

**DESCRIPTION**

Novagard 800 Series 800-551FC is a UV curable silicone encapsulant and coating. It has a secondary, neutral alkoxy moisture cure for enhanced adhesion and shadow cure. This non-corrosive, single component silicone will cure to a solid elastomer in seconds upon exposure to ultraviolet (UV) light.

**APPLICATIONS**

- Printed circuit/wiring boards
- Flexible hybrid electronics
- Rigid electronics
- Sensitive components and harsh environments
- Conformal coating, sealing, potting

**FEATURES & BENEFITS**

- Electronics grade
- Exceptionally fast cure
- Room temperature cure
- Single component
- No oxygen inhibition
- 100% solids
- No solvents
- Non-corrosive, neutral cure
- Enhances reliability of delicate components
- Provides stress and shock relief
- Temperature stable from -40°C to 200°C

**APPLICATION METHOD**

Novagard 800-551FC can be applied by spray coating, automated needle dispense, jetting, hand dispense, flow coating, or brushing.

**PRODUCT SPECIFICATIONS\***

Physical Property	Test Method	Performance Range
Form		Flowable
Cure Chemistry		UV Alkoxy Dual Cure
Shadow Area Cure		Yes, Fast Cure
Gel Start Time (min)	1/8" @ 50% RH & 77°F	<20
Appearance		Clear
UV Indicator		Yes
Viscosity (cPs)	Brookfield HBT #2 @ 50 rpm	6,000

**TYPICAL CURED PROPERTIES\***

Physical Property	Test Method	Typical Value
Specific Gravity	ASTM D1875	0.98
Durometer (Shore A)	ASTM D2240	5
Durometer (Shore 00)	ASTM D2240	50
Tensile Strength (psi)	ASTM D412	110
Elongation (%)	ASTM D412	250

**ELECTRICAL PROPERTIES\***

Electrical Property	Test Method	Typical Value
Dielectric Strength	ASTM D149	12.47 kV/mm 316 V/mil
Dielectric Constant at 100 Hz	ASTM D150	1.69
Dielectric Constant at 100 kHz	ASTM D150	1.65
Dissipation Factor at 100 Hz	ASTM D150	.001567
Dissipation Factor at 100 kHz	ASTM D150	.000061
Volume Resistivity (Ω cm)	ASTM D257	3.31 x 10 <sup>13</sup>

**CERTIFICATIONS**

Certification	Result
IPC-CC-830	
Flammability (UL-94)	

\* The values outlined reflect testing that was conducted under laboratory conditions, actual results may vary. Results are after UV cure and 7 days in ambient conditions.

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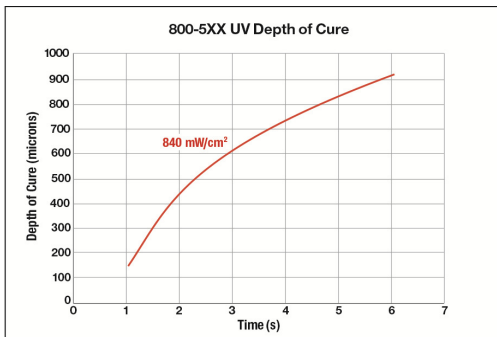
### UV CURE CONDITIONS

All laboratory experiments were conducted using a mercury vapor "H" bulb. A broad spectrum UV source is strongly recommended. A tack-free surface requires 1-2 seconds exposure at a minimum of 500  $\text{mW}/\text{cm}^2$  (UVA) or 3-5 seconds at a minimum of 250  $\text{mW}/\text{cm}^2$  (UVA). Note, longer exposure times are required for lower intensity lamp conditions.

LED UV lamp systems may provide sufficient cure if the output wavelength is near 365 nm and a high power source is used. Users are responsible to test and validate cure efficacy.

### Depth of Cure

UV curable silicones require UV waves to penetrate the silicone in order to initiate cure. Therefore, depth of cure is limited by UV wave transmittance. 800-551FC can be cured to a minimum depth of 2500  $\mu\text{m}$  (2.5 mm) with a cure dose of 1000  $\text{mJ}/\text{cm}^2$ , and a minimum depth of 5000  $\mu\text{m}$  (5.0 mm) with a cure dose of 2000  $\text{mJ}/\text{cm}^2$ , respectively using a broad spectrum mercury vapor "H" bulb.



Product was UV cured using a F300S/F300SQ Fusion UV System equipped with a standard "H" bulb.

### TYPICAL SURFACE PREPARATION

Novagard 800 Series 800-551FC can be applied to cleaned and "no clean" surfaces. It is recommended to test this product for compatibility with all contact surfaces.

### Clean Up

Common solvents such as isopropyl alcohol (IPA), odorless mineral spirits (OMS), or acetone can be used to help with cleanup of uncured silicone. For cured silicone, soften the silicone first with solvent and then brush or scrape away.

### Repairability

Novagard UV curable silicone conformal coatings and sealants are repairable and can be removed from substrates and circuitry by scraping or cutting. Additionally, one can use solvents to swell the silicone making it much easier to scrape or brush away from the surface. This method can be used for circuit boards where a component requires replacement. Once a component is replaced, fresh silicone can be brushed or poured on the bare component and then cured.

### ADDITIONAL INFORMATION

#### Useful Temperature Ranges

Silicones withstand extreme high and low temperatures with little to no property change due to its non-reactive and stable structure. Most

Novagard silicones have an operational temperature range of  $-40^{\circ}\text{C}$  to  $200^{\circ}\text{C}$  ( $-40^{\circ}\text{F}$  to  $257^{\circ}\text{F}$ ) for long periods of time. This can vary, however, depending on formulation, configuration, and stress sensitivity of components in the application, in addition to cooling rates, hold times, and prior temperature history.

Novagard believes that the information provided is a true and accurate description of the typical characteristics of the aforementioned product; however, it is the responsibility of the individual user to thoroughly test the product in their specific application to determine performance, efficacy, and safety.

### PACKAGING

Novagard 800-551FC is available in 310 ml cartridges (10.3 ounce), 5 gallon pails, and 55 gallon drums. Samples are typically provided in 30 cc hybrid syringes although larger sample sizes may be an option. If you require a different package size for a long-term commercial purchase, contact your Novagard representative.

### STORAGE AND SHELF LIFE

Novagard 800-551FC, when stored in its original, unopened container at or below  $80^{\circ}\text{F}$  is usable for up to twelve (12) months. Refrigeration down to  $3^{\circ}\text{C}$  may prolong the shelf life of the material in unopened, original packaging, and usefulness must be determined by the end user.

### CUSTOMIZATION

As the largest R&D group in our class, we have significant expertise and experience in a wide array of technical disciplines. Our team includes experienced Ph.D. scientists and engineers along with subject matter experts who can customize our family of UV and UV dual cure silicone products to fit your exact needs.

Any of our UV or UV dual cure silicone products may be modified with adhesion promoters designed for specific substrates, even low-energy substrates like polyethylene terephthalate (PET). In addition to modifying adhesion profiles of any of our UV or UV dual cure silicone products, we can also adjust any of the following physical properties as needed:

Uncured:	Cured:
• Viscosity	• Shore hardness
• Thixotropy	• Tensile strength
• Pot life	• Adhesion
• UV tracer	• Elongation

Contact us at (216) 881-8111 or [products@novagard.com](mailto:products@novagard.com). We'd be happy to discuss your specific project.

### COMPLIANCE INFORMATION

Novagard 800-551FC does not contain any substances included on the most recent published REACH "Candidate List of Substances of Very High Concern".

Novagard 800-551FC does not contain any chemicals on the Prop65 list at a level requiring special labeling.

### PRECAUTIONS

Consult and obey all applicable local, state, and federal regulations for disposal of solvent and silicone waste. For additional information consult product safety data sheet (SDS).