



**Advanced Technologies Product Guide** 

# **Optoelectronics and** electronics silicones



# Silicones that are sharper, brighter and pure

### SUPERIOR PERFORMANCE FROM SILICONE INDUSTRY LEADERS

As one of the original pioneers in silicones for LEDs, NuSil® has served customers for decades with formulations for demanding environments and applications. We continue to develop silicones to meet the increasing demands for cutting-edge solutions, including optically clear, temperature-resistant and high-purity products, in the optoelectronics and electronics industry. Customers can rely on our deep experience to provide highly customized solutions to each project's unique specifications. Our ability to customize allows us to design silicones that fit customers' processes, rather than forcing them to adapt to our products. This translates into solutions that are rapidly and economically scalable to accelerate time to market.



# Applications

From smartphones to stadium screens, NuSil brand silicones are ideal for a wide range of uses. Leading applications for our broad portfolio of standard and customized silicones include:

- Next-generation displays
- General electronics assembly
- Sensors
- Gaskets



#### **CUSTOMIZATION MASTERED**

NuSil customers can rely on our proven expertise and extensive support systems to meet their unique needs throughout the entire commercialization process. With tested processes, proprietary equipment and over 3,000 products available for customization, we guide customers to the right silicone for their application. We work with manufacturers to seamlessly integrate our silicones into their processes.

#### **NUSIL SUPPORT**

We develop our silicones to meet or exceed industry and international quality, reliability and consistency standards with comprehensive, documented systems. NuSil is ISO 9001 certified to ensure consistent manufacturing processes and quality standards. We also support customers with testing and documentation for RoHS and REACH compliance.

# Silicones for optoelectronics and electronics

#### HIGH-PURITY SILICONES THAT BRING CLARITY TO DEVICES & SUBASSEMBLIES

As end-users demand better reliability and longer operating life from optoelectronic and electronic devices, our customers need high-purity silicones refined to virtually eliminate common impurities. Our chemists develop silicones that absorb stress while allowing greater light output and viewing angles. NuSil silicones can also improve the ruggedness of displays used in challenging environments.

For applications that require optically clear materials, we have developed specialty silicones in a wide range of refractive indices for displays. Our optically clear silicones enable displays that are sharper, brighter and more durable.

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Leading optoelectronics and electronics manufacturers use our comprehensive line of high-purity silicones to reliably protect sensitive components while improving performance and extending their life.



#### **OPTICALLY CLEAR MATERIALS**

From bigger, brighter displays to wearable devices, our silicones are optimized for applications that require greater light output and optical stability.

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#### **ADHESIVES AND SEALANTS**

From precise bond line control to minimal cleanup, our adhesives and sealants bond to a wide variety of substrates and are engineered to boost manufacturing throughput.



#### **FLUOROSILICONES**

Engineered to reliably operate in a broad temperature range, our fluorosilicones protect components, even under prolonged exposure to damaging solvents, like fuel.



#### POTTING AND ENCAPSULATING

The size of electronics continues to shrink even as they grow in complexity. Our encapsulants provide a reliable, low-stress alternative for electronic packaging.

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### ELECTRICALLY CONDUCTIVE AND THERMALLY CONDUCTIVE

Whether optoelectronic and electronic devices need protection from static accumulation and discharge or thermal management, NuSil silicones safeguard sensitive components.

# Optically clear materials

#### Description

Optical clarity is essential when manufacturing LEDs, LCDs and other displays that will be viewed from multiple angles and in varying light conditions. NuSil helps manufacturers by offering one of the industry's widest ranges of Refractive Index (RI) silicones, from 1.38 to 1.54. These options allow engineers to increase viewing angle and brightness to reduce power consumption.

#### **Applications**

Our optically clear materials, which include molding elastomers, adhesives and other formulations, are commonly used in a wide variety of displays, such as next-generation screens that are thinner and brighter.

#### **OPTICALLY CLEAR MATERIALS**

MOLDING	ELASTOMERS													
PRODUCT NUMBER	REFRACTIVE at 589 nm	INDEX	DUROMETER	R VISCOS		TENSILE psi (mPa)	ELONG %	ATION	SPECIAL FEATURES					
LS1-6140	1.41		50	3.200		900 (6.2)	90			casting, low-compression molding and dispensing. Low volatility and requires heat to cure				
LS1-6941	1.41		50	62.500		750 (5.2)				For liquid-injection molding and casting. Requires heat to cure.				
LS-8941	1.41		80	21.500	1.250 (8.6)		65				Iding, compression molding and casting. Requires heat to cure.			
	S & SEALANTS -	TWO-P		21,500		1,200 (0.0)	00		1 of fiqu		ang, compression molaing and casting, requires near to care.			
PRODUCT NUMBER	REFRACTIVE INDEX at 589 nm	VISCC (cP/mF		-AP SHEAR osi (mPa)		JROMETER PE A	TENSILE psi (mPa)	ELONGA %	TION	WORK TIME	SPECIAL FEATURES			
LS2-6140	1.41	3,000	З	390 (2.7)	47		940 (6.5)	125		> 8 h	Primerless adhesion and tested per UL 94 and passed V-0 at 3.7 mm. Low volatility for use in high-temperature environments.			
LS-6143	1.43	<del>3,000</del>	1	<del>80 (1.2)</del>	40		<del>600 (4.1)</del>	<del>125</del>		<del>2 h</del>	Low volatility, broad operating temperature, optically robust			
LS-6943	1.43	5,400	-	-	40		900 (6.2)	120		~ 2 h	Broad operating temperature, optically robust			
LS-6946	1.46	37,500	5	510 (3.5)	30		675 (4.7)	275		2 h	Tough elastomer that index matches fused glass			
POTTING &	ENCAPSULATI	NG GEL	.S											
PRODUCT NUMBER	REFRACTIVE at 589 nm	INDEX	VISCOSITY (cP/mPa·s)			RATION (m METER	m) WORK	ТІМЕ	SPE	ECIAL FEATURE	s			
LS-3238	1.38		1,500		15 (00)		11 h		Firr	m fluorosilicone	gel. Resistant to hydrocarbon solvents.			
GEL-8136	1.40		450		13 mm		2 h		RT	V or cures rapid	ly with heat. High tack.			
LS4-3441	1.40		500	:	35 (00	)	5 h		Op	tically robust in	harsh environments, low viscosity, very firm			
<del>LS-3140</del>	<del>1.40</del>		<del>12,250</del>		0.4 mn	n	<del>24 h</del>		Op	tically robust in	harsh environments, tough, low volatility, firm			
LS-3441	1.40		14,500		0.3 mr	n	24 h		-					
LS1-3443	1.43		650	4	8 mm		2 h		Op	tically robust, re	ecommended for high-temperature environments			
LS-3246	1.46	1.46 1,000			10 (00)		8 h		Ind	ex matches fuse	ed glass			
LS1-3252	1.52		425	:	25 (00)	)	~ 3 h		Ind	ex matches bor	rosilicate-crown glass (BK7)			
LS-3354	1.54 8,000				75 (00	0)	~ 2 h		Lov	w permeability of	and high refractive index			
LS3-3354	1.54		8,000		75 (00	0)	~ 2 h		Des	signed to have i	improved adhesion			

<b>POTTING &amp;</b>	POTTING & ENCAPSULATING ELASTOMERS												
PRODUCT NUMBER	REFRACTIVE INDEX at 589 nm		DUROMETER TYPE A		ELONGATION %	WORK TIME	MIX RATIO	SPECIAL FEATURES					
LS2-6941	<del>1.41</del>	<del>1,000</del>	<del>30</del>	<del>120 (0.8)</del>	<del>100</del>	<del>5.5 h</del>	<del>1:1</del>	RTV or cures rapidly to heat					
LS-6140	1.41	3,125	50	850 (5.9)	90	3 h	1:1	Low volatility					
LS1-6140	1.41	3,200	50	900 (6.2)	90	> 8 h	1:1	Low volatility and requires heat to cure. Designed for dispensing.					
R-2613	1.41	5,500	45	1,140 (8.0)	150	2 h	10:1	RTV or cures rapidly with heat within 48 hours. Tested to UL 94 V-0.					
LS-6941	1.41	5,800	50	1,300 (9.0)	95	5 h	10:1	Heat not required to cure					

## Potting and encapsulating

#### Description

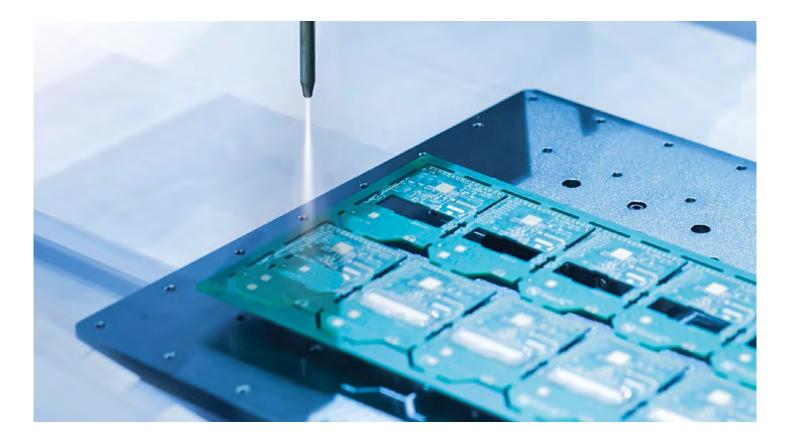
NuSil silicones protect optoelectronic and electronic components from damaging elements, such as moisture, contaminants, shock and heat. For electronics with more complex geometries, our low modulus gels and lightweight foams protect components from warping and wire bonds from shearing. We also provide elastomers for stability and surface protection as well as conformal coatings that extend the operating life of circuit boards.

#### **Applications**

Potting and encapsulation materials are found in a wide range of assemblies, such as general assembly and sensors as well as vehicle and avionics equipment. They are also suitable for modules, relays and a variety of AC/DC converters, including high-power and planar packages.

#### **POTTING & ENCAPSULATING MATERIALS**

GELS								
PRODUCT NU		∕ISCOSITY cP/mPa∙s)		PENETRATION mm)		WORK TIME		SPECIAL FEATURES
GEL-8136	4	50		13		2 h		RTV or cures rapidly with heat. High tack.
GEL-8150	5	00		5		4 h		Cures with heat
GEL8-8150	5	00		5		1.5 h		RTV in 48 hours or cures rapidly with heat
GEL-8100	5	535		9		> 24 h		Very soft, flows when cured
GEL-8111	5	35		10		> 24 h		Low volatility, very soft
GEL-8170	L-8170 600			3		6 h		-
LS1-3443	650			3		2 h		RTV, or cures rapidly with heat, high tack gel with broad operating temperature.
GEL1-8155	EL1-8155 14,50		4,500		0.4			Very firm
ELASTOMER	रऽ							
PRODUCT NUMBER	APPEARANCE	VISCOSITY (cP/mPa·s)	DUROMETEI TYPE A	R TENSILE psi (mPa)	ELONGATION %	WORK TIME	MIX RATIO	SPECIAL FEATURES
R-2613	Clear	4,000	45	1,140 (7.9)	140	6.5 h	10:1	RTV or cures rapidly with heat within 48 hrs. Tested per UL 94 and passed V-0 at 4.6 mm.
R-2615	Clear	5,300	50	1,300 (9.0)	100	4 h	10:1	Pourable and RTV or cures rapidly with heat
R21-2615	Clear	25,000	75	1,200 (8.3)	65	2 h	1:1	Requires minimum 40°C to cure
R-2188	Translucent	11,000	20	475 (3.3)	350	> 8 h	1:1	Excellent dielectric properties for medium- and low-power electronics. Flexible cure. Tested to UL 94 V-1.
CF19-2186	Translucent	75,000	25	1,100 (7.6)	600	15 m	1:1	Excellent dielectric properties for actuators
R-2560	Red	31,000	55	700 (4.8)	125	1 h	100:0.5	Resists breakdown at high temperatures. Not recommended for deep section cures.
R-2160	Red	250,000	20	750 (5.2)	625	50 m	10:1	Flowable, high-performance elastomer at elevated temperatures
R-2175	Black	2,100	50	525 (3.5)	130	1 h	1:1	Flowable. RTV. 0.4 W/m·K. Fast cure version available.
R-2165	Gray	4,000	60	500 (3.4)	100	10 m	1:1	Flowable. RTV. 0.6 W/m·K. Fast cure and white version available.
EPM-2496	Grav	4,250	<del>60</del>	<del>700 (4.8)</del>	<del>115</del>	<del>25 m</del>	1:1	Low volatility. Flowable RTV. 0.5 W/m·K and tested to UL 94 V 1 at 4.77mm



COATINGS							
PRODUCT NUMBER	CURE SYSTEM	VISCOSITY (cP/mPa·s)	DUROMETER TYPE A	PERCENT SOLIDS %	TENSILE psi (mPa)	ELONGATION %	SPECIAL FEATURES
R-2180	Platinum	3,075	40	20	1,700 (11.7)	1,050	High-strength coating, requires heat to cure
R-1008-0	Oxime	1,300	20	70	235 (1.6)	220	Suitable for dip casting into thin films without further dilution
R-1077	Oxime	3,400	40	60	745 (5.1)	330	-
R-1099	Oxime	6,600	45	30	1,050 (7.2)	570	High-strength coating recommended for coating PCBs and other electronic assemblies. RTV or cures rapidly with heat.
EPM-2850	Oxime	7,400	16	100	80 (0.6)	200	Low volatility. Solventless coating. For applications requiring a broader operating temperature range. RTV or cures rapidly with heat

FOAMS

PRODUCT NUMBER	FOAM DENSITY lbs/ft³ (g/cm³)	VISCOSITY (cP/mPa·s)	WORK TIME	COLOR	MIX RATIO	SPECIAL FEATURES
R-2360	12 (0.2)	40,000	2 m	White	1:1	Tough
SFM5-2350	25 (0.4)	55,000	20 m	Gray	1:1	Tested per UL 94 and passes V-0 at 4.8 mm
CF3-2350	25 (0.4)	100,000	20 m	Black	1:1	-

All foams are platinum cure

#### Processing tips

Blend both components of the material into a homogenous mixture and de-air, if necessary, to remove bubbles. Foams do not require a de-airing process. Gels may need to be mixed longer and more aggressively compared to other silicone systems due to their low viscosity.

Note: Heat can easily be generated during the mixing process, which can cause an adverse effect on pot life.

## Adhesives and sealants

#### Description

From next-generation adhesives to traditional liquid adhesives, our silicones are developed to maximize manufacturing throughput, so products go to market faster. We work closely with customers to identify the right silicone adhesive for their application, balancing competing factors like energy consumption, weight reduction, longer operating life and high operating temperatures.

#### **Applications**

Manufacturers rely on our silicone adhesives — from assemblies in the development stage to devices in mass production — for a variety of applications. We develop products that are ideal for general electronics assembly and complex components or those used in harsh environments.

#### **ADHESIVES & SEALANTS**

ONE-PART													
PRODUCT NUMBER	ΑΡΡΕΑ	RANCE	CURE	VISCOSITY (cP/m EXTRUSION RATE (g/minute)		LAP SH psi (mPo		OMETER E A	TENS psi (M		ELONGATION %	TACK-FREI TIME	SPECIAL FEATURES
R-1130	Translu	cent	Oxime	Thixotropic		485 (3.3	) 35		850 (	5.9)	325	25 m	Recommended for polycarbonate (PC) substrates
R-1600	Translu	cent	Oxime	80 g/minute		205 (1.4)	50		545 (3	3.8)	240	25 m	For applications requiring a broader operating temperature range
EPM-2840	Translu	<del>cent</del>	<del>Oxime</del>	<del>30 g/minute</del>		<del>280 (1.9</del> )	) 35		<del>685 (</del> 4	<del>4.7)</del> :	<del>280</del>	<del>25 m</del>	Low volatility, broad operating temperature range. Available in black and white.
EPM-2411-2	Black		Platinum	0.9 g/minute		-	20		750 (5	5.2)	700	~ 8 h	Low volatility, glob top. Requires heat to cure.
TWO-PART		_											
PRODUCT NUMBER	MIX RATIO		SITY (cP/mPo SION RATE ite)	a·s) ADHESION LAP SHEAR psi (mPa)	DUROI TYPE A		TENSILE psi (mPa)	ELONGA %	τιον	WORK TIME	COLOR	PRIMERLESS ADHESION	SPECIAL FEATURES
LS2-6140	1:1	3,000 cP		390 (2.7)	47		940 (6.5)	125		> 8 h	Clear	•	Low volatility and tested per UL 94 and passed V-0 at 3.7 mm
R32-2186	1:1	80,000		130 (0.9) 15			850 (5.9)	800		15 h	Translucent	•	Long pot life, requires minimum 80°C to cure
R31-2186	1:1	82,000		110 (0.8)	110 (0.8) 20		1,000 (6.9)	00 (6.9) 775		15 m	Translucent	•	RTV or cures rapidly with heat. Tested per UL 94 and passed V-0 at 4.8 mm.
R33-2186	1:1	83,000		100 (0.7) 20		1,015 (7.0)		740		2 h	Translucent	•	RTV or cures rapidly with heat, available in white. Tested per UL 94 and passed V-1 at 4.7 mm.
R-2141	1:1	90,000		350 (2.4)	40		650 (4.5)			1.5 h	Translucent	•	Tested per UL 94 and passed V-1 at 4.8 mm
R34-2186	1:1	520 g/r	ninute	150 (1.0)	45		800 (5.5)	400		> 8 h	Translucent	•	Minimum 60°C to cure. Adheres to plastic films such as PET. Tested per UL 94 and passed V-1 at 4.7 mm.
R-2145	1:1	295 g/r	ninute	560 (3.9)	45		1,050 (7.2)	400		15 m	Dark gray	•	Fast cure
R1-2145	1:1	285 g/r	ninute	540 (3.7)	45		1,000 (6.9)	400		1 h	Dark gray	•	Tough and RTV or cures rapidly with heat
EPM1-2412	1:1	0.1 g/minute		-	- 40		900 (6.2)	0 (6.2) 440		5 m	Translucent	•	Low volatility. Designed for forming gaskets in place, 0.8 aspect ratio, dispensable through 21-gauge needle tip. Tested per UL 94 and passed V-1 at 5.0 mm.
EPM2-2412	<del>1:1</del>	<del>0.05 g/minute</del>		- <del>28</del>			<del>830 (5.7)</del>	<del>) (5.7)</del> 540		<del>2 h</del>	<del>Cures</del> t <del>ranslucent</del>	+	Low volatility. Adheres well to plastics and rubbers. Dispensable through 21-gauge needle tip.
R-2187	10:1	23,000		-	42		790 (5.4)	175		6 h	Translucent		Broad operating temperature
R-2160	10:1	250,000	0	-	20		750 (5.2)	625		50 m	Red		Recommended for high-temperature applications

#### **Processing tips**

For the best bond, ensure the substrate is thoroughly clean. Activating and/or priming the surface can also improve adhesion. When working with silicone adhesives, it is important to consider the solvents, chemicals or substrates they may contact in their uncured state. Certain chemical elements and compounds can retard or inhibit the adhesive's curing.

#### **Next-generation adhesives**

Curable silicone film adhesives from NuSil serve as an alternative to traditional liquid silicone adhesives. They offer reliable bond line control in a peel-and-stick format that is simple to use and doesn't require mixing.

#### Customization

We put our extensive customization experience to work for customers, ensuring they have the right silicone for their device, display or assembly. From developing precise thickness options to creating silicones tuned to adhere to specific substrates, we can formulate a solution for any optoelectronics or electronics application.

#### **ALTERNATIVE ADHESIVES**

PRESSURE-SENSITIVE A	DHESIVES							
PRODUCT NUMBER	180° PEEL ppi (kN/m	. STRENGTH	VISCOSITY (cP/mPa·s)	SOLID %	SOLIDS CONTEN %		OLVENT	SPECIAL FEATURES
PSA-1180	5.0 (0.9)		3,500	70	70		thyl acetate	For applications requiring higher cohesive strength, 2.8 lb (12 N) tack
PSA-1170	3.75 (0.7)		300	50	50		thyl acetate	-
PSA-1270	3.5 (0.6)		1,700	50	50		aphtha	1.43 RI
FILM ADHESIVES								
PRODUCT NUMBER	ADHESIO psi (mPa)	N LAP SHEAR	THICKNESS		CURE SYSTEM		SPECIAL FEATUR	RES
R1-2680-4	-		0.004 in (0.1 mm	)	Platinum	n	Compatible with	a variety of activators
R-2682-12	100 (0.7)		0.012 in (0.12 mm	) Platinui		n	Contains reinforci	ing mesh
REMOVABLE FORM-IN-	PLACE GAS	SKETS						
PRODUCT NUMBER	WORK TIME	DUROMETER TYPE A	NOMINAL BEAD ASPECT RATIO	COLOR S		SPECIAI	L FEATURES	
EPM-2412	20 m 30 0.8			Transluc	ent l	Low vol	atility. Dispenses ea	sily with consistent aspect ratio. RTV or cure can be accelerated with heat.
EPM-2412-2	20 m	30	0.8	Black		Low volatility. Dispenses easily with consistent aspect ratio. RTV or cure can be accelerated with heat		

#### PRIMERS

PRODUCT NUMBER	% SOLIDS	SOLVENT	SPECIAL FEATURES
SP-120	4	Naphtha	General, all-purpose primer. Recommended for polyphthalamide (PPA). Use with platinum or tin-catalyzed silicones.
SP-121	3	Naphtha	SP-120 with red pigment to identify where primer has been applied
SP-126	6	IPA	Compatible with acrylics. Designed to use where slight platinum inhibition is of concern.
SP-142	15	Naphtha	Recommended for increasing adhesion to plastics, such as polycarbonate (PC) and polyurethane (PU).
CF1-135	4	Naphtha	Recommended for platinum cure silicones where there is slight cure inhibition
CF6-135	9	Naphtha	Increased adhesion to polysulfone (PSU) and substrates where severe platinum inhibition is of concern
CF1-136	4	Naphtha	Contains red pigment to identify where primer has been applied. Designed to use where slight platinum inhibition is of concern.
CF2-137	7	Naphtha	CF1-135 with UV-light-detectable dye for inspections
CF1-141	6	IPA	SP-126 with red pigment to identify where primer has been applied
SP-270	15	Naphtha	Improved adhesion to polyimide (PI) and composite materials. Compatible with platinum cure fluorosilicones.
SP-271	20	Naphtha	Recommended for adhering to gold substrates
SP-272	9	Tert-butyl acetate	Contains red pigment to identify where primer has been applied. Improved adhesion to polyimide (PI) and composite materials. Compatible with fluorosilicones.
SP-273	9	Naphtha	Designed for platinum cure fluorosilicones to reduce risk of cure inhibition

# Electrically and thermally conductive materials

#### **Description**

Electrically and thermally conductive silicones are formulated to safeguard sensitive electronics at the component level. Thermally conductive silicones manage heat transfer between components and can also be formulated to be electrically insulating. To protect electronics against static accumulations and discharge, we've developed electrically conductive silicones that allow the material to safely dissipate static.

#### **Applications**

Available in flowable and non-flowable options, our thermally conductive materials are used across a variety of applications, including heat sinks and electric bridges. Common applications for our electrically conductive silicones include grounding connections as well as RFI and EMI shielding.

#### **ELECTRICALLY CONDUCTIVE MATERIALS**

PRODUCT NUMBER	VOLUME RESISTIVITY ohm-cm	VISCOSITY (cP/mPa·s) EXTRUSION RATE (g/minute)	CURE SYSTEM	DUROMETER TYPE A	TENSILE psi (mPa)	ELONGATION %	WORK TIME	COLOR	SPECIAL FEATURES
R-2634	0.001	160 g/minute	Alkoxy	80	250 (1.7)	90	3 h	Gray green	Broad operating temperature
EPM-2462	0.005	160,000	Platinum	85	450 (3.1)	85	3 h	Tan	Low volatility
R-2637	0.006	Thixotropic	Platinum	60	210 (2.1)	275	4 h	Tan	-
R-2630	6	11,700	Platinum	60	690 (4.7)	95	15 h	Black	Self-leveling
R-1505	8	Thixotropic	Oxime	75	525 (3.6)	25	-	Black	One-part, broad operating temperature
R-2631	70	100 g/minute	Platinum	45	615 (4.2)	275	-	Black	Moldable
EPM-2461	535	675,000	Platinum	30	500 (3.4)	350	1h	Black	Low volatility

#### THERMALLY CONDUCTIVE

PRODUCT NUMBER	THERMAL CONDUCTIVITY W/(mK)	VISCOSITY (cP/mPa-s) EXTRUSION RATE (g/minute)	CURE SYSTEM	DUROMETER TYPE A	TENSILE psi (mPa)	ELONGATION %	WORK TIME	COLOR	SPECIAL FEATURES
EPM-2490	1.49	3,700,000	Platinum	75	200 (1.4)	30	2 h	White	Low volatility
R-2930	1.46	Thixotropic	Platinum	80	260 (1.7)	20	3 h	White	-
EPM1-2493	0.95	36,000	Platinum	65	180 (1.2)	50	13 h	White	Low volatility. Recommended for bondlines 5 micron or greater. Tested per UL 94 and passed V0.
R-2940	0.84	Thixotropic	Platinum	90	700 (4.8)	35	5 h	Gray	-
R-2949	0.75	75,000	Platinum	75	270 (1.8)	50	3.5 h	White	For applications requiring a broader operating temperature range
R-2939	0.75	70,000	Platinum	70	300 (2.1)	70	4 h	White	-
EPM-2495	<del>0.64</del>	<del>140 g/minute</del>	Platinum	<del>55</del>	<del>400 (2.8)</del>	225	<del>3 h</del>	White	Low volatility. Recommended for bondlines 50 micron or greater.
EPM-2890	<del>0.61</del>	<del>40 g/minute</del>	<del>Oxime</del>	<del>65</del>	<del>400 (2.8)</del>	<del>150</del>	<del>40 m</del>	White	Low volatility, broad operating temperature range: Recommended for bondlines of 0.4 micron or greater:
R-2165	0.50	4,000	Platinum	60	500 (3.4)	100	10 m	Gray	Self-leveling, available in white
R-2175	0.40	3,000	Platinum	50	525 (3.5)	130	1 h minimum	Black	Self-leveling

#### Processing tips for thermally conductive materials

To ensure a homogenous blend, individually mix part A and B prior to combining. De-airing may be required to ensure a bubble-free product. For thermally conductive materials, thinner bond lines will result in lower thermal resistance.

For optimum adhesion, it is recommended to use NuSil brand primers prior to applying these conductive coatings.

## Fluorosilicones

#### Description

Our fluorosilicones offer protection from common solvents and fuels that standard silicones simply cannot. These optimized formulations resist degradation while offering a broad operating temperature to protect sensitive electronics. NuSil has one of the most diverse fluorosilicone lines in the industry, allowing engineers to find the right fit for their application.

#### **Applications**

Fluorosilicones are ideal for gaskets, seals, rings and O-rings used in many applications such as automotive, where the presence of oil and gasoline can harm electronic components or sensors.

#### **FLUOROSILICONES**

ADHESIVES	S & SEALANTS	- TW	O-PART										
PRODUCT NUMBER	ER (g/minute) psi (mPa) TYPE		UROMETER YPE A		TENSILE ELON psi (mPa) %		WORK TIMI	COLOR	SPECIAL I	EATURES			
CF1-3510	70,000	-	20	0	210	(1.5)	135	4 h	Red	High-temp	perature, 100% fluoro		
FS9-3521	50 g/minute	280	0 (1.9) 29	9	750	(5.2)	300	3 h	Brown	High-temp	perature, 100% fluoro and availa	ıble in dual-cartridge packaging	
MOLDING ELASTOMER													
PRODUCT NUMBER					ilLE ELONGATION nPa) %		N WORK TIME	COLOR	SPECIAL FEA	TURES	IRES		
FS-3511	FS-3511 40 40 115						> 8 h	Translucent	100% fluoro f	fluoro for hydrocarbon resistance			
THERMALL		VE											
PRODUCT	NUMBER		THERMAL C (W/mK)	ONDUCTIV	ΙΤΥ	VISCOS (cP/mPc		си	RE SYSTEM		DUROMETER TYPE A	TENSILE psi (mPa)	
CF1-3800			1.25			Thixotro	opic	Pla	atinum		50	125 (0.9)	
GELS													
	NUMBER	visc	OSITY (cP/mP	a∙s) DUR	омете	R TYPE O		ИE	APPEARANC	E	SPECIAL FEATURES		
<del>FS-3502-1</del>		<del>1,200</del>	+	<del>10</del>			-		White		<del>100% fluoro</del>		
LS-3238		1,500		15			11 h		Clear		100% fluoro		
GEL-3500		11,250	D	50			12 h		Translucent		-		
GREASE													
PRODUCT	NUMBER	visc	OSITY (cP/mP	a·s) VOL	VOLATILITY		CURE SYS	ТЕМ	APPEARANC	E	SPECIAL FEATURES		
G-9041		2,000	),000	0.20	0.20%		Non-curin	Non-curing		y	Non-slump grease for intermittent exposures to solvents or fuels		

All curable materials are platinum catalyzed





### Silicone Sales & Services UK - Ireland - Benelux

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