

# Niax\* Urethane Additives Guide

Europe, Middle East, Africa & India



# A Leader in Urethane Additives

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

Developed in 1962, Niax\* brand additives are essential ingredients in polyurethane formulations used to meet customers' specialized processing and performance needs globally. Niax grades include a comprehensive line of silicones, catalysts and process modifiers for polyurethane foam production. Momentive also offers Geolite\* modifiers to help flexible slabstock foam producers broaden their offering of foam grades.

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



### Flexible Slabstock Foam

													Niax	* Sili	icon	es	
	C	onver	ntiona	al Foa	m		Hi	gh Re	silien	nce		Polye	ester l	Foam		VE	
								FO	oam								
	Wide Processing	Efficiency	Hydrolytic Stability	CO2 Blown Foam	FR Property	Low Emission for general use	General Purpose	Combustion Modified	High Density	MDI Foam	General Purpose	Low VOC/Low Fogging	FR Property	No added Nonylphenolethoxylate	Cell Sturucture	Cell Opening	
Niax Silico	nes																Product Description, Potential Applications and Typical Benefits
L-570		Н		•													High potency silicone for low density foam
L-594Plus		М		•													Medium potency silicone for improved skin
L-580		М	•	•													Silicone for low density formulations
L-590	•	М	•	•													Wide processing latitude for all conventional foams
L-595		М		•													Medium-high efficiency silicone for improved foam yield
L-595LV		М		•													Low viscosity, medium-high efficiency silicone for improved foam yield
L-620	•	Н			•												Very high efficiency with wide latitude for conventional and FR
L-650	•	М		•	•												Silicone for liquid CO2 FR formulations, separate metering
L-618	•	М			•												Wide processing FR silicone with medium efficiency
L-680		М	•		•												FR silicone, can be considered for use in activators
L-670	•	М															Silicone for natural based polyol foams
L-690		Н	•		•												FR silicone, can be considered for use in activators
SC-240		М	•	•													Standard silicone for continuous and discontinuous slabstock productions
L-598	•	L	•														Wide processing latitude, moderate efficiency for medium to high density conventional foam
L-818	•	М			•	•											Low emission. Wide processing FR silicone with medium efficiency
L-820	•	Н			•	•											Low emission. Wide processing FR silicone with medium efficiency
L-895		Н		•		•											Low emission. High efficiency silicone for improved foam yield
L-2112						•	•	•	•	•							Low emission, wide processing medium efficiency Universal HR silicone
L-500						•	•	•	•	•							Low emission cell regulating additive for Viscoelastic MDI foams. Can improve dimensional stability of HR/CMHR foams
L-2100							•	•									General Purpose silicone for HR Foam
L-2171							•	•									HR Silicone for PHD and SAN systems
SE-232											•			•	R		General purpose silicone
L-530											•			•	R		Universal ester silicone
L-537XF											•	•		•	F		Universal ester silicone with fine cells and open cells
L-636LE																•	Low emission silicone for gasketing and sealing foam application
L-626																•	Specialty silicone for visco-elastic foams
L-627																•	Low viscosity specialty silicone for viscoelastic foams
L-629LE																•	Low emission cell opening silicone for visco elastic foam
L-417																•	Low emission silicone for viscoelastic MDI foam
L-422																•	Low emission silicone for supersoft, open cell MDI foam

**VE** = visco-elastic foam, **VOC** = volatile organic compound, **FR** = flame retardant, **HR** = high resilience  $\mathbf{M} = \text{medium}, \mathbf{H} = \text{high}, \mathbf{L} = \text{low}, \mathbf{R} = \text{regular}, \mathbf{C} = \text{coarse}, \mathbf{F} = \text{fine}$ 

## Flexible Slabstock Foam

										Niax*	Cata	lysts	
	C	onventio	onal Foa	am		High Resilience Foam					Polyeste	er Foam	
	Blow	Balanced	Gel	Low Emissions	Stabilising	Blow	Balanced	Gel	Low Emissions	Blow	Balanced	Gel	Low Emissions
Niax Catalysts	S												
<b>\-1</b>	•					•							
A-133	•					•							
B-4													
B-18							•						
A 00													
A-33			•					•					
SA-200					•								
EF-600		•	•	•			•	•					
EF-700	•	•		•		•	•		•				
EF-867													
_1 -007													
C-131NPF										•			•
KST-100NPF											•		•
Sn Octoate			•					•					
D-50	•			•									

Geolite* Modifiers	Typical Features								
GM-206	Additive for soft foam grades at 90-100 TDI index with safe processing								
GM-91	Processing aid additive, can promote the production of quality foam with critical formulations, reduces properties gradients								
Niax* Processing Additive	Typical Features								
DP-1022	Processing aid additive, can improve mechanical properties in filled foams and high resilience foams								
Color Stabilizer CS-15	Antioxidant for low density polyether foam								
Color Stabilizer CS-16	Antioxidant for polyether foam with improved UV yellowing properties								
Color Stabilizer CS-22 LF	Antioxidant improving light stability and enhancing flame lamination properties								
Flame Lamination Additive FLE-200LF	Additive for flame-laminable foam with improved bonding properties								
Flame Lamination Additive FLE-500LF	Low emission additive for flame lamination foam for improved bonding								
Color Stabilizer CS-20LF	Cost performing additive for flame lamination ether foam								
Foam Hardener FH-300	Additive to enhance foam hardness - can increase tensile, elongation and tear strength								
Foam Hardener FH-400	Additive to enhance foam hardness - can be blended into polyether polyol								
DCF	Additive to improve clickability and foam recovery after compression in polyester foam								
SC-200	Additive for polyether sea sponge foam								







## Molded Foam

				Niax* Silicones
			_	
	HR TD	TDI / MDI	HR MDI	
Niax Silicones				Product Description, Potential Applications and Typical Benefits
L-3001		•	•	High cell opening silicone
L-3111		•	•	High cell opening silicone
L-3415			•	Low emission silicone with high cell opening
L-3418			•	Low emission silicone with high cell opening and finer cells
L-3002		•	•	Medium cell opening silicone
L-3222		•	•	Medium cell opening silicone
L-3416		•	•	Low emission silicone with medium cell opening
L-3639		•	•	Very low emission, medium potency silicone providing good stabilization along with good foam openness
L-3003		•	•	Stabilizing silicone
L-3417		•	•	Low emission; stabilizing silicone
L-2171 (Y-10366)	•	•	•	High efficiency; balanced silicone
L-3620		•		Low potency, low emission silicone for TDI/MDI technology
L-3630		•		Medium efficiency, low emission silicone for TDI/MDI technology
L-3636	•	•		Very low fogging, medium potency surfactant for TM80 technology
L-3640	•	•		High efficiency, low emission silicone for TDI/MDI technology
L-3170	•			High efficiency balanced silicone
L-3360	•			High efficiency balanced silicone
L-3350	•			High stability silicone
L-3555	•			High stability, low emission silicone
L-3556S	•			Low emission, medium potency, water soluble silicone
L-3558	•	•		Very low emission, medium - high potency silicone for TDI
L-3151	•	•		High efficiency; balanced silicone an excellent candidate to consider for TDI/MDI blends
L-3167	•	•		Cell regulator; co-silicone surfactant for TDI
L-5309J	•			High efficiency balanced silicone
L-3184	•			High efficiency balanced silicone

**TDI/MDI** = typically 80/20 blend / **TDI** = toluene diisocyanate / **MDI** = Methylene diphenyl diisocyanate



## Molded Foam

				Niax* Catalysts
	Blow Amine Catalyst	Balanced Amine Catalyst	Gel Amine Catalyst	
Niax Catalysts				Product Description, Potential Applications and Typical Benefits
A-1	•			Standard blow catalyst
A-107	•			Delayed action blow catalyst
A-400	•			Delayed action load building (TDI); cell opening blow catalyst; improved flowability (MDI)
A-440	•			Delayed action load building (TDI); cell opening blow catalyst; improved flowability (MDI)
A-4	•			Catalyst for improved surface cure
C-174	•			HR MDI blow catalyst
B-26	•			HR MDI delayed action blow catalyst
C-225		•		Delayed action catalyst; enhanced curing
A-310		•		Balanced potentially cost-effective catalyst; may enhance skin cure (MDI & MDI/TDI)
A-337			•	Surface curing catalyst; low mold temperature (MDI & MDI/TDI)
A-300			•	Delayed action load building; cell opening gel catalyst (low corrosion)
A-33			•	Key gel catalyst
Low Emission Ca	atalyst			Product Description, Potential Applications and Typical Benefits
EF-600		•	•	Balanced catalyst; predominantly gel
EF-602		•	•	Balanced delayed catalyst; predominantly gel
EF-680		•	•	Balanced delayed catalyst; predominantly gel can deliver improved end curing
EF-700	•	•		Balanced catalyst; predominantly blow
EF-705	•	•		Balanced cell opening delayed catalyst; predominantly blow
EF-708	•	•		Balanced catalyst; predominantly blow

**HR** = High resilience



# Rigid Foams

								Niax* Silicones
	Fine Cells	Pentane solubility in Polyols	Blowing agents emulsification	Cell Stabilization	Foam Flow / Density Distribution	FR Properties (DIN 4102)	Void Reduction	
Niax Silic	one							Product Description, Potential Applications and Typical Benefits
L-6895	••••	••••	••	•••	••••	••	••••	High polyol/blowing agent compatibility and low lambda combined with excellent flow and reduced voids formation, also in fast reactive systems, for refrigerators, water heaters and all discontinuous applications
L-6891	••••	•••	••	••••	•••	••	••••	High polyol/pentane solubility - very low lambda value foam and voids reduction, for discontinuous applications especially refrigerators
L-6887	••••	••••	••	••••	•••	••	•••	Best polyol/pentane solubility - can provide very fine cells for discontinuous applications especially refrigerators
L-6884	••••	•••	••	••••	•••	••	•••	Can improve polyol/pentane or HFC's compatibility - can provide very fine cells and good flow, for refrigerators and all discontinuous applications
L-6866	••••	••	••	••••	•••	••	••••	For pentane blown refrigerators and dis-continuous panels to reduce surface voids formation, while still delivering excellent lambda value
L-6988	••••	••	•••	••••	•••	••	•••	Very fine cells with pentane and HFO/HC, increase froth shear stability thus reducing voids formation, good storage stability in acidic condition
L-6900	••••	••	••••	••••	••••	••	•••	Strong emulsifier, fine cells with all blowing agents - continuous and discontinuous applications
L-6978	••••	••	•••	•••	••••	••	••••	For Cyclopentane/HFO co-blown appliances and discontinuous panels systems, it delivers very fine cells and low K factor and good foam surface
L-6889	•••	••••	•••	••••	••••	••	•••	Very high polyol-pentane solubility for best blend stability, good flow and void reduction
Y-16130	••••	•••	•••	•••	••••	••	••••	Low k-factor combined with excellent acid resistance and good flow, for pentane and HFO/HC blowing agents
SR-321	••	••••	••	••••	•••	•••	•	For HCFC but also HFC's and pentane co-blown with water, good flow and dimensional stability
L-6620	••••	••	•••	••	•••	••	•••	Combination of strong nucleation and emulsification, can resolve compatibility problems and reduce defects due to irregular mixing. Suitable also as co-silicone to improve nucleation.
L-6630	••	•	••	••	••••	••	•••	Reduce foam voids formation in continuous and discontinuous application - effect increase with higher usage level
L-6633	•••	•••	•••	•••	•••	••	•••	Can reduce voids formation and excellent polyol compatibility efficiency can increase with usage level
L-6635	••	•	•	••	•••	••	••••	Premium grade silicone to reduce foam voids and achieve excellent surface quality in metal faced panels PUR and PIR
L-6638	••	••	••	••	•••	••	••••	High performance voids reduction silicone for steel faced sandwich panels with improved polyol compatibility
L-6642	•••	••	••	••	••••	••	•••	Balanced stabilizer with good voids control and flow for both continuous and discontinuous process, suitable for all blowing agents included formic acid and HFOs
L-6100	••	••	••	•••	•••	••••	••	Can produce foams with good dimensional stability and improved fire properties, good liquid flow and leveling

**HFC** = Hydro Fluoro Carbon, **HCFC** = Hydro Chloro Fluoro Carbon, **HFO** = Hydroflouoro Olefin, **PIR** = Polyisocyanurate, **PUR** = Polyurethane, **Features:** Strong = ••••, Moderate = •, **FR properties** = Fire Rating



# Rigid Foams

								Niax* Silicones
	Fine Cells	Pentane solubility in Polyols	Blowing agents emulsification	Cell Stabilization	Foam Flow / Density Distribution	FR Properties (DIN 4102)	Void Reduction	
Niax Silic	one							Product Description, Potential Applications and Typical Benefits
L-6265	••	•••	•••	•••	••	••••	••	Improves dimensional stability and FR for spray and panels application with various water/co-blown technologies
L-5111	••••	•	•••	•	•••	••	••	For boardstock fine cells with pentane blowing agents - for PIR/PUR boardstock lamination
L-5112	••••	••	••••	••	•••	••	•••	For boardstock, improves mixing quality and emulsification of pentane up to high usage level. Improves foam quality and reduces laydown defects
L-5162	••••	••	•••	•••	•••	••	•••	For boardstock, strong nucleation and emulsification power, for n- and isopentane and less compatible raw materials
L-5158	•••	•	•••	••	••••	••	••••	For PIR boardstock, better processing on high speed lines. Better edge stability, reduced surface defects, reduce emulsion viscosity, increase liquid flow
L-5466	••••	••	•••	•••	•••	••	••••	For boardstock, strong nucleation and stabilization can reduce surface voids when using gas-tight facings, help compatibility with APP's
L-5345	••	••	••••	•	•••	••	••	1K/OCF foam, good emulsification also for structural foam, blocks and phenolic foams
L-5348	••	•	•••	••	•••	•	••	1K/OCF foam, also manufactured without HFC, high froth volume, good compatibilization, excellent storage stability
L-5350	•••	•	••••	•	••	••	••	1K/OCF foams. Multipurpose stabilizer mainly for straw foam applications
L-5351	•••	•	••••	•	•••	••	••	1K/OCF foam - can improve foaming at low temperature and is manufactured without HFC
L-5360	•••	•	••••	•	••	••	•••	1K/OCF foams. High yield in gun foams allowing high propellant levels to be used
L-5362	•••	•	••••	•	••	••	•••	1K/OCF foams, good dimensional stability over a wide range of temperatures. PIR boardstock and blocks, fine cells and improved side compressions
L-5388	•••		•••	•••	••	••	•••	Recommended solution for low density foams like open cells spray, packaging and OCF. Wide compatibility with polyethers and polyesters, strong foam stabilization
L-6164	••		••		••	•••		Cell-opener, cell-regulator - very efficient cell opener, OCF/1K and 2K systems
L-6186 L-6188	••		••	•	••	•••		Open cells rigid foam - also efficient in overpacked conditions and high index - polyether and polyester based, density range 15-200 g/l
L-6189	••••		•••	••	••	•••	•••	Low density Open cells rigid foams, polyethers or polyesters based, mainly water blown, fine and regular cells structure, good polyol solubility

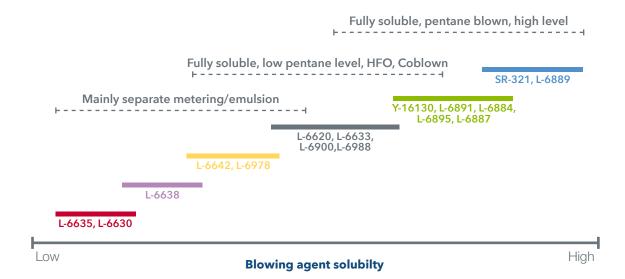
**1K/OCF** = 1 Component foam, **HFC** = Hydro Fluoro Carbon, **PIR** = Polyisocyanurate, **PUR** = Polyurethane, **APP** = Aromatic Polyester Polyols, **Features:** Strong = ••••, Moderate = •



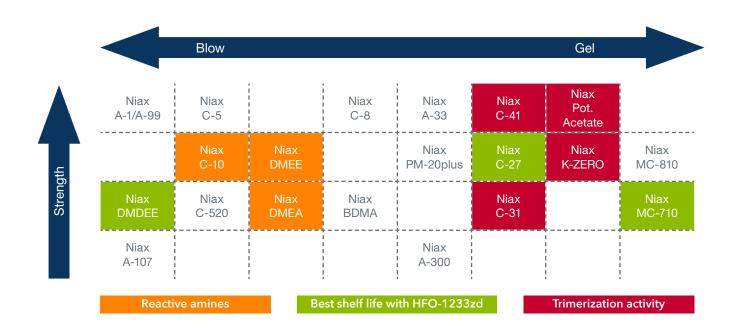




### Relative Scale of Niax\* Silicone Contribution to Blowing Agent Solubility in Rigid Foam System Applications



## **Niax\* Catalysts for Rigid Foams Applications**



## Rigid Foams

							Nia	x* C	Catalysts and Special Additives
			X	×			1416		atalysis and special Additives
	PUR discontinuous	PIR discontinuous panels	PUR continuous lamination and block	PIR continuous lamination and block	PUR / PIR discontinuous block	Spray	Water blown PUR and PIR foam	Packaging, open cells foam	
Niax Catalysts									Product Description, Potential Applications and Typical Benefits
A-1	•	•	•	•	•	•	•	•	Very effective blowing catalyst, promote selectively water-NCO reactions, can improve foam flow and rate of expansion
C-5	•		•	•		•			General purpose blowing catalyst
C-8	•	•	•		•	•	•	•	General purpose PUR catalyst
PM-40			•	•	•				Blowing catalyst based on A-1, moderate odor and viscosity and may be used with direct metering
BDMA	•	•	•		•	•	•	•	Dimethylbenzylamine, weak gel catalyst, can reduce surface friability and can improve foam adhesion in particular with mainly water-blown foams
DMEA	•		•		•	•			Moderate odour, typically cost-effective, reactive catalyst
DMEE	•	•					•	•	Moderate odour, typically cost-effective, reactive catalyst, more blowing efficiency compared to DMEA
DMDEE	•	•			•	•		•	Moderate activity blow catalyst, excellent storage stability also in isocyanate and prepolymers, 1K/OCF foams
PM20 plus			•	•			•	•	Blow-gel catalyst for direct in line metering in the continuous lamination of PUR or for PIR in combination with a potassium catalyst
C-27	•	•	•	•		•	•	•	Low odor catalyst offering improved shelf life for water co-blown systems
C-31	•	•	•	•			•		Delayed action catalyst for PIR and PUR, improve green strength and surface curing, reduce post expansion in thick panels
C-41	•	•	•	•		•			Strong gel catalyst promoting both PUR and PIR reaction, promote fast crosslinking, can reduce demould time and improve foam adhesion
A-107	•				•		•		Acid blocked delayed action blow catalyst
C-520			•	•					Blowing catalyst formulated for safer handling, it enables an easier balancing of the full catalysts package in PIR continuous production
C-10			•	•	•	•	•	•	Reactive amine catalyst, ideal for spray and open-cell applications. Blowing catalyst giving a smooth reaction profile, good candidate also in flexible moulded foams
PO-10			•	•	•				Low viscosity potassium octoate to facilitate in-line metering in continuous lines. Provides crosslinking and cure, maintaining a smooth rise profile and an improved liquid flow.
Potassium Octoate LV			•	•	•				15% K containing PIR catalyst for direct metering (2500 cPs), also good as general purpose curing catalyst in PUR
Potassium Octoate	•			•	•				15% K containing PIR catalyst, also good as general purpose curing catalyst in PUR
K-ZERO G	•	•	•	•	•	•	•		15% Potassium content, glycol free catalyst, reduce MDI use and improve isotropy in PIR
K-ZERO LV	•	•	•	•	•	•	•		Low viscosity (600 mPas) glycol-free Potassium octoate, to facilitate in-line metering and reduce MDI use
Potassium Acetate	•			•	•	•			15% K containing PIR catalyst
MC-710/MC-810						•		•	Bismuth based catalysts, exhibiting strong gel catalytic activity.
Niax Special Additiv	es								Product Description, Potential Applications and Typical Benefits
RA-1		•		•			•		Can speed up foam hardening and adhesion without influencing gel time, in particular for PIR foam made with aromatic polyester polyols
AP-01	•	•	•	•			•		Adhesion promoter additives, reduce surface friability in high water and/or high index formulations
FRP	•	•	•	•	•	•	•	•	Halogen free additives to improve fire properties in both PUR or PIR foams

NCO = Isocyanate, PU = Polyurethane, 1K/OCF = 1 Component foam, HFC = Hydro Fluoro Carbon, PIR = Polyisocyanurate,

**PUR** = Polyurethane, **APP** = Aromatic Polyester Polyols

# Polyurethane Coatings, Adhesives, Sealants and Elastomers (CASE)

							Niax* Silicone and Modifiers
	Microcellular (Polyether)	Microcellular (Polyester)	SRIM/Composite	Integral Skin Foam	PU Leather/Coatings	Mechanical Froth	
Niax Silic	ones						Product Description, Potential Applications and Typical Benefits
L-1500	•	•		•			Standard surfactant for microcellular systems
L-1501		•		•			Wide-processing latitude with excellent open cell for low-medium density systems
L-1507	•	•					For low-density polyester or polyether-based microcellular systems with excellent emulsification
L-1541		•	•				For high-density polyester-based microcellular systems with thick skin and SRIM applications
L-1510	•		•	•			General purpose surfactant for polyether shoe sole and rigid foam systems, low freezing point
L-5302	•		•	•			Medium stabilizing surfactant developed for integral skin and high-density polyether-based microcellular systems
L-1128					•		Low surface tension silicone for Dry process PU Leather Coating, stable in pH 4-10, provides excellent wetting, leveling and dispersion
L-1131					•		Cell stabilizer for wet process PU leather, provides good deposition, increases thickness, speeds up DMF and water exchange
L-1151					•		Industry standard, provides uniform medium cell structure in wet process PU leather
L-1160					•		Linear reactive silicone, enhance anti-sticking property, good solubility in PU system. Improves leveling in coating application
L-1169					•		Linear reactive silicone, enhance anti-sticking property, good leveling, and silky hand feeling
L-5614						•	Industry-standard surfactant for the mechanically frothed foam process
L-5617						•	Zero VOC surfactant analog of L-5614 used in the mechanically frothed foam processes
L-5639						•	A low VOC mechanical froth surfactant, non-hydrolysable, provides high closed cell content while reducing both froth density and shear induced cell collapse
L-5690						•	Co-surfactant that enhances froth stability and reduce foam density when used with standard mechanical froth surfactants

							Niax Catalysts									
	<u> </u>					(0					=mor 1=les					
	Microcellular/Shoe Sole	SRIM/Composite	Elastomers	Spray Elastomer	Integral Skin Foam	PU Leather/Coatings		Urea Selectivity	Urethane Selectivity	Pot Life	Curing Speed	Hydrolytic Stability				
Niax Catalysts							Product Description, Potential Applications and Typical Benefits									
A-100	•	•	•	•	•	•	TEDA Crystals		•	1	4	4				
A-400	•	•			•		Delayed-action, blowing-selective catalyst for open-mold pouring applications	•		2	3	4				
A-440	•	•			•		Delayed-action, blowing-selective amine catalyst developed for microcellular foams	•		2	2	4				
A-533	•	•	•	•	•	•	Industry-standard TEDA catalyst in (mono)ethylene glycol		•	1	4	4				
A-525	•	•	•	•	•	•	Industry-standard TEDA catalyst in BDO		•	1	4	4				
A-534	•	•	•	•	•		Delayed action, improve flow, demold and mechanical properties		•	3	2	4				
A-535		•	•			•	Delayed-action gel catalyst for microcellular/SRIM/PUL applications		•	3	3	4				
A-537	•	•	•		•		Delayed-action TEDA-based catalyst for open-mold pouring applications		•	3	2	4				
A-575	•	•	•		•		DBU based Temperature-activated, delayed-action, powerful, gelling-selective catalyst		•	3	2	4				
A-577		•	•		•		Delayed-action, powerful, gelling-selective catalyst		•	3	2	4				
MC-710/ MC-810	•	•		•	•	•	Tin free metal based catalysts, strong gelling, can replace DBTDL		•	1	4	2				
LC-5635		•				•	Heat activated catalyst Sn/Hg/Ni free.		•	4	1	2				
LC-5636		•	•			•	Heat activated catalyst Sn/Hg/Ni free. Lower activation temperature compared to LC-5635		•	3	2	2				

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For email inquiries, we will make every attempt to respond in the incoming written language. If that is not possible, we will respond in English.

#### **Patent Status**

Nothing contained herein shall be construed to imply the nonexistence of any relevant patents or to constitute the permission, inducement or recommendation to practice any invention covered by any patent, without authority from the owner of the patent.

### **Product Safety, Handling and Storage**

Customers should review the latest Safety Data Sheet (SDS) and label for product safety information, safe handling instructions, personal protective equipment if necessary, emergency service contact information, and any special storage conditions required for safety. Momentive Performance Materials (MPM) maintains an around-the-clock emergency service for its products. SDS are available at www.momentive.com or, upon request, from any MPM representative. For product storage and handling procedures to maintain the product quality within our stated specifications, please review Certificates of Analysis, which are available in the Order Center. Use of other materials in conjunction with MPM products (for example, primers) may require additional precautions. Please review and follow the safety information provided by the manufacturer of such other materials.

### Limitations

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