	DOWSIL™ 1-4105 Conformal Coating	DOWSIL™ 3-1944 RTV Coating	DOWSIL™ 3-1953 Conformal Coating	DOWSIL™ CC-2570 Conformal Coating	DOWSIL™ CC-2571 Conformal Coating
One- or Two-Part		One	One	One	One	One	One	One	One
Color		Translucent	Transparent	Transparent	Transparent	Translucent	Translucent	Transparent	Transparent
Viscosity	cP	34,400	970	350	450	63,775	350	1,000	75
Specific Gravity (Uncured)		–	0.88	0.88	–	–	–	1.04	1.01
Specific Gravity (Cured)		1.05	1.12	0.9	0.97	1.03	0.98	1.11	1.11
Heat Cure	Minutes	N/A	N/A	N/A	5 (100°C)	N/A	N/A	N/A	N/A
Tack-Free Time at 25 °C	Minutes	116	6	15	N/A	14	8	7	15
Tack-Free Time at 60 °C/15% RH	Minutes	–	1.5	5	N/A	0.5	0.5	1.3	1.3
Durometer		32 (A)	85 (A) / 25 (D)	80 (A)	64 (00)	36 (A)	34 (A)	76 (A)	80 (A)
Tensile Strength	psi	434	650	–	35	325	80	450	450
Elongation	%	419	60	–	70	145	60	95	95
Linear CTE	ppm/°C	325	250	250	325	–	–	250	250
Dielectric Strength	Volts/mil	385	350	400	500	525	425	704	1,025
	kV/mm	15	13	16	20	21	17	28	40
Volume Resistivity	ohm*cm	2.10E+14	1.90E+14	1.05E+15	2.70E+13	1.60E+15	5.50E+15	1.36E+14	1.45E+14
NVC (Nonvolatile Content)	%	95.7	37	31.3	98	–	99.4	72	55
Agency Listing		IPC Mil Spec UL 94 UL 746 UL 746C	IPC Mil Spec UL 94	IPC Mil Spec UL 746E	UL 94	IPC Mil Spec UL 94 UL 746E	IPC Mil Spec UL 94 UL 746	UL 94	UL 94

Gels

DOWSIL™ and SYLGARD™ brand silicones offer you even greater design flexibility. Their softness and lower stress make them ideal for devices with sensitive components and fine-pitch wiring. They retain much of the stress relief and self-healing qualities of a liquid while maintaining the dimensional stability of an elastomer. Gels cure in place to form a cushioning, self-healing, resilient material that provides stress relief, electrical insulation and protection from moisture and other contaminants.



Key Properties	Units	DOWSIL™ 3-4154 Dielectric Gel	DOWSIL™ 3-4207 Dielectric Tough Gel	SYLGARD™ 527 Silicone Dielectric Gel
One- or Two-Part		Two	Two	Two
Color		Clear	Translucent Green	Colorless
Mix Ratio		1:1	1:1	1:1
Viscosity (Part A)	cP	550	425	470
Viscosity (Part B)	cP	525	400	454
Viscosity (Mixed)	cP	550	–	465
Specific Gravity		0.97	0.97	0.95
Cure Time	Minutes	180 (80°C) 105 (100°C)	90 (25°C) 10 (50°C) 3 (100°C)	210 (100°C) 75 (125°C) 35 (150°C)
Gel Time at 25°C	Minutes	–	9.8	–
Working Time at 25°C	Minutes	30 – Pot Life	10 – Snap Time	120 – Pot Life
Durometer, Shore 00		N/A	59	N/A
Gel Hardness	g	110	N/A	113
Penetration	1/10 mm	50	N/A	–
Linear CTE	ppm/°C	–	–	335
Dielectric Strength	Volts/mil	450	420	425
	kV/mm	18	17	17
Volume Resistivity	ohm*cm	1.05E+15	7.10E+13	2.75E+15
Agency Listing		–	UL 94 UL 746 UL 746C	–

Thermal Pottants

Environmental contamination and thermal damage to components can be two of the biggest threats to the long-term reliability of your LED lighting. DOWSIL™ and SYLGARD™ brand thermal silicone pottants protect LED drivers from moisture and dust while dissipating heat and absorbing component noise.

Our pottants feature a room temperature cure process that can be heat accelerated – offering you greater manufacturing flexibility. With high thermal conductivity and the ability to withstand extreme temperatures and environmental conditions, these materials help you deliver a design that offers greater long-term reliability and potentially lower lifetime cost.



Key Properties	Units	DOWSIL™ CN-8760 Thermally Conductive Encapsulant*	SYLGARD™ 160 Silicone Elastomer	SYLGARD™ 164 Silicone Elastomer	SYLGARD™ 170 Fast Cure Silicone Elastomer	SYLGARD™ 170 Silicone Elastomer	SYLGARD™ 567 Primerless Silicone Encapsulant
One- or Two-Part		Two	Two	Two	Two	Two	Two
Color		Dark Gray	Dark Gray to Black	Gray	Black	Black	Black
Mix Ratio		1:1	1:1	1:1	1:1	1:1	1:1
Viscosity (Part A)	cP	2,400	6,000	8,925	2,650	3,160	2,060
Viscosity (Part B)	cP	2,397	3,730	9,175	1,500	1,110	570
Viscosity (Mixed)	cP	2,850	4,865	–	2,361	2,135	–
Specific Gravity		1.60 (Cured)	A: 1.61 B: 1.60	A: 1.58 B: 1.57	A: 1.38 B: 1.38	A: 1.37 B: 1.37	1.24 (Uncured)
Cure Time		40 Minutes (50°C)	24 Hours (25°C) 4 Minutes (100°C)	36 Minutes (25°C)	12 Minutes (25°C)	24 Hours (25°C) 25 Minutes (70°C) 10 Minutes (100°C)	180 Minutes (70°C) 120 Minutes (100°C) 15 Minutes (150°C)
Working Time at 25°C	Minutes	120 – Pot Life	20 – Pot Life	14 – Snap Time	<5 – Pot Life	15 – Pot Life	–
Durometer, Shore A		52	56	61	43	47	40
Linear CTE	ppm/°C	265	200	225	–	275	300
Thermal Conductivity	W/mK	0.66	0.62	0.64	0.40	0.48	0.29
Dielectric Strength	Volts/mil	857	475	475	350	493	405
	kV/mm	33	19	19	14	19.4	16
Volume Resistivity	ohm*cm	>10E+16	5.60E+14	1.10E+13	2.42E+15	5.60E+17	6.00E+16
Agency Listing		UL 94 UL 746	UL 94 UL 746	UL 94 UL 746	UL 94 UL 746	Mil Spec UL 94 UL 746	Mil Spec UL 94 UL 746

*Available only in China

Thermal Interface Materials

Nothing will shorten the lifespan of your LED lighting more than heat ... and LEDs generate a lot of it. By designing with DOWSIL™ silicone thermal interface materials, you have more heat management options.

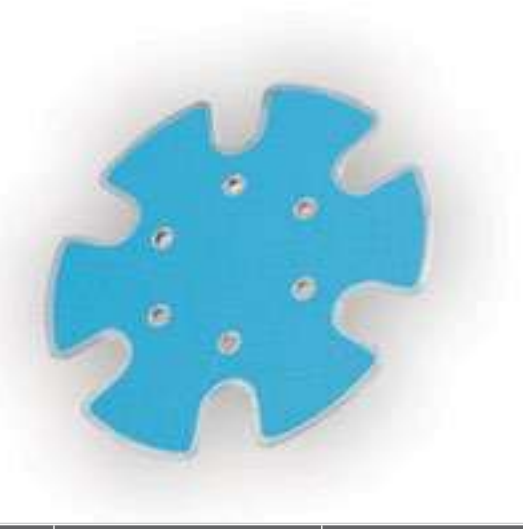
The thermal stability of silicones offers long-lasting, consistent thermal conductivity – even at temperatures at which traditional materials might begin to degrade.

Thermal Adhesives form thermally stable bonds to most LED PCB and heat sink substrates and deliver excellent thermal conductivity. Their low volatility means no adverse impact on components or light output. And their sealing and adhesive qualities can allow you to minimize the number of components and optimize the manufacturing process.

ADHESIVES

Key Properties	Units	DOWSIL™ 1-4173 Thermally Conductive Adhesive	DOWSIL™ 3-6752 Thermally Conductive Adhesive	DOWSIL™ EA-9189 H RTV Adhesive*	DOWSIL™ SE 4485 Thermally Conductive Adhesive*	DOWSIL™ SE 4486 Thermally Conductive Adhesive*
One- or Two-Part		One	One	One	One	One
Color		Gray	Gray	White	White	White
Viscosity	cP	61,000	83,000	–	230,000	20,000
Specific Gravity		2.7	2.61	1.68	2.9	2.6
Heat Cure Time	Minutes	90 (100°C) 30 (125°C) 20 (150°C)	40 (100°C) 10 (125°C) 3 (150°C)	–	–	–
Tack-Free Time at 25°C	Minutes	–	–	2	10	4
Durometer, Shore A		92	87	80	90	81
Tensile Strength	psi	900	545	576	492	570
Elongation	%	22	15	32	–	43
Adhesion – Lap Shear	psi	650 (Al)	518 (Al)	327 (Al)	168 (Glass)	240 (Glass)
Thermal Conductivity	W/mK	1.8	1.69	0.88	2.8	1.6
Dielectric Strength	Volts/mil	450	400	700	483	508
	kV/mm	18	16	28	19	20
Volume Resistivity	ohm*cm	2.20E+14	7.10E+13	3.30E+15	8.00E+14	2.00E+14
Agency Listing		UL 94 UL 746	UL 94 UL 746	UL 94 UL 746	UL 94 UL 746	–

*Cures at a rate of about 1/4 inch per 7 days



Thermal Compounds offer high bulk conductivity and low thermal resistance. They are formulated to allow high loading of thermally conductive fillers and designed to achieve very thin bond line thicknesses.

Dispensable Thermal Pads allow you to quickly and precisely print thermally conductive silicone pads in controllable thicknesses on complex substrate shapes. They offer you enhanced thermal performance and can accelerate production and, in many cases, reduce system costs.

COMPOUNDS & PADS

Key Properties	Units	DOWSIL™ TC-4025 Dispensable Thermal Pad	DOWSIL™ TC-5026 Thermally Conductive Compound	DOWSIL™ TC-5080 Thermal Grease	DOWSIL™ TC-5629 Thermally Conductive Compound
One- or Two-Part		Two (1:1 Ratio)	One	One	One
Color		Blue	Gray	White	Gray
Viscosity	cP	70,000 (Mixed)	100,000	836,000	295,000
Specific Gravity		2.8	3.5 (Uncured)	2.1	3.1
Cure Time at 25°C	Hours	24	N/A	N/A	N/A
Heat Cure Time	Minutes	145 (40°C) 40 (75°C) 15 (100°C) 10 (120°C)	N/A	N/A	N/A
Durometer, Shore 00		50	N/A	N/A	N/A
Tensile Strength	psi	24	N/A	N/A	N/A
Elongation	%	200	N/A	N/A	N/A
Thermal Conductivity	W/mK	2.5	2.9	1	3.2
Dielectric Strength	Volts/mil	450	227	220	160
	kV/mm	18	8.9	8.7	6.3
Volume Resistivity	ohm*cm	3.90E+12	5.90E+11	2.90E+15	3.10E+13
Agency Listing		UL 94 UL 746	–	–	UL 94 UL 746

TOMORROW'S LIGHTING IS ANY SHAPE *you imagine*

Dow Solutions for Lighting Optical Materials

What most limits your design freedom? It is often the physical properties of your optical components. Now you can boost the performance of your design – and go beyond the limits of traditional optical materials. DOWSIL™ optical silicones not only offer excellent optical properties, they are more resistant to impact damage and degradation from UV, heat and environmental extremes. They include:

- **Optical coating**
- **Optical encapsulant**
- **Moldable optics**

When you pair the unique benefits of these materials with Dow's collaborative expertise, you will find new ways to help enhance the performance, durability and reduce the total cost of ownership of your lamp and luminaire design. And the earlier in the design process you work with our experts, the more we can do – together – to enhance value and performance.

Discover new and innovative ways to control light. Create optics in complex shapes or with fine details or integrated mechanical features not possible in traditional plastics.

Work with our support team to learn how optical silicones can light up your imagination.

Key Properties	Units	DOWSIL™ CI-2001 White Reflective Coating
One- or Two-Part		One
Color		White
Viscosity	cP	1,500
Specific Gravity (Uncured)		1
Specific Gravity (Cured)		1.14
Tack-Free Time at 25°C	Minutes	10
Tack-Free Time at 60°C/15% RH	Minutes	2
Durometer		80 (A) / 25 (D)
Reflectance		94% at 3 mil 96% at 5 mil
Dielectric Strength	Volts/mil kV/mm	620 25
Volume Resistivity	ohm*cm	1.00E+15
NVC (Nonvolatile Content)	%	45
Agency Listing		UL 94 UL 746

Key Properties	Units	DOWSIL™ EI-1184 Optical Encapsulant
One- or Two-Part		Two
Color		Clear
Mix Ratio		1:1
Viscosity (Part A)	cP	4,400
Viscosity (Part B)	cP	3,500
Viscosity (Mixed)	cP	5,300
Specific Gravity (Cured)		1.04
Cure Time		4 Hours (25°C) 70 Minutes (50°C) ≤5 Minutes (100°C) ≤5 Minutes (150°C)
Working Time at 25°C (Pot Life)	Minutes	24
Durometer, Shore A		61
Tensile Strength	psi	1,375
Elongation	%	55
Transmission		93% at 380 nm, 3.2 mm 94% at 450 nm, 3.2 mm 94% at 760 nm, 3.2 mm
Refractive Index		1.42 at 632.8 nm
Dielectric Strength	Volts/mil kV/mm	500 19
Volume Resistivity	ohm*cm	3.50E+16
Agency Listing		UL 94 UL 746 UL 746C

Optical Coating

DOWSIL™ CI-2001 White Reflective Coating can allow you even more freedom to press beyond the design limitations of traditional materials. This reflective coating can enhance light output and efficiency in reflectors, lightboxes, mixing chambers, backlight units and other surfaces, while offering high resistance to environmental aging. At the same time, it offers the other benefits of silicones: additional protection from humidity, moisture and thermal stress and excellent insulation against high voltages and short circuits.

DOWSIL CI-2001 White Reflective Coating can minimize your processing costs by eliminating the need for special storage, handling and ventilation.

Secondary Optics Encapsulant

One way to realize greater cost efficiency and lower total cost of ownership is through materials that can perform multiple functions. DOWSIL EI-1184 Optical Encapsulant offers you that opportunity. Besides providing superior protection from moisture, thermal stress and shock and impact, it offers excellent optical performance. You can count on minimal yellowing and degradation while maintaining consistent light quality over the product lifespan.

Moldable Optics

You will find an unprecedented level of design freedom with moldable silicone optics from Dow. Versatile and moldable, these two-part materials allow you to explore more complex designs – often while simplifying the manufacturing process.

They can also boost the long-term performance of your design beyond the capability of traditional optical materials. Not

only do they offer excellent optical properties, they are more resistant to impact damage and degradation from UV, heat and environmental extremes. This can allow them to help deliver higher lumen density while remaining stable over time.

With Dow brand moldable silicone optics, you can explore new design possibilities in challenging applications such as automotive, general, professional and consumer lighting and outdoor displays.



Key Properties	Units	DOWSIL™ MS-0002 Moldable Silicone	DOWSIL™ MS-1003 Moldable Silicone	DOWSIL™ MS-1002 Moldable Silicone		DOWSIL™ MS-4007 Moldable Silicone	DOWSIL™ MS-4002 Moldable Silicone	DOWSIL™ MS-4022 Moldable Silicone	DOWSIL™ MS-2002 Moldable Silicone White Reflector
Color		Translucent	Optically Clear	Optically Clear		Optically clear	Optically clear	Optically clear	White reflecting
Viscosity (Part A)	cP	148,000	52,000	40,000		28,000	50,000	46,000	695,000
Viscosity (Part B)	cP	145,000	37,500	18,000		9,500	21,000	16,000	565,000
Viscosity (Mixed)*	cP	–	42,300	26,250		10,500	25,000	19,000	–
Working Time at 25°C (Pot Life)	Hours	48	48	48		48	48	48	48
Specific Gravity	Kg/l	–	1.05	1.07		1.08	1.08	1.08	–
Durometer	Shore A	65	51	72		70	84	85	84
Tensile Strength	psi	1,300	800	1,625		1,700	1,700	1,600	1,250
	MPa	–	5.5	11.2		11.7	11.7	11.0	–
Elongation	%	270	325	80		100	60	52	65
Linear CTE	ppm/°C	280	325	275		270	250	245	210
Transmission	3.2 mm Thickness	75% at 450 nm 89% at 760 nm	91% at 380 nm 92% at 450 nm 93% at 760 nm	89% at 380 nm 91% at 450 nm 94% at 760 nm		91% at 380 nm 93% at 450 nm 94% at 760 nm	89% at 380 nm 92% at 450 nm 93% at 760 nm	87% at 380 nm 90% at 450 nm 93% at 760 nm	N/A
Refractive Index (633 nm)	%	–	1.41	1.41		1.41	1.42	1.42	N/A
Abbe Number	a.i.	–	50	50		48	52	52	–
Reflectance		N/A	N/A	N/A		N/A	N/A	N/A	97% at 450 nm 98% at 555 nm 99% at 630 nm
Dielectric Strength	Volts/mil	500	508	584		650	711	660	525
	kV/mm	19.7	20	23		25.6	28	26	20.7
Volume Resistivity	ohm*cm	–	1.00E+16	1.00E+18		1.00E+14	1.00E+14	1.00E+16	3.00E+15
Agency Listing		UL 94 UL 746	UL 94 UL 746A UL 746C(f1)	UL 94 UL 746A UL 746C(f1)		UL Certification Pending	UL 94 UL 746A UL 746C(f1)	UL 94 UL 746A UL 746C(f1)	UL 94 UL 746A UL 746C(f1)

* Mix ratio 1:1
Note: All values indicated in the above table for cured materials are after 1 hour post-curing at 150°C

The Dow LED Innovation Ecosystem

With Dow as your collaborator, you can rely on our ongoing technical support as well as the expertise of Dow's advanced application centers. Yet we set the bar even higher for collaborative innovation: As an LED lighting customer, you will also gain the support of the Dow LED Innovation Ecosystem.

This broad and growing global network extends from Europe to Asia to the Americas and spans the entire LED value chain. It includes dozens of optical and LED component designers and manufacturers. This offers the expertise you need to develop a true total solutions package with such services as:

- Material development
- Analytical testing
- Optical design
- Application development
- Prototyping
- Process development

You will also gain the support of our extensive global network of equipment manufacturers, distributors and specialty repackagers. Together, this array of resources and relationships offers you one of the most comprehensive sources for advanced materials solutions.

To learn how Dow can help you break through design and manufacturing barriers to become more innovative, competitive and successful, contact your Dow representative.

How can we help you today?

Tell us about your performance, design and manufacturing challenges. Let us put our silicon-based materials expertise, application knowledge and processing experience to work for you.

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Form No.11-3604-01 D