



ALWAYS ONE  
STEP AHEAD

# POLYURETHANE ADDITIVES GUIDE

FLEXIBLE SLABSTOCK FOAM



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## A LEADER IN POLYURETHANE ADDITIVES

Momentive Performance Materials offers one of the most trusted and diverse polyurethane additive product lines in the industry, ranging from a broad array of silicone stabilizers and a full portfolio of amine and metal-based catalysts to a selection of organic-based property modifiers.

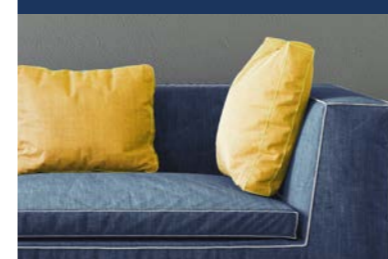
Developed in 1962, Niix™ brand additives have long been essential ingredients in polyurethane formulations used to meet the specialized processing and performance needs of customers across the globe. Niix grades include a comprehensive line of silicones, catalysts, and process modifiers for polyurethane foam production. Momentive also offers GeoCell™ additives and foam solutions designed for the Mattress in a Box market and Geolite™ modifiers to help flexible slabstock foam producers broaden their offering of foam grades.

Momentive is a pioneer in the polyurethanes additives industry and continues to serve customers with leading innovations, creative solutions, and excellent application expertise.

## POLYURETHANE ADDITIVES FOR FLEXIBLE SLABSTOCK APPLICATION

Polyurethane slabstock foams are used in a variety of sectors including furniture & bedding, medical, automotive, and specialty applications.

### SILICONES



- Conventional
- Universal
- High-Resilience
- Viscoelastic
- Polyester
- Specialty

### CATALYSTS



- General Amine
- Metal
- Low-Emission Amine

### PROCESS MODIFIERS



- Antioxidant
- Antistatic
- Color Pastes
- Flame Lamination
- Foam Hardeners

## POLYURETHANE ADDITIVES GUIDE

### The Role of Silicone Surfactants in Polyurethane Foam:

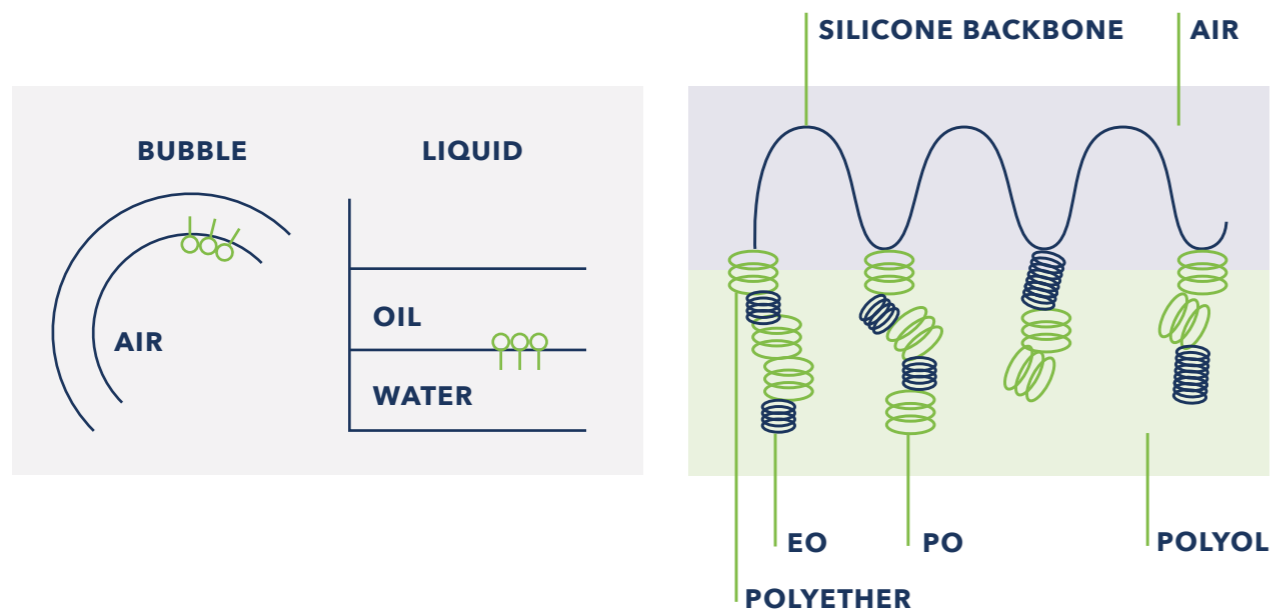
- ✓ Improve reaction mix compatibility, widen formulation selection, and process latitude
- ✓ Provide bulk foam stabilization to prevent phase separation and collapse
- ✓ Regulate cell size and cell opening. Affect dimensional stability, comfort, elasticity, and viscoelastic behavior
- ✓ Enhance physical properties and improve fire behavior

Momentive has designed a full range of high-performing standard, universal, and specialty silicones for the production of flexible polyurethane slabstock foam, that allow foam producers to tailor solutions to customers, and to offer a broad variety of foam grades.



### The Surfactant Acts at the Interface of Poorly Compatible Formulation Components:

- The silicone backbone has an affinity for hydrophobic/non-polar materials
- The polyether pendants are drawn towards more hydrophilic/polar materials



## NIAX/GEOCELL CONVENTIONAL SILICONES

Product	Low-Emission	Efficiency	Liquid CO <sub>2</sub>	Hydrolytic Stability	Regional Availability	Typical Benefits
Niax L-895	□	High	•		●	Higher foam block and improved foam yield
Niax L-595LE	□	High	•		●	Optimized block height and foam yield
Niax L-595LO	□	High	•		●	Low-odor, optimized block height and foam yield
Niax L-580LE	□	Medium-High	•	•	●	Effective performance in low-density and/or filled formulations
Niax L-894	□	Medium	•		●	Improved side and top skin, very good foam physical property distribution
GeoCell L-882	□	Medium	•	•	●	Wide processing latitude, general-purpose use
GeoCell L-884	□	Medium	•	•	●	Very wide processing latitude, general-purpose silicone with improved recovery after compression
Niax L-854	□	Low-Medium	•		●	Wide processing, yielding fine and regular cells with improved foam porosity
Niax L-633		Very High			●	Effective performance in ultra-low-density foam formulations
Niax L-570		High	•		●●	Effective performance with low-density foams that use inorganic filler and/or auxiliary blowing agents
Niax L-595		High	•		●	Higher foam block and improved foam yield
Niax L-580		Medium-High	•	•	●	Effective performance in low-density formulations, water premix stability
Niax L-580LO		Medium-High	•	•	●	Effective performance in low-density and/or filled formulations
Niax L-594Plus		Medium	•		●	Improved side and top skin, very good foam physical property distribution
Niax L-540		Medium	•		●●	General-purpose; effective performance in low to medium density formulations
Niax SC-240		Medium	•	•	●	Wide processing latitude, general-purpose, premix-stable

● Global ● APAC ● AMR ● EMEA

## NIAX UNIVERSAL SILICONES



## NIAX/GEOCELL SILICONES FOR VISCOELASTIC FOAM



Niax	Low-Emission	Efficiency	CO <sub>2</sub> Blown Foams	Hydrolytic Stability	Regional Availability	Typical Benefits
L-820	□	Medium-High			●	Wide processing with medium FR performance
L-850	□	Medium	•		●	Outstanding FR performance in flame lamination and FR foam formulations
L-855	□	Medium			●	Exceptional FR property, fine cells with minimal required liquid flame retardant
L-835	□	Medium	•		●	Fine cells in liquid CO <sub>2</sub>
L-818	□	Medium			●	Wide processing with medium FR performance
L-819	□	Medium			●	Wide processing with medium FR performance, suitable for MDI visco foam
L-620		Medium-High			●	Wide processing with medium FR performance
L-690		Medium-High		•	●	Medium FR performance silicone, broad effectiveness in activator blends
L-616		Medium			●●	Wide processing with medium FR performance and enhanced stabilization characteristics
L-618		Medium			●	Wide processing with medium FR performance
L-638		Medium	•		●	Wide processing in conventional and FR slabstock formulations
L-680		Low-Medium		•	●	Medium FR performance silicone, broad effectiveness with activator blends
L-668		Low-Medium			●	Wide processing in high-density and viscoelastic formulations

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Product	Low-Emission	Cell Opening	TDI	MDI	Pneumatic	Regional Availability	Typical Benefits
Niax L-629LE2	□	•	•	•		●	Low-emission, low-viscosity cell-opening with TDI viscoelastic foams
Niax L-417	□			•	•	●	Low-emission, fine cell structure, and good mechanical properties with MDI based pneumatic visco foam
Niax L-838	□		•	•		●	Low-potency, optimum cell size and air flow control with both TDI and MDI based systems
GeoCell L-800	□	•	•	•		●	Low-emission, well-balanced stabilization and cell-opening properties with medium FR performance
Niax L-418				•	•	●	Fine cell structure and good mechanical properties with MDI based pneumatic visco foam
Niax L-627			•	•		●	Low-viscosity cell-opening silicone with TDI viscoelastic foam

## NIAX SILICONES FOR HIGH-RESILIENCE FOAM



Niax	Low-Emission	General-Purpose	High-Density	TDI/MDI	Regional Availability	Typical Benefits
L-2112	□	•	•	•	●	Universal silicone; wide processing and medium efficiency
L-2106	□	•		•	●	General-purpose surfactant; low-emission
L-3684	□	•		•	●	General-purpose surfactant; low-emission
L-3685	□	•	•	•	●	General-purpose surfactant; improved processing latitude and low-emission
U-2000		•		•	●	General-purpose surfactant; wide processing
L-2166		•		•	●	Effective performance with PHD and SAN systems
L-5333		•	•	•	●	Wide processing, enablement of easy-to-crush effect, and improved stability

## NIAX SURFACTANTS FOR POLYESTER FOAM



Niax	Low-Emission	Efficiency	FR Property	Cell Structure	Regional Availability	Typical Benefits
SE-232	■	High		Regular	●	General-purpose silicone surfactant
Y-16455	■	High	•	Regular	●	Low-odor silicone surfactant combining high-efficiency, flame retardancy, and cell structure control
L-530	■	High-Medium		Regular	●	Low-odor universal silicone surfactant
Y-16508	■	Medium	•	Fine	●	Low-odor silicone surfactant providing well-balanced efficiency, flame retardancy, and cell structure control for improved block dimensional stability
L-537XF	■	Medium		Fine	●	Universal silicone; promotion of fine and open-cell structure
Y-16435	■	Low	•	Very Fine	●	Low-odor silicone surfactant with good balance of efficiency, flame retardancy, and fine cell structure for improved foam quality
L-553NPF	■	Low		Fine	●	Silicone surfactant; promotion of fine cells
B-320NPF		High		Coarse	●	Silicone surfactant; promotion of fine and uniform cells over a wide density range; formulated without nonylphenol
B-325NPF		Low-Medium		Regular	●	Silicone surfactant; promotion of fine and uniform cells over a wide density range; formulated without nonylphenol
B-350NPF		Medium		Regular	●	Silicone surfactant; promotion of fine and uniform cells over a wide density range; formulated without nonylphenol
ES-1058		n.a.	•	Coarse	●	Organic surfactant; effective performance with medium to high density foam
A-2420		n.a.	•	Fine	●	Organic surfactant with emulsifying properties
M-6682NPF		n.a.	•	Fine	●	Organic surfactant; effective performance with die-cuttable and FR ester foams of medium-high density; formulated without nonylphenol

## NIAX SILICONES FOR SPECIALTY APPLICATIONS



Niax	Regional Availability	Typical Benefits
L-636LE2	●	Low-emission silicone; effective performance with gasketing and sealing applications
L-422	●	Low-emission silicone; super-soft, open-cell with MDI foam
L-450	●	Low-emission; cell regulation as co-surfactant with conventional, HR and viscoelastic foam, improved recovery after compression
L-500	●	Low-emission additive; cell regulation with viscoelastic MDI foam. Improved dimensional stability of HR/CMHR foams
L-410	●	Foam hardener offering enhanced hardness to conventional TDI-based foam
L-435	●	Low-emission foam hardener offering enhanced hardness to conventional TDI-based foam
L-670	●	Medium-potency, enhanced processing and physical properties in flexible slabstock foam operations that use natural oil polyol; can be used for CO <sub>2</sub> processing

## GEOLITE/ GEOCELL MODIFIERS

The Geolite / GeoCell Modifiers product family comprises various processing aid additives that are typically used to eliminate or substantially reduce the use of auxiliary blowing agents. Furthermore, these modifiers can allow foam producers to improve on the foam quality and physical property distribution whenever special foaming conditions are applied.

Product	Regional Availability	Typical Benefits
Geolite Modifier 91	●	Processing aid additive, improved foam quality and reduced risk of splits with critical formulations
Geolite Modifier 206	●	Additive enabling safe processing with soft foam grades at 90-100 TDI index
Geolite Modifier 210	●	Chemical stabilizer; enhanced softening with low-index formulations
GeoCell Additive GM-225	●	Processing aid additive minimizing density and hardness gradients; providing additional stability
GeoCell Additive GM-280	●	Low-fogging, stabilizing additive offering rectangular block shape for high-resilience and high-density conventional and viscoelastic foam; enhanced foam curing

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## NIAX/GEOCELL PROCESS MODIFIERS

Our process and foam modifiers offer enhancement of existing material processes properties. From improved adhesion and reduced discoloration, to increased load-bearing and more, Momentive process and foam modifiers can be easily incorporated into current manufacturing processes.

Product	Regional Availability	Typical Benefits
<b>Niax DP-1022</b>	●	Processing aid additive, may improve mechanical properties in filled foams
<b>Niax FH-350</b>	●	Foam hardener additive, improved tear, tensile, and elongation properties
<b>Niax FH-400</b>	●	Foam hardener additive, blendability with polyether polyol
<b>GeoCell FH-700</b>	●	Additive acting as a load builder and increasing foam hardness in high-resilience slabstock application; enhanced foam curing
<b>Niax Antistat AT-38</b>	●	Antistatic additive; effective performance with conventional slabstock foam
<b>Niax CS-14</b>	●	High-performance antioxidant minimizing foam scorching with polyether foam
<b>Niax CS-15</b>	●*	Antioxidant; effective performance with low-density polyether foam
<b>Niax CS-16</b>	●	Antioxidant; improved anti-UV yellowing properties with polyether foam
<b>Niax CS-20LF</b>	●	Additive for flame and heat lamination; enhanced adhesion properties, suitable for textile and automotive applications
<b>Niax CS-22LF</b>	●	Additive for flame and heat lamination; improved indirect light stability with polyether and polyester foams
<b>Niax CS-25LF</b>	●	Additive for flame and heat lamination with improved processing latitude and indirect light stability suitable for polyether and polyester foams
<b>Niax FLE-200LF</b>	●	Flame lamination additive; improved bonding properties with flame lamination foam
<b>Niax FLE-500LF</b>	●	Flame lamination additive; improved bonding properties with flame lamination foam
<b>Niax SC-300</b>	●	Additive for polyether sea sponge foam
<b>Niax DCF</b>	●	Improved clickability and foam recovery after compression in polyester foam

\*All regions except Europe

## NIAX AMINE CATALYSTS

Niax	Low-Emission	Blow	Balanced	Gel	Polyester Foam	Regional Availability	Typical Benefits
<b>EF-100S</b>	□	•			•	●	Low-viscosity, high-efficiency reactive blow catalyst
<b>EF-350</b>	□	•	•			●	Low-viscosity, high-potency balanced catalyst
<b>EF-600S</b>	□		•	•		●	Low-emission gel catalyst, may reduce foam smell
<b>EF-700</b>	□	•	•			●	Low-emission blow catalyst, may reduce foam smell
<b>EF-867</b>	□		•			●	Low-emission balanced catalyst, may reduce foam smell
<b>A-30NPF</b>		•			•	●	High-efficiency, low-odor blow catalyst; nonylphenol-free formulation
<b>B-9NPF</b>			•		•	●	High-efficiency, low-odor balanced catalyst, nonylphenol-free formulation
<b>C-131NPF</b>		•			•	●	Blow catalyst for low-fogging polyester foam; nonylphenol-free formulation
<b>KST-100NPF</b>			•		•	●	Balanced catalyst for low-fogging polyester foam; nonyl-phenol-free formulation
<b>A-1_S</b>		•				●	High-efficiency blow catalyst
<b>A-133</b>		•				●	Dilution of A-1 for easy metering
<b>A-230</b>			•			●●	Balanced catalyst, optimum performance with square blocks, Flat top or Maxfoam system
<b>A-33</b>				•		●	Gel catalyst
<b>B-18</b>			•			●	Balanced catalyst; extended cream time for Maxfoam process

## NIAX/GEOCELL METAL CATALYSTS

Product	Regional Availability	Typical Benefits
<b>Niax Sn Octoate</b>	●	Stannous Octoate
<b>GeoCell D-10</b>	●	Lower viscosity Sn Neodecanoate for improved metering
<b>GeoCell D-25</b>	●	Sn Neodecanoate
<b>GeoCell D-26</b>	●	Sn Neodecanoate

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