NEVSil™ LSR FC240

High-Performance Seals for a
Cleaner Future.

Index

High-Performance Silicone for Fuel Cell Sealing Applications 03

Application Overview 04

NEVSil LSR FC240 Overview 05

NEVSil LSR FC240 Material Properties 06

NEVSil LSR FC240 Key Features 08

NEVSil™ LSR FC240
High-Performance Silicone for Fuel Cell Sealing Applications

Power the Future with Advanced Fuel Cell Sealing

As hydrogen-powered mobility and stationary fuel cell systems take center stage, material performance has never been more critical. Momentive's advanced silicone elastomers are engineered to meet the toughest sealing demands—offering unmatched reliability, long-term chemical resistance, and thermal stability in even the most extreme conditions.

Our silicone technology helps OEMs and system integrators build fuel cell systems that are more efficient, durable, and scalable—reducing maintenance, improving reliability, and supporting global sustainability goals. Whether it's next-generation mobility or stationary power, Momentive materials seal in performance where it counts most.

Choose silicone that goes the distance–today, and for the hydrogen-powered tomorrow.

Key Benefits

- **High Chemical Resistance**

  Resists exposure to hydrogen, humidified gases, and corrosive byproducts in PEM and SOFC systems.

- **Low Volatility & High Purity**

  Minimizes risk of contamination to sensitive membrane-electrode assemblies (MEAs) or catalysts. Essential for sensitive fuel cell applications where contaminants could impair electrochemical performance.

- **Thermal & Environmental Stability**

  Maintains mechanical integrity and sealing performance from –60°C to +200°C and beyond.

- **Flexibility & Compression Set Resistance**

  Ensures lasting seal integrity under fluctuating pressure and temperature cycles. Provides consistent sealing performance even under repeated compression, expansion, or vibration within the fuel cell stack.

- **Design Flexibility**

  Available in liquid silicone rubber (LSR), developed for versatility in manufacturing techniques, including: injection molded, screen printed and dispensed manufacturing processes. LSR's processability allows consistent, high-volume production with reliable quality for automotive and stationary fuel cell stacks.

- **Sustainability & Compatibility**

  Can support long-lasting, low-maintenance designs, contributing to more sustainable fuel cell solutions.

Application Overview

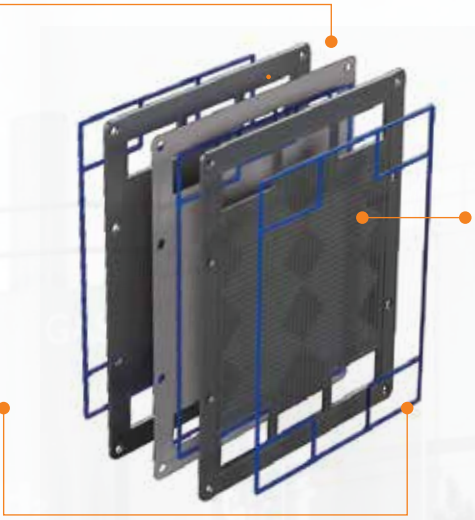
- Gaskets and seals in PEM and SOFC fuel cell stacks
- Manifold seals and gas diffusion layer (GDLs) interfaces
- Humidifier and thermal management system components

Membrane Electrode Assembly (MEA)

Includes the membrane, the catalyst layers, and gas diffusion layers (GDLs).

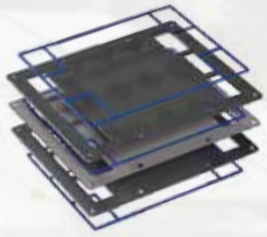
Seal - NEVSIL™ LSR FC Technology

Critical component in PEM construction. The seals are designed to help channel flow of gases and heat to and from the cell.



Bipolar Plate (BPP)

A key component of the proton exchange membrane (PEM). The BPP uniformly distributes fuel gas and air, conducts electrical current from cell to cell, removes heat from the active area, and prevents leakage of gases and coolant.



NEVSil™ LSR FC140 / NEVSil™ LSR FC240 in comparison to functional competition

	Liquid Silicone Rubber		RTV-Dispensed	RTV-Molded	EPDM	FKM
	NEVSil™FC140	NEVSil™FC240				
Long Term Compression Set	++	+++	++	++	+	+
Cure Speed	++	+++	++	++	+	+
Adhesion/Bonding w/o Primer	-	+++	++	++	-	-
Manufacturing Efficiency	++	+++	+	+	-	-
Design Complexity	++	+++	-	+	-	-
Low Viscosity	++	+++	+++	+++	-	-
Low Temperature Cure	-	+++	+++	+	-	-
Pot Life	+	+	+	-	+	+
Operational Scalability	++	+++	+	+	-	-
BiPolar Plate (BPP) Sealing	+	+	+	+	+	+
Polymer Electrolyte Membrane (PEM) - Sealing	+	+	+	+	-	-
Ready-to Use/Commercially Available	+	+	+	+	NO-Must be Compounded	

NEVSil™ LSR FC240

Product Description

NEVSil™ LSR FC240 is a two-component, injection molding grade liquid silicone rubber for use in fuel cell sealing applications. It has been specifically developed for a efficient sealing performance and high productivity for mass production of PEM -Fuel Cells. The low viscosity of NEVSil™LSR FC240 allows decreased injection pressure and, therefore, protection of the bipolar plate or MEA substrates during manufacturing/molding.

NEVSil™LSR FC240 provides self-bonding properties which can allow overmolding of sensitive components and bonding to various substrates including plastics and metals without use of an additional primer treatment. The formulation enables low temperature curing and reduced cycle times combined with an outstanding barrel/pot-life resulting in a controlled injection molding process.

Key Features and Typical Benefits

- Low viscosity for low injection pressure and long flow path
- Allows for high precision in complex seal design
- Self-bonding to many substrates (e.g. stainless steel, polyester substrates)
- Low temperature cure, e.g. 110 °C
- Excellent pot / barrel life
- Short curing time / high reactivity
- Low long-term compression set
- Non post-cure

Applications

- Fuel Cell sealing applications
- Bipolar plate (BPP) sealing
- Membrane Electrode Assembly (MEA) sealing
- Fuel Cell humidifier seals and gasketing

Mechanical Properties without Post-Cure

Typical Properties after Vulcanization
Mixing Ratio of A:B = 1:1
Press Cured for 10 minutes @ 175°C

	Units	Standard	Value
Density	g/cm^3	DIN 53479	1.04
Hardness	Shore A	DIN 53505	33
Tear Resistance	N/mm	ASTM D 624-B	4
Compression Set			
• 125°C for 22 Hours	%	ISO 815	11
• 125°C for 168 Hours	%	ISO 815	18
• 125°C for 1000 Hours	%	ISO 815	35

Media Resistance - PEM Fuel Cell

Media Resistance 1008 Hours @ 80°C in Glysantin®* FCG20

Hardness Change	Points Δ	-3
Tensile Change	%	38.9
Elongation Change	%	10
Weight Change	%	2.19
Compression Set	%	14.4

Media Resistance 1008 Hours @ 80°C in 0.5mMol Sulfuric Acid (H_2SO_4)

Hardness Change	Points Δ	5
Tensile Change	%	4.8
Elongation Change	%	-9.1
Weight Change	%	0.3
Compression Set	%	12

* Glysantin is a registered trademark of BASF.

- Low Viscosity
- High Reactivity
- Low Temperature Cure
- Excellent Pot-Life / Stability

Low Cyclics Content Technology-Ionic Free

Measured Cyclics Data

Measured Cyclics Level [ppm]	D3	D4	D5	D6	D7	D8	D9	D10
A-Component [Uncured]	0	29	407	0	0	0	0	0
B-Component [Uncured]	0	102	304	0	0	0	0	0
Cured Rubber	0	22	285	0	0	0	0	0

Our Solution

NEVSil™ LSR FC240

KEY FEATURES

- Non post-cure
- Low viscosity
- High reactivity
- Low compression set
- Self-bonding
- Excellent Thermal Resistance
- Low Temperature Curing
- Reduced cyclics/low volatile content
- Long pot life at ambient temperature

Pioneering Technologies

Enabling Advancements in Fuel Cell sealing

Momentive Elastomer technologies enable sealing advancements in bi-polar and Membrane Electrode Assembly (MEA) sealing.

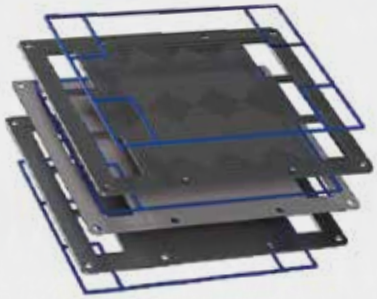
- Automated Processing/Manufacturing allowing freedom of design, high precision, process automation and high output efficiency via injection molding.
- Self-bonding technologies enabling direct bonding to coated metal.
- Enhancing reliability and lifetime of the fuel cell stack.

Enriching Lives

Fuel Cells Lead the Road to Long-Term Sustainability for Vehicles

Reduced Greenhouse Gas Emissions

Gasoline- and diesel-powered vehicles emit greenhouse gases (GHGs), mostly carbon dioxide (CO_2), that contribute to climate change. Fuel cell vehicles (FCVs) powered by pure hydrogen emit no tailpipe GHGs, only heat and water.



- **Reduced CO_2 Emissions**
- **Reduced Oil Dependence**
- **Renewable and Readily Available**

Environmental Health Safety Sustainability

Documents and Statements are available upon request

- Safety Data Sheets
- Preliminary Technical Data Sheet
- Global Automotive Declarable Substance List (GADSL)
- Information regarding Per- and Polyfluoroalkyl Substances (PFAS)
- Information regarding global RoHS requirements
- Product Carbon Footprint data
- Data Set for Injection Molding Simulation

NEVSil™ LSR FC240

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SOLUTIONS FOR A SUSTAINABLE WORLD™

Customer Service

To speak with a Customer Service Representative (CSR) in your region, please refer to the contact numbers below.

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