

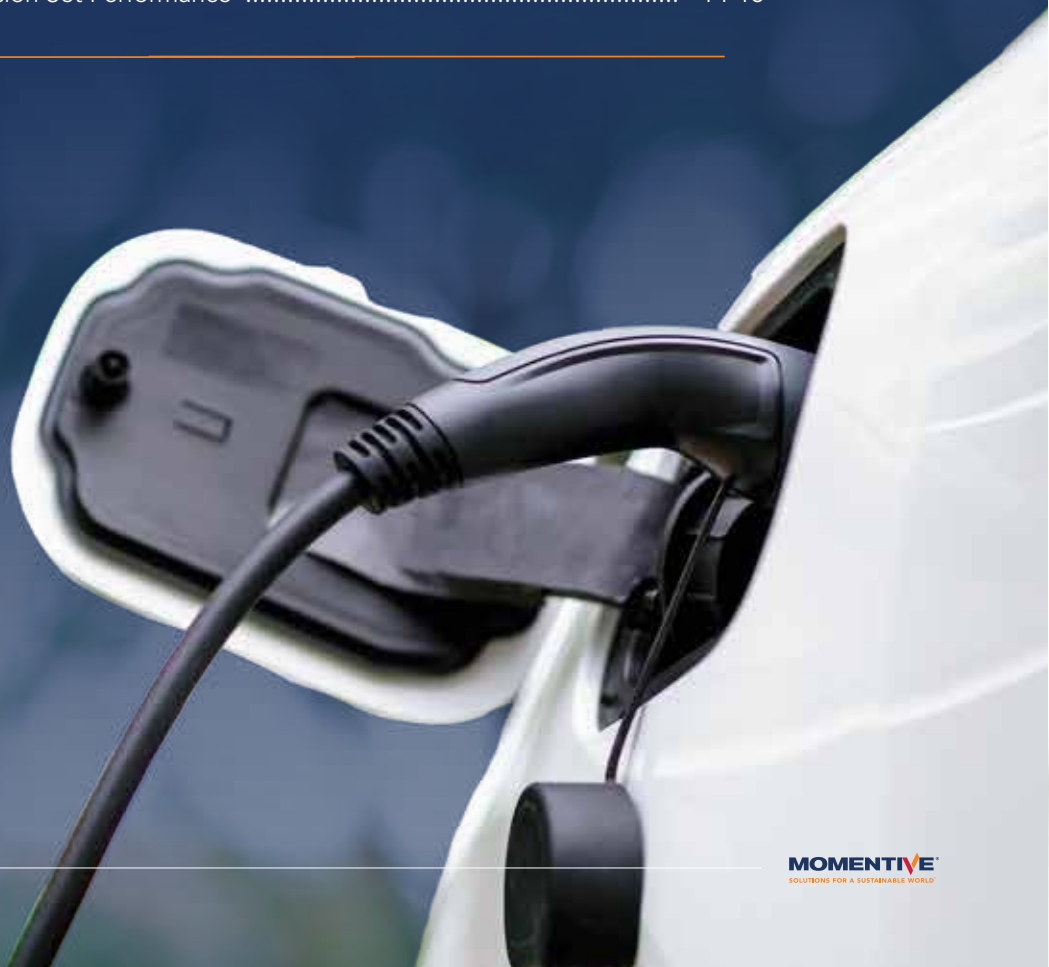
NEVSi[™] LSR 3xx0 Series

Featuring Curalyst[™] Technology



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NEVSil™ LSR 3xx0 Series Featuring Curalyst™ Technology

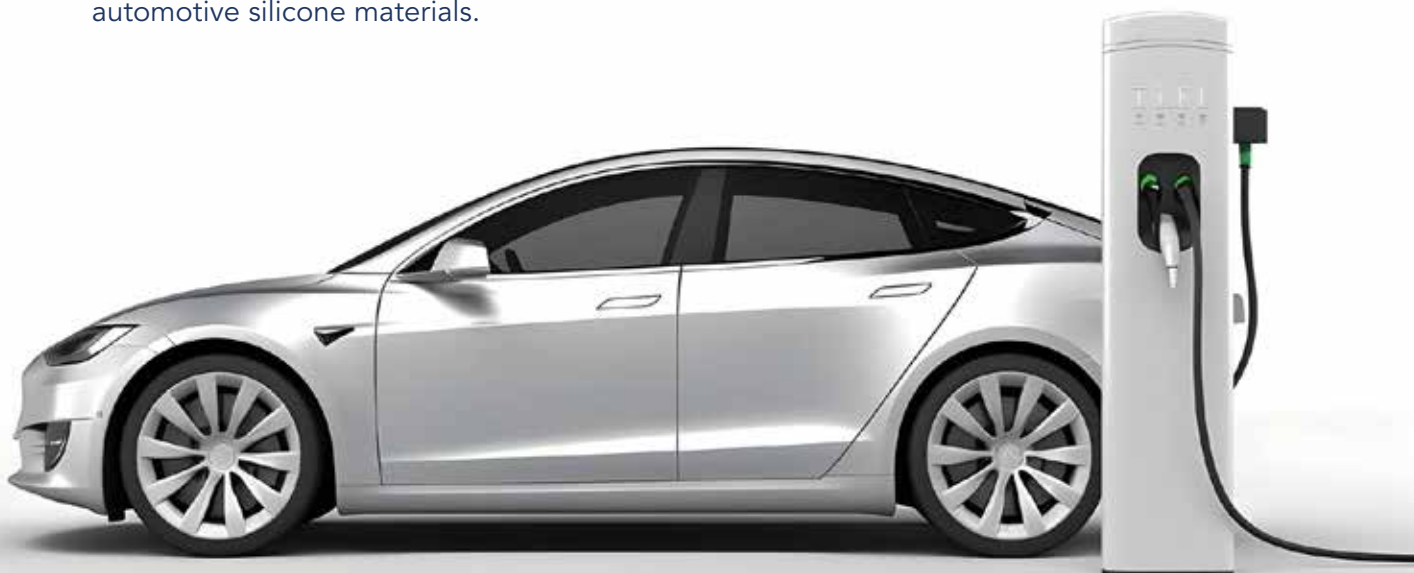
Enabling the Next Generation of Sustainable Mobility
Through Advanced Low-Temperature Silicone Processing

Lower Temperatures. Greater Possibility.

As the automotive industry accelerates its transition toward electric vehicles, hybrid systems, fuel-cell technologies, and increasingly connected mobility platforms, material selection has become more critical than ever. Engineers face growing demands for improved safety, reliability, durability, sustainability, and manufacturing efficiency while simultaneously integrating more electronics, sensors, lightweight materials, and advanced multi-material assemblies.

Silicone elastomers continue to play an essential role in this transformation by providing a unique combination of thermal stability, electrical insulation, environmental resistance, and long-term durability. As a global leader in automotive silicone technologies, Momentive helps automotive manufacturers and suppliers address these evolving challenges through innovative elastomer solutions engineered for both today's vehicle architectures and tomorrow's mobility platforms.

The **NEVSil™ LSR 3xx0 Series featuring Curalyst™ Technology** represents a significant advancement in liquid silicone rubber processing. Powered by Momentive's patented platinum catalyst platform, Curalyst™ Technology is engineered to enable effective curing at substantially reduced processing temperatures while maintaining the performance, reliability, and durability expected from high-performance automotive silicone materials.



Why Automotive Manufacturers Choose Momentive Silicone Elastomers

Modern automotive systems operate in increasingly demanding environments where materials must perform reliably under exposure to extreme temperatures, vibration, moisture, chemicals, electrical loads, and harsh environmental conditions.

Momentive silicone elastomers provide:

- » Exceptional thermal stability across broad temperature ranges
- » Outstanding dielectric and electrical insulation properties
- » Excellent weathering and environmental resistance
- » Low compression set performance
- » Long-term sealing reliability
- » Compatibility with demanding automotive fluids and environments
- » Flexibility in complex component and system designs



Typical Automotive Applications

NEVSil™ LSR 3xx0 Series materials are designed for a wide range of automotive and e-mobility applications, including:

- ▶ Connector seals
- ▶ Battery pack sealing systems
- ▶ High-voltage electrical insulation
- ▶ Cable seals and wire protection
- ▶ Gaskets and O-rings
- ▶ Diaphragms
- ▶ Environmental sealing components
- ▶ Sensor protection systems
- ▶ Charging infrastructure components
- ▶ Air-management system seals
- ▶ Thermal management system components
- ▶ Fluid transfer and hose applications
- ▶ Powertrain sealing solutions
- ▶ Oil-system seals
- ▶ Ignition and electrical protection components

A New Approach to Automotive LSR Processing

Traditional liquid silicone rubber molding typically depends on elevated processing temperatures to achieve rapid cure rates and acceptable production efficiency. While effective, these processing conditions can create limitations when manufacturers seek to integrate increasingly advanced thermoplastics, lightweight materials, recycled-content polymers, sensitive electronic assemblies, and emerging multi-material designs.

The **NEVSil™ LSR 3xx0 Series** featuring **Curalyst™ Technology** takes a fundamentally different approach.

Through Momentive's patented catalyst innovation, Curalyst™ Technology is designed to optimize platinum-catalyzed crosslinking kinetics, enabling effective silicone curing at significantly reduced processing temperatures while maintaining the performance characteristics required for demanding automotive environments.

The result is more than a low temperature cure solution.

It is an **application-enabling technology platform** designed to help manufacturers unlock new opportunities in automotive design, manufacturing, and sustainability.

Technology Benefits That Drive Innovation

Faster Cure Performance Across a Broad Processing Window

Curalyst™ Technology enhances cure efficiency across a wide range of processing conditions, helping manufacturers improve processing flexibility and optimize molding operations.

Effective Cure at Reduced Processing Temperatures

By maintaining cure performance at significantly lower molding temperatures, manufacturers gain new opportunities to reduce thermal demand while expanding compatibility with temperature-sensitive materials and components.

Expanded Material Compatibility

Lower processing temperatures may help enable overmolding opportunities involving:

This creates greater flexibility for next-generation vehicle design and manufacturing strategies.

- ▶ Recycled-content engineering plastics
- ▶ Thin-wall thermoplastic structures
- ▶ Sustainable material platforms
- ▶ Advanced lightweight polymers
- ▶ Temperature-sensitive electronic assemblies
- ▶ Multi-material automotive components



Driving Sustainability Through Process Innovation

The **NEVSil™ LSR 3xx0 Series** helps connect sustainability objectives with manufacturing performance.

By reducing the thermal energy required during LSR processing, manufacturers may have opportunities to:

- ▶ Lower manufacturing energy consumption
- ▶ Reduce process-related carbon emissions
- ▶ Support corporate Environmental, Social, and Governance objectives
- ▶ Improve operational efficiency
- ▶ Potentially reduce operating costs

Unlike many sustainability initiatives that require productivity tradeoffs, the **NEVSil™ LSR 3xx0 Series** is designed to support both environmental and manufacturing performance goals simultaneously.

Designed for the Future of Mobility

As automotive manufacturers continue adopting new material technologies, increased electronic integration, battery electrification, lightweight structures, and sustainability-driven product platforms, traditional material processing limitations can become barriers to innovation.

The **NEVSil™ LSR 3xx0 Series** helps remove those barriers by expanding what is possible with liquid silicone rubber.

From battery systems and advanced electrical architectures to next-generation sealing technologies and multi-material assemblies, the **NEVSil™ LSR 3xx0 Series** provides engineers with new opportunities to design, manufacture, and innovate.

NEVSil™ LSR 3xx0 Series Featuring Curalyst™ Technology

Advancing sustainable mobility through next-generation silicone innovation.



Faster Curing – Shorter Process Times

T60 time tested 30–60% faster | Shorter curing times in thick cross sections | Increased productivity



Processing at lower temperatures

Overmolding of temperature sensitive materials* | Enabling new applications | Less back grinding



Reduced energy consumption

Temperature loss in tool is lower | $Q = m \cdot c \cdot \Delta T$ | >17,5% energy saving in IM process

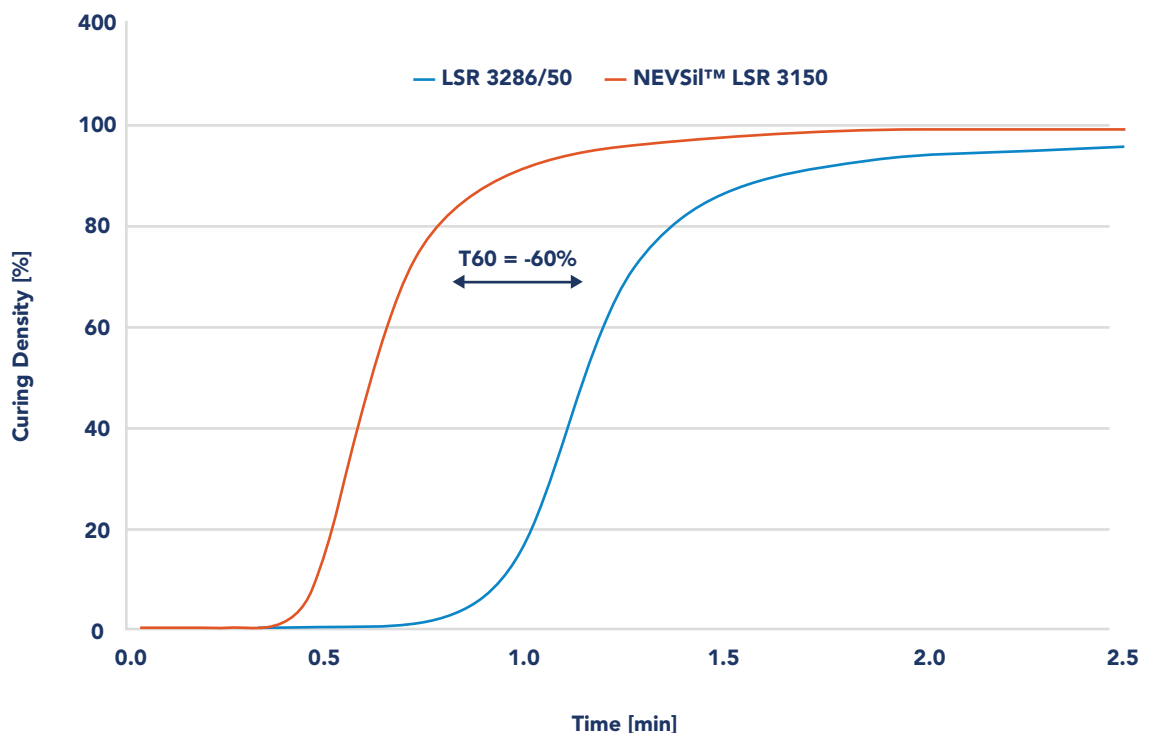


Stable Production

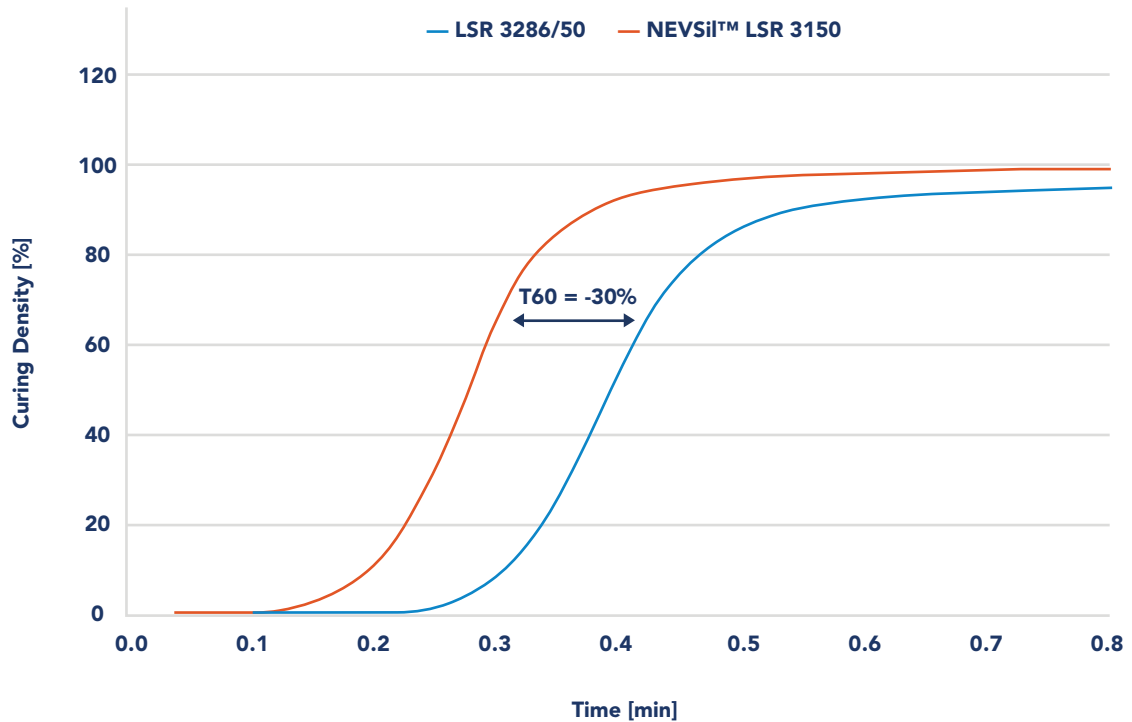
Less Temperature variation in the tool | Stable curing performance | Less batch-to-batch variation | Less shrinkage

Benefits of the NEVSil™ LSR 3150 Series:

Curing LSR 3286/50 vs. NEVSil™ LSR 3150 at 110 °C



Curing LSR 3286/50 vs. NEVSil™ LSR 3150 at 130 °C



Impact of Cure Performance at Reduced Processing Temperatures

✓ **30% Faster Cure at 130 °C**

✓ **60% Faster Cure at 110 °C**

For automotive manufacturers, these results are significant because the value extends far beyond cure speed alone. The ability to maintain accelerated curing at temperatures well below traditional LSR molding conditions fundamentally changes what can be manufactured, how efficiently it can be manufactured, and which materials can be integrated into future vehicle designs.



Enabling Next-Generation Automotive Materials

Traditional LSR molding often relies on mold temperatures between 180–200 °C to achieve commercially acceptable cure rates. At these temperatures, many thermoplastic materials can experience:

- ▶ Thermal distortion
- ▶ Warpage
- ▶ Shrinkage variation
- ▶ Surface defects
- ▶ Reduced dimensional stability
- ▶ Material property degradation
- ▶ LSR technology.

By achieving cure rates that are **30% faster at 130 °C and 60% faster at 110 °C**, the **NEVSil™ LSR 3xx0 Series** helps create a processing window where silicone can be combined with substrate materials that were previously difficult or impractical to overmold using conventional LSR technology.

Potential opportunities include:

- ▶ Polypropylene (PP)
- ▶ Recycled thermoplastics
- ▶ Thin-wall polycarbonate
- ▶ PC/ABS blends
- ▶ PET and rPET
- ▶ Lightweight composite materials
- ▶ Sustainable material platforms
- ▶ Sensitive electronic assemblies

Automotive Impact:

This opens new possibilities for lightweight interior components, battery system components, connector systems, sensor housings, electronic modules, and advanced multi-material assemblies.



Supporting Vehicle Lightweighting Initiatives

Reducing vehicle weight remains a critical objective for both electric and conventional vehicle manufacturers.

Automotive engineers are increasingly incorporating:

- ▶ Thin-wall plastic structures
- ▶ Lightweight composites
- ▶ Foamed thermoplastic materials
- ▶ Lower-density polymer systems
- ▶ Recycled-content materials

Many of these materials are more sensitive to elevated molding temperatures. Faster curing at 110 –130 °C may enable greater use of lightweight material technologies while maintaining the sealing, vibration damping, insulation, and environmental protection benefits of silicone elastomers.

Automotive Impact:

This opens new possibilities for lightweight interior components, battery system components, connector systems, sensor housings, electronic modules, and advanced multi-material assemblies.

- ▶ Improved system-level weight reduction opportunities
- ▶ Expanded use of lightweight substrates
- ▶ Greater design flexibility for EV and hybrid platforms



Enhanced Electronics Integration

Modern vehicles contain substantially more electronics than previous generations.

- ▶ High-voltage connectors
- ▶ Battery management systems
- ▶ Sensors
- ▶ Power electronics
- ▶ Charging systems
- ▶ ADAS modules
- ▶ Lighting systems

Many electronic components, assemblies, adhesives, and substrates are sensitive to thermal exposure.

Maintaining robust cure performance at 110 –130 °C can help reduce thermal loading on these components compared with traditional LSR processing temperatures.

Automotive Impact:

- ▶ Greater opportunities for overmolded electronic assemblies
- ▶ Improved protection of sensitive components
- ▶ Expanded design options for smart vehicle architectures

Increased Manufacturing Efficiency

The data shows that cure acceleration is maintained even at substantially reduced temperatures.

This creates opportunities to:

- ▶ Reduce mold heating requirements
- ▶ Potentially maintain production throughput at lower temperatures
- ▶ Improve manufacturing flexibility
- ▶ Reduce thermal stabilization requirements
- ▶ Optimize processing windows

Automotive Impact:

Automotive molders can potentially achieve energy savings without necessarily accepting the productivity penalties normally associated with lower-temperature processing.

Sustainability and Decarbonization Benefits

The automotive industry continues to establish aggressive sustainability and carbon-reduction targets.

Because LSR curing requires energy-intensive mold heating, reducing processing temperature can directly influence:

- ▶ Energy consumption
- ▶ Process-related emissions
- ▶ Operating costs
- ▶ Manufacturing carbon intensity

When accelerated cure kinetics are maintained at reduced temperatures, manufacturers may achieve sustainability improvements without sacrificing production efficiency.

Automotive Impact:

- ▶ Supports OEM sustainability initiatives
- ▶ Supports supplier decarbonization programs
- ▶ Reduces processing energy demand
- ▶ Contributes toward lower product carbon footprint

Greater Design Freedom for Automotive Engineers

Perhaps the greatest long-term benefit is application enablement.

Historically, automotive engineers often had to design around LSR processing limitations. With significantly improved cure performance at 110 –130 °C, designers may have greater freedom to integrate silicone into applications involving:

- ▶ Complex multi-material assemblies
- ▶ Battery systems
- ▶ Charging infrastructure
- ▶ Advanced sealing solutions
- ▶ Lightweight structural components

Automotive Impact:

Rather than selecting materials based solely on processing limitations, engineers can focus on optimizing performance, cost, sustainability, and functionality.

Technical Marketing Summary

The ability to achieve 30% faster curing at 130 °C and 60% faster curing at 110 °C represents more than a processing improvement. It creates a new operating window for automotive LSR manufacturing. By maintaining rapid cure kinetics at substantially reduced temperatures, the NEVSil™ LSR 3xx0 Series helps enable overmolding of temperature-sensitive thermoplastics, supports lightweighting initiatives, facilitates electronics integration, reduces thermal demand, and expands the design possibilities available to automotive engineers developing the next generation of electric, hybrid, and intelligent mobility systems.

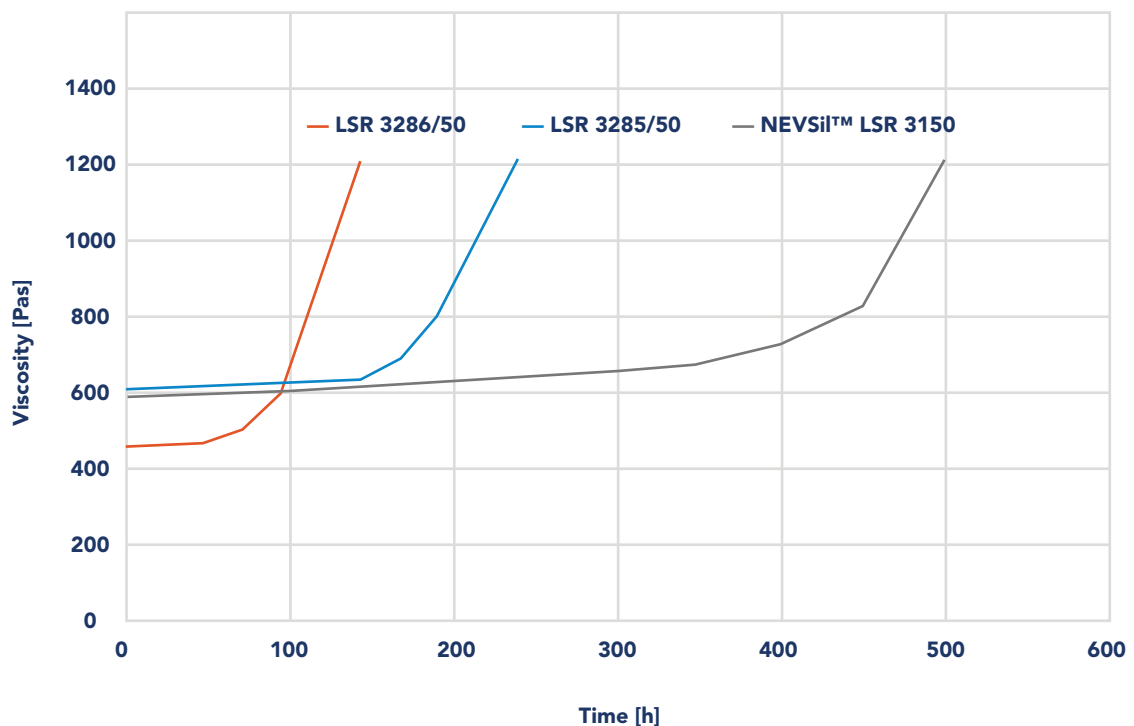
Long Pot Life. Proven Processing Stability.

Up to 20 days pot life with Curalyst™ Technology

➔ Why it matters:

Many fast-curing material technologies achieve improved molding performance by increasing overall reactivity, which can potentially reduce material working time and create processing challenges. **The NEVSil™ LSR 3xx0 Series** is designed to maintain a pot life comparable to conventional LSR systems while delivering enhanced cure performance at molding temperatures.

Viscosity of 1:1 mixture vs. time (@ 23 °C)



Key customer benefits:

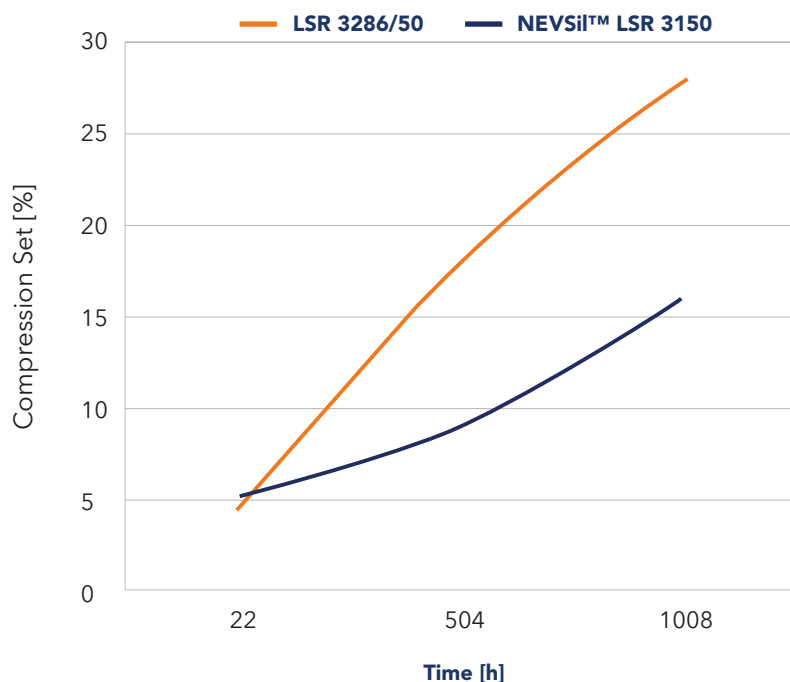
Unlike many sustainability initiatives that require productivity tradeoffs, the **NEVSil™ LSR 3xx0 Series** is designed to support both environmental and manufacturing performance goals simultaneously.

- » **Maintains processing flexibility** during normal manufacturing operations.
- » **Supports long production runs** without sacrificing material stability.
- » **Reduces material waste** associated with premature curing or viscosity increase.
- » **Simplifies production scheduling** and helps minimize disruptions from downtime or changeovers.
- » **Enables easier adoption** since processors can maintain familiar LSR handling and dosing practices.
- » **Provides confidence in high-volume automated manufacturing environments.**

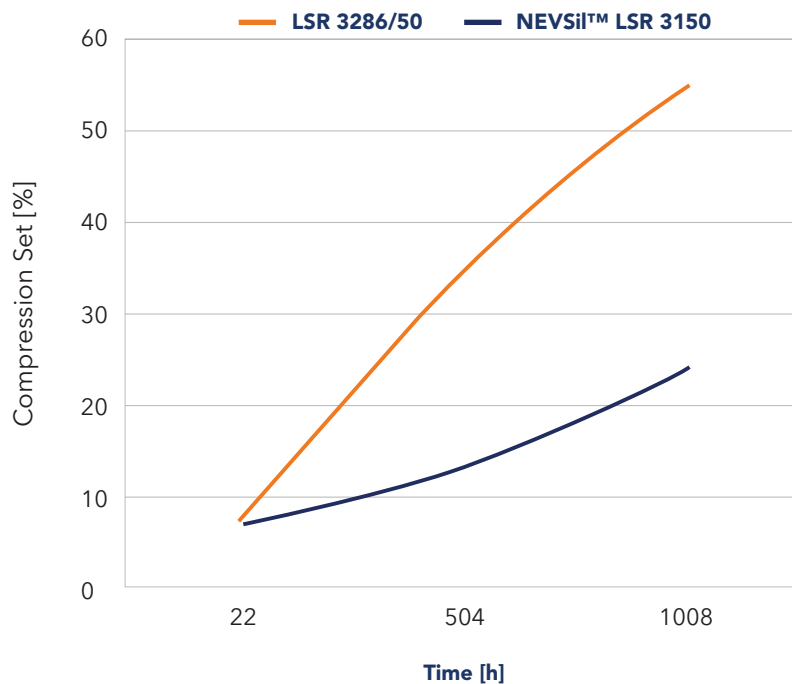
NEVSil™ LSR 3xx0 Series delivers the best of both worlds: faster cure performance where it matters most during molding, while maintaining the long pot life and processing stability manufacturers expect from conventional liquid silicone rubber systems. This allows processors to improve productivity and explore new application opportunities without introducing additional material handling complexity.

Improved compression set performance vs. standard materials:

Compression Set @125 °C



Compression Set @150 °C



Improved Compression Set Performance

➔ Why it matters:

Compression set measures a material's ability to recover its original shape after being compressed for an extended period of time. In sealing applications, a lower compression set means the silicone maintains sealing force longer, even after prolonged exposure to heat, mechanical stress, and demanding operating environments.

Key customer benefits:

» Longer-Lasting Seals

Maintains sealing effectiveness over time, reducing the risk of leaks caused by seal relaxation or permanent deformation.

» Improved Reliability in Harsh Automotive Environments

Helps ensure consistent performance in applications exposed to elevated temperatures, thermal cycling, vibration, and environmental stress.

» Extended Component Service Life

Components retain their functional properties longer, supporting longer maintenance intervals and increased durability.

» Enhanced Protection of Critical Systems

Improved sealing performance helps protect sensitive electronics, battery systems, connectors, sensors, and fluid-management systems from moisture, dust, chemicals, and contaminants.

» Reduced Warranty Risk and Maintenance Costs

Long-term seal integrity can contribute to improved system reliability and reduced replacement or repair requirements, longer maintenance intervals and increased durability.

Automotive Impact:

Compression set measures a material's ability to recover its original shape after being compressed for an extended period of time. In sealing applications, a lower compression set means the silicone maintains sealing force longer, even after prolonged exposure to heat, mechanical stress, and demanding operating environments.

- ▶ Battery pack seals
- ▶ High-voltage connector seals
- ▶ Environmental seals
- ▶ Gaskets and O-rings
- ▶ Charging infrastructure components
- ▶ Sensor housings
- ▶ Thermal management systems
- ▶ Fluid system seals
- ▶ Powertrain sealing applications

Improved compression set performance helps ensure that silicone components maintain sealing force and functional integrity over longer operating periods, supporting enhanced reliability, durability, and long-term performance in demanding automotive applications. For automotive manufacturers, this translates to greater confidence in critical sealing systems, improved component longevity, and enhanced protection of increasingly complex vehicle architectures.

Customer Service

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