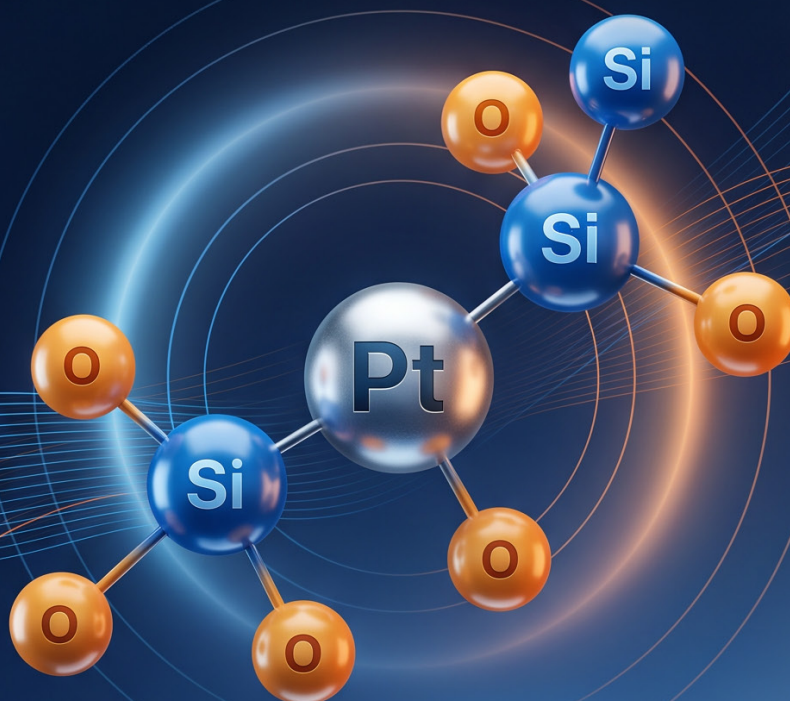


SILOPREN™ LSR 22x0 SERIES

with Curalyst™ Technology



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Silopren™ LSR 22x0 Series with Curalyst™ Technology

Lower Temperature Processing. Higher Possibility.

Unlocking new levels of sustainability, processing efficiency, and part performance through low-temperature cure technology.

Global Leader in Silicone Consumer Goods Market

Momentive's silicone elastomer portfolio enables innovations across consumer electronics, smart devices, home appliances, and connected technologies through advanced sealing, bonding, thermal management, and electrical insulation solutions. Engineered to deliver exceptional heat resistance, flame retardancy, and long-term protection against moisture, dust, and environmental contaminants, our materials help manufacturers enhance reliability, extend product life, and meet the increasing performance demands of next-generation electronic and appliance designs. From wearable devices and smart home technologies to high-performance appliances and integrated electronic assemblies, Momentive silicones support the development of safer, more durable, and more efficient products.

Typical Applications include:

➔ Consumer Electronics & Wearables

- Smart watches and fitness trackers
- Wireless earbuds and hearables
- AR/VR headsets
- Smart rings
- Health-monitoring devices
- Ruggedized mobile electronics

➔ Smart Home & Connected Devices

- Smart thermostats
- Security cameras
- Smart locks
- Connected lighting systems
- Smart speakers
- Home automation sensors



→ Advanced Appliance Electronics

- Premium kitchen appliances
- Connected HVAC controls
- Heat pumps
- Water treatment systems
- Robotic cleaning devices
- Smart laundry systems

→ Sensors & Miniaturized Electronics

- MEMS devices
- Environmental sensors
- Occupancy sensors
- Motion sensing devices
- IoT-enabled industrial sensors
- Precision electronic assemblies

→ Electric Mobility & Micromobility

- E-bike electronics
- Battery-powered outdoor equipment
- Scooters and micro-mobility devices
- Portable charging systems
- Power management modules

→ Energy Storage & Battery Systems

- Residential energy storage
- Portable power stations
- Battery monitoring devices
- Consumer battery packs
- Charging connectors

→ Sustainable Consumer Product Designs

- Reusable consumer products
- Circular economy product platforms
- Lightweight consumer devices
- Thin-wall molded components
- Multi-material assemblies



Silopren™ LSR 22x0 Series: Innovative Low Temperature Catalyst Technology

Momentive's **Silopren™ LSR 22x0 Series**, featuring Curalyst™ Technology, represents a new approach to conventional liquid silicone rubber processing and cure performance. Powered by Momentive's proprietary and patented platinum catalyst platform, Curalyst™ Technology is engineered to optimize cure kinetics and enable effective crosslinking at significantly reduced processing temperatures while maintaining the performance characteristics expected of high-quality LSR materials.

By fundamentally advancing the platinum-cure mechanism, Curalyst™ Technology creates new opportunities for improved manufacturing efficiency, lower thermal demand, expanded compatibility with temperature-sensitive substrates and electronic assemblies, and increased design flexibility for next-generation applications. As a result, manufacturers can realize multiple benefits across sustainability, productivity, and product performance.



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



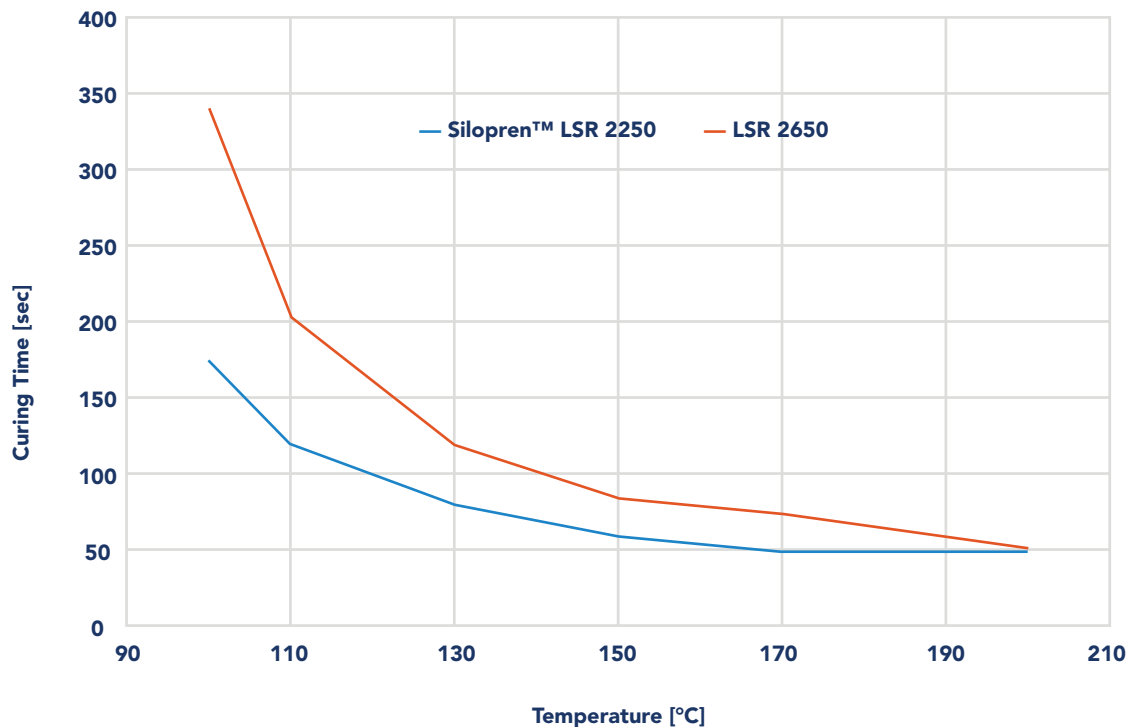
Stable Production

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

Physical Properties	Unit	LSR 2230	LSR 2240	LSR 2250	LSR 2260	LSR 2270
Appearance	-	Translucent				
Pot-life at 20 °C*	h	> 72	> 72	> 72	> 72	> 72
T60 at 110 °C	min	0.7	0.7	0.7	0.7	0.7

*Pot life is indicated by required time for doubling the viscosity

Benefits of the SILOPREN™ LSR 2250 Series:



Key Technology Takeaways

Faster Cure Response Across the Entire Processing Window

Unlike conventional LSR systems that rely heavily on higher mold temperatures to achieve acceptable cure rates, the **Silopren™ LSR 22x0 Series** is engineered to accelerate platinum-catalyzed crosslinking across a broad temperature range. This means the material exhibits faster cure kinetics not only at reduced temperatures, but also under traditional LSR processing conditions.

→ Why it matters:

- Greater production flexibility
- Potential for cycle time optimization
- Increased equipment utilization
- Improved manufacturing throughput
- More robust processing windows

Intrinsic benefit: The enhanced catalyst efficiency is built into the material system itself, making the cure response inherently faster regardless of the selected processing temperature.

The Greatest Differentiation Occurs at Lower Processing Temperatures

While faster curing can be observed at conventional molding temperatures, the true value of **Silopren™ LSR 22x0 Series** emerges when processing temperatures are reduced. Traditional LSR systems typically experience significant cure-rate losses as mold temperatures decrease. The **Silopren™ LSR 22x0 Series** is specifically designed to maintain cure performance under these conditions.

→ Why it matters:

- Expands the practical operating window for LSR molding
- Enables processing conditions that may not be feasible with conventional LSR technologies
- Creates opportunities for overmolding onto temperature-sensitive substrates
- Supports compatibility with new engineering thermoplastics, recycled-content materials, and electronic assemblies
- Reduces thermal loading on molded components

Intrinsic benefit: The catalyst platform fundamentally shifts the cure-performance curve, allowing manufacturers to access processing conditions that were previously difficult to achieve using standard platinum-cure systems.



Equivalent Cure Performance at Significantly Reduced Temperatures

One of the most compelling attributes of the **Silopren™ LSR 22x0 Series** is its ability to achieve comparable cure states at temperatures that may be approximately 20 °C lower than those required for conventional LSR systems.

→ Why it matters:

- Potential reduction in manufacturing energy demand
- Reduced thermal stress on substrates and inserts
- Greater material selection flexibility
- Improved compatibility with heat-sensitive electronics
- Opportunity to expand LSR into new multi-material applications

Examples include:

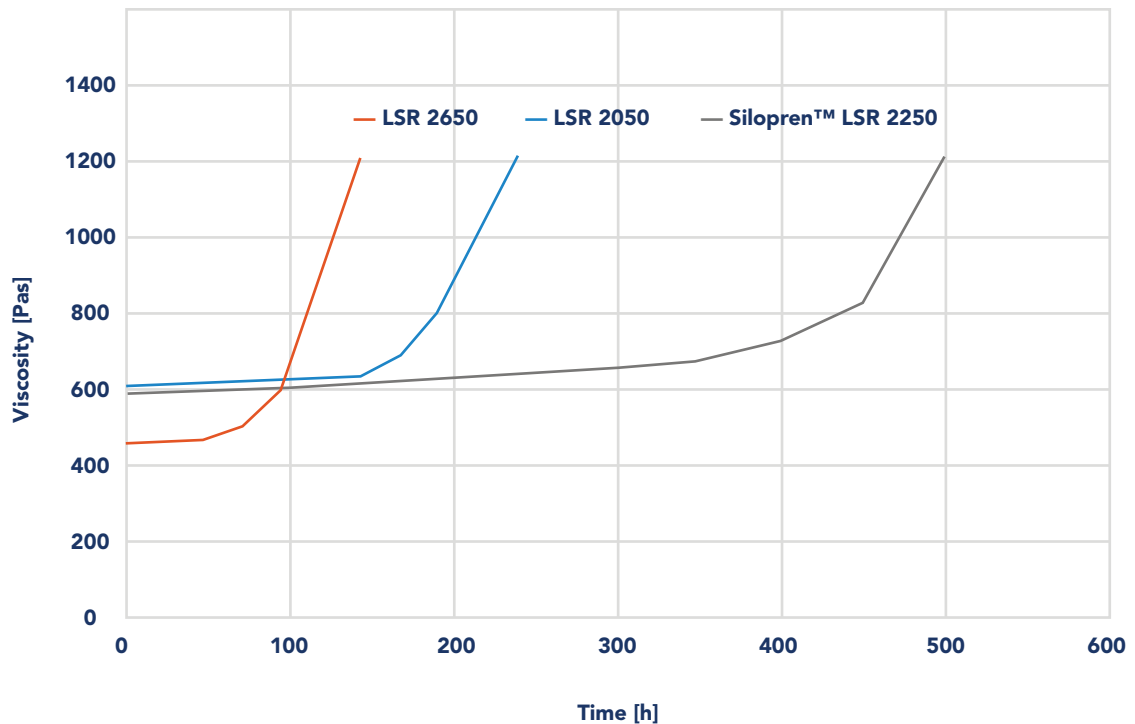
- Consumer electronics overmolding
- Wearables and smart devices
- Battery-adjacent components
- Smart appliance assemblies
- Thin-wall engineering thermoplastic parts
- Recycled PC, ABS, PET and PC/ABS substrates
- Bio-based and sustainability-focused thermoplastic platforms

Intrinsic benefit: The technology effectively delivers conventional cure performance at lower thermal input, creating opportunities for both sustainability improvements and application enablement.



Longer Pot-Life. Enhanced Processing Flexibility.

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



Up to 20 day pot-life with Curalyst™ Technology

One of the key advantages of the **Silopren™ LSR 22x0 Series** is its ability to deliver enhanced cure performance while maintaining a pot life comparable to conventional liquid silicone rubber systems. This allows processors to benefit from accelerated cure kinetics during molding without sacrificing material handling stability prior to processing.

➔ Why it matters:

Improved Manufacturing Flexibility

Many high-reactivity material systems require tighter production scheduling because mixed materials may have limited usable working time. Maintaining a prolonged pot life allows manufacturers greater flexibility in production planning and machine utilization.

Potential benefits include:

- ➔ Reduced urgency to consume mixed material
- ➔ Greater production scheduling flexibility
- ➔ Simplified shift changes and production interruptions
- ➔ Reduced impact of unplanned downtime
- ➔ Improved manufacturing robustness

Customer impact: Production teams can focus on optimizing throughput and quality without introducing new material handling constraints.

Reduced Material Waste

Premature viscosity increase or material gelation can create unnecessary scrap and cleaning requirements.

By maintaining pot-life performance similar to traditional LSR systems, the **Silopren™ LSR 22x0 Series** helps preserve material usability throughout normal manufacturing operations.

Potential benefits include:

- ➔ Less discarded mixed material
- ➔ Improved inventory utilization
- ➔ Reduced waste generation
- ➔ Potential cost savings

Customer impact: Greater operational efficiency and improved sustainability performance.



Simplified Conversion and Adoption

New processing technologies often require manufacturers to modify established equipment, procedures, or production practices.

Because the **Silopren™ LSR 22x0 Series** maintains familiar material handling characteristics while improving cure performance, customers may be able to realize processing advantages without fundamentally changing how they manage LSR materials.

Potential benefits include:

- ➔ Easier implementation
- ➔ Reduced operator retraining
- ➔ Familiar processing behavior
- ➔ Smoother qualification processes

Customer impact: Faster adoption with lower operational risk.



Why Sustainability Matters in LSR Manufacturing

In liquid silicone rubber molding, energy consumption is largely driven by maintaining elevated mold temperatures required to rapidly cure the silicone. Unlike thermoplastics, which are cooled in the mold, LSR relies on heat to drive crosslinking. As a result, mold temperature becomes a significant contributor to both manufacturing energy consumption and associated carbon emissions.

The **Silopren™ LSR 22x0 Series** enables effective curing at reduced processing temperatures, helping lower the thermal energy required during the molding process while maintaining production performance. This creates a direct connection between process optimization and sustainability.

Sustainability impact:

IM trials under worst-case scenario condition:

Name	Energy saving [%]	Cycle Time Reduction [%]	CO ₂ Footprint ¹ (kgCO ₂ e/kWhr)	CO ₂ Reduction (%)
LSR 2650-160 °C	0 ,00%	0 ,00%	13 ,67	0 ,00%
LSR 2650-150 °C	3 ,90%	-6 ,33%	13 ,14	3 ,90%
LSR 2650-140 °C	2 ,77%	-17 ,19%	13 ,30	2 ,77%
LSR 2250-140 °C	15 ,21%	6 ,33%	10 ,97	19 ,79%
LSR 2250-130 °C	17 ,35%	1 ,36%	10 ,69	21 ,82%
LSR 2250-120 °C	7 ,91%	-23 ,53%	11 ,91	12 ,89%

Handprint: CO₂-Emission during processing of LSR at the molder

¹ based on the Emission Grid factor of Germany:

<https://greencalculus.com/data/grid-electricity-emission-factors/>

Reduced Carbon Footprint Without Major Capital Investment

Many sustainability projects require:

- ➔ New equipment
- ➔ Facility upgrades
- ➔ Renewable energy investments
- ➔ Process redesign

In contrast, a lower temperature curing technology can potentially reduce energy demand using existing molding infrastructure.

Customer benefit: Manufacturers may be able to reduce the carbon intensity of their molded components without major manufacturing disruption.

For example, your data shows:

Silopren™ LSR 22x0 processed at 140 °C demonstrated nearly **20% CO₂-reduction**

Silopren™ LSR 22x0 processed at 130 °C demonstrated almost **22% CO₂-reduction**

These are meaningful reductions for high-volume manufacturing operations.



Sustainability Without Sacrificing Throughput

One of the biggest challenges in industrial sustainability initiatives is maintaining productivity.

Many energy-saving measures result in:

- Longer cycle times
- Lower machine utilization
- Reduced output

The data demonstrates that lower processing temperatures do not necessarily require these tradeoffs.

For example:

Silopren™ LSR 22x0 at 140 °C

- Energy savings: 15 ,2%
- CO₂ reduction: 19 ,8%
- Cycle time improvement: 6 ,3%

This is particularly powerful because it suggests sustainability improvements and productivity gains can occur simultaneously.

Customer benefit: Improved environmental performance may be achieved without reducing manufacturing competitiveness.

The sustainability value of Curalyst™ Technology extends beyond simple energy reduction. By enabling effective silicone curing at reduced processing temperatures, the technology creates opportunities to lower manufacturing energy demand, reduce process-related carbon emissions, and support corporate sustainability objectives while maintaining the productivity and product performance required in high-volume LSR manufacturing. Unlike many sustainability initiatives that require tradeoffs between environmental performance and operational efficiency, Curalyst™ Technology has the potential to deliver both, helping manufacturers reduce their footprint while improving overall manufacturing effectiveness.

Unlock New Material Possibilities with Silopren™ LSR 22x0 Series

Lower Temperature Processing. Expanded Design Freedom.

For decades, Liquid Silicone Rubber has enabled manufacturers to create durable, high-performance multi-material components. However, traditional LSR molding temperatures can often limit compatibility with many emerging engineering thermoplastics, recycled-content materials, and advanced lightweight substrates.

As OEMs and product designers increasingly adopt new material technologies to improve sustainability, reduce weight, enable electronics integration, and create more complex product architectures, conventional LSR processing temperatures can become a design constraint.

Silopren™ LSR 22x0 Series featuring Curalyst™ Technology changes that equation.

Powered by Momentive's advanced platinum catalyst platform, Curalyst™ Technology enables effective silicone curing at significantly reduced processing temperatures, creating new opportunities for LSR overmolding on material systems that may have previously been difficult to process using conventional LSR technologies.

Conventional LSR Processing Meets New Material Innovation



Unlocking Multi-Material Designs Previously Limited by Processing Temperature

Traditional liquid silicone rubber molding typically requires mold temperatures in the range of 180-200 °C to achieve efficient curing. While effective for many applications, these elevated processing temperatures can restrict the use of certain thermoplastics, recycled-content materials, lightweight substrates, and temperature-sensitive assemblies due to the risk of thermal deformation, warpage, shrinkage, property degradation, or aesthetic defects.

Silopren™ LSR 22x0 Series helps redefine these limitations. By enabling effective silicone curing at significantly lower processing temperatures, Curalyst™ Technology creates opportunities to combine the performance benefits of LSR with a broader range of thermoplastic materials that have historically been challenging for conventional LSR overmolding.

Expanding the Range of Compatible Substrates

Potential opportunities include overmolding onto:

- Polypropylene (PP) and specialized polypropylene compounds
- Recycled ABS (rABS)
- Thin-wall polycarbonate components
- Copolyesters
- Sustainable and recycled-content resin platforms
- Flame-retardant engineering plastics
- Lightweight thermoplastic composites
- Recycled Polycarbonate (rPC)
- PC/ABS blends
- PET and rPET materials
- Bio-based engineering thermoplastics
- Electrically conductive polymers
- Structural foam thermoplastics
- Fiber-reinforced lightweight materials

→ Why it matters:

Many of these materials are increasingly being adopted because they address major market trends:

- Lightweighting
- Sustainability and circular economy initiatives
- Increased recycled-content requirements
- Miniaturization of electronics
- Reduced material usage
- Advanced aesthetics
- Functional integration
- Multi-material product design

However, these same materials can be more sensitive to the elevated temperatures traditionally associated with LSR molding.

Transforming LSR from a Material Constraint into an Innovation Enabler

The opportunity is not simply lower temperature processing. The opportunity is enabling product designs that may have been impractical or difficult to manufacture using conventional LSR technologies.

➔ Potential advantages include:

- Reduced substrate distortion and warpage
- Lower thermal stress on molded assemblies
- Improved dimensional stability of thin-wall plastic components
- Expanded use of recycled-content and sustainable material platforms
- Increased compatibility with lightweight thermoplastic structures
- Greater freedom to design complex multi-material assemblies
- Enhanced integration of electronics, sensors, and functional components
- New soft-touch, sealing, and overmold applications utilizing lower-cost substrate materials such as polypropylene

A New Design Space for Emerging Applications

By expanding compatibility with materials such as polypropylene, recycled engineering thermoplastics, advanced copolyesters, and sustainable resin systems, the **Silopren™ LSR 22x0 Series** helps manufacturers explore product designs that combine the durability, sealing performance, aesthetics, and tactile benefits of silicone with the next generation of lightweight and sustainable substrate technologies.

The Result

The **Silopren™ LSR 22x0 Series** is more than a lower temperature LSR platform. It is an application-enabling technology designed to expand the boundaries of silicone overmolding, helping manufacturers unlock new opportunities in consumer electronics, smart devices, appliances, wearables, sustainable consumer products, and advanced multi-material component design.

Lower Temperature Processing. Expanded Material Possibilities.

Bringing silicone performance to applications that were previously beyond the reach of conventional LSR processing.

Driving Innovation Across Growth Markets

Consumer Electronics

As devices become thinner, lighter, and increasingly integrated, manufacturers are turning to advanced thermoplastic materials and recycled-content resins to meet sustainability and performance targets.

Potential applications include:

- ➔ Wearables
- ➔ Smart watches
- ➔ Wireless earbuds
- ➔ AR/VR devices
- ➔ Smart rings
- ➔ Portable electronics
- ➔ Device sealing systems
- ➔ Soft-touch overmolded housings



The **Silopren™ LSR 22x0 Series** helps create opportunities to combine silicone functionality with the emerging materials driving electronics innovation.

Smart Home & Connected Devices

- Smart thermostats
- Security systems
- Connected appliances
- Home automation sensors
- Smart lighting controls
- IoT devices

By reducing thermal exposure during molding, manufacturers may gain greater flexibility when designing compact electronic assemblies requiring environmental protection and soft-touch functionality.

Sustainable Product Platforms

Companies across multiple industries are actively increasing the use of:

- Recycled polymers
- Bio-based plastics
- Lightweight composites
- Circular economy material systems

The **Silopren™ LSR 22x0 Series** supports this evolution by helping bridge the gap between high-performance silicone elastomers and next-generation sustainable substrate technologies.

Advanced Multi-Material Assemblies

Future product designs increasingly combine:

- Rigid thermoplastics
- Soft-touch surfaces
- Embedded sensors
- Electronics
- Conductive materials
- Lightweight structures

Lower temperature silicone processing helps expand design possibilities and enables manufacturers to explore product architectures that may have been challenging using conventional LSR technologies.

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More Than Low Temperature Cure

An Application-Enabling Technology Platform

The **Silopren™ LSR 22x0 Series** is not simply designed to cure silicone at lower temperatures.

It is engineered to help manufacturers innovate beyond the traditional limitations of LSR processing by expanding compatibility with emerging material platforms, sustainable thermoplastics, advanced electronics, and next-generation multi-material designs.

**Silopren™ LSR 22x0 Series featuring
Curalyst™ Technology**

Lower Temperature Processing. Expanded Material Possibilities.



