

# POLYURETHANE ADDITIVES GUIDE

RIGID & MOLDED FOAMS,  
SPECIALTY APPLICATIONS



# CONTENTS

Silicones for Molded Foams	4
Catalysts for Molded Foams	5
Silicones for Rigid Foams	7
Catalysts for Rigid Foams	11
Silicones for Specialty Applications	14
Catalysts for Specialty Applications	15



# 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, Niax™ brand additives have long been essential ingredients in polyurethane formulations used to meet the specialized processing and performance needs of customers across the globe. 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 additives industry, and continues to serve customers with leading innovations, creative solutions, and excellent application expertise.

# POLYURETHANE ADDITIVES FOR RIGID & MOLDED FOAMS AND SPECIALTY APPLICATIONS

## Silicones for Molded foams

- Automotive seating
- Head rest
- NVH applications

## Silicones for Rigid foams

- Appliances
- Panels
- Discontinuous applications
- Spray
- One Component Foam

## Silicones for Specialty applications

- Shoe soling
- Automotive parts
- Cushioning
- Mechanical froth
- CASE

## Catalysts

- Amine catalysts
- Trimerisation catalysts and additives
- Metal catalysts
- Low emission catalysts

TDI/MDI = typically 80/20 blend / **TDI** = toluene diisocyanate / **MDI** = Methylene diphenyl diisocyanate / **HR** = High resilience / **VE** = Visco Elastic



## LEADER IN POLYURETHANE ADDITIVES





NIAX  
RIGID  
FOAMS



Silicones	Fine Cells	Pentane solubility in Polyols	Blowing agents emulsification	Cell Stabilization	Foam Flow	Void Reduction	Product Description
L-6891	●●●●	●●●	●●	●●●●	●●●	●●●●	High polyol/pentane solubility - very low lambda value foam and voids reduction, for discontinuous applications especially refrigerators
L-6887	●●●●	●●●●	●●●●	●●●●	●●●	●●●	Excellent 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-6904	●●●●	●●	●●●●	●●●●	●●●●	●●●	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 can provide very fine cells and low K factor and good foam surface
L-6889	●●●	●●●●	●●●	●●●●	●●●●	●●●	Very high polyol-pentane solubility for excellent blend stability, good flow and void reduction
SR-321	●●	●●●●	●●	●●●●	●●●	●	For HCFC but also HFC's and pentane co-blown with water, good flow and dimensional stability
L-6620	●●●●	●●	●●●	●●	●●●	●●●	For HCFC but also HFC's and pentane co-blown with water, good flow and dimensional stability
L-6630	●●	●	●●	●●	●●●●	●●●	Reduce foam voids formation in continuous and discontinuous application
L-6633	●●●	●●●	●●●	●●●	●●●	●●●	Reduce foam voids formation in continuous and discontinuous application
L-6645	●●	●●	●●	●●	●●●	●●●●	Excellent silicone properties offering a reduction in foam voids.
Y-16460	●●	●●	●●	●●	●●●	●●●●	Premium grade silicone to reduce foam voids, contributing to outstanding surface quality in metal faced panels
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 = Hydrofluoro Olefin, PIR = Polyisocyanurate, PUR = Polyurethane, Features: Strong = ●●●●, Moderate = ●●

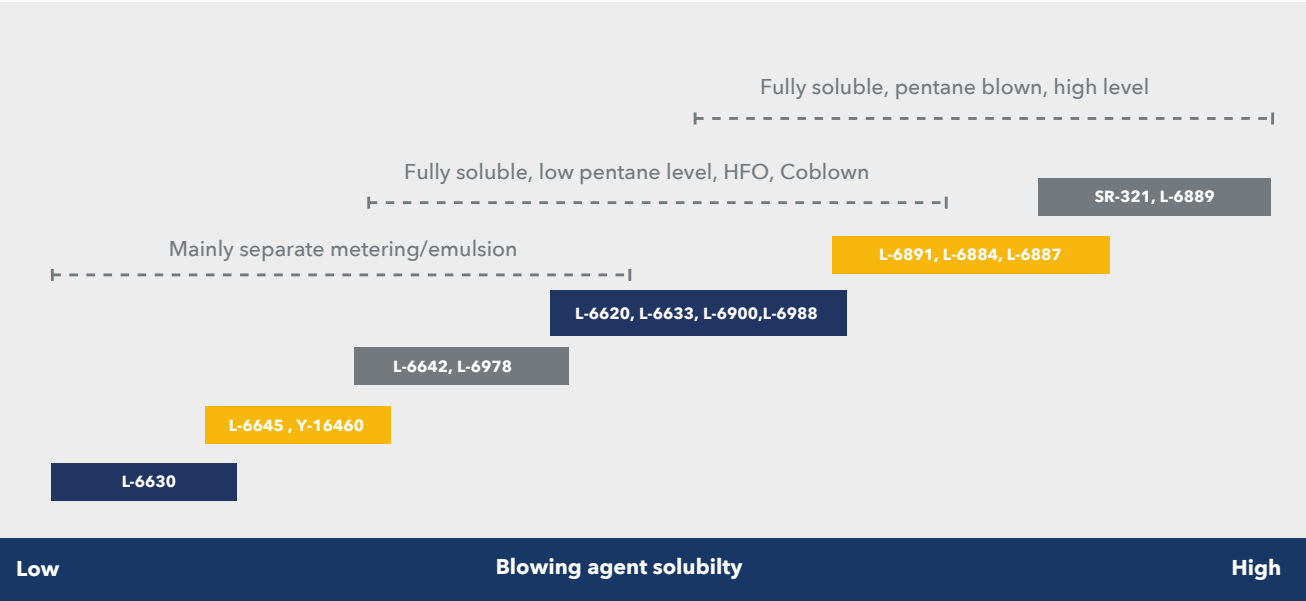




Silicones	Fine Cells	Pentane solubility in Polyols	Blowing agents emulsification	Cell Stabilization	Foam Flow	Void Reduction	Product Description
L-6265	●●	●●●	●●●	●●●	●●	●●	Can improve dimensional stability and FR for spray and panels application with various water/co-blown technologies
L-5111	●●●●	●	●●●	●	●●●	●●	For boardstock fine cells with pentane blowing agents - for PIR/PUR boardstock lamination
L-5112	●●●●	●●	●●●●	●●	●●●	●●●	For boardstock, offers improved mixing quality and emulsification of pentane up to high usage level. Typically improves foam quality and reduces laydown defects
L-5164	●●●●	●●	●●●	●●●	●●●	●●●	For boardstock, strong nucleation and emulsification power, for n- and iso-pentane and less compatible raw materials
L-5158	●●●	●	●●●	●●	●●●●	●●●●	For PIR boardstock, offers better processing and edge stability, can help reduce surface defects and emulsion viscosity
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
Y-16371	●●●●	●	●●●●	●●●●	●●●	●●●●	1K/OCF, excellent performance in winter conditions and premium foams. Easy flow and low expansion rate
Y-16450	●●●	●	●●●	●●●●	●●●●	●●●	1K/OCF, improved dimensional stability at low density. Well balanced, easy flow and popcorn-like froth
L-5388	●●●		●●●	●●●	●●	●●●	Excellent 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



Relative Scale of Niaux Silicone Contribution to Blowing Agent Solubility in Rigid Foam System Applications





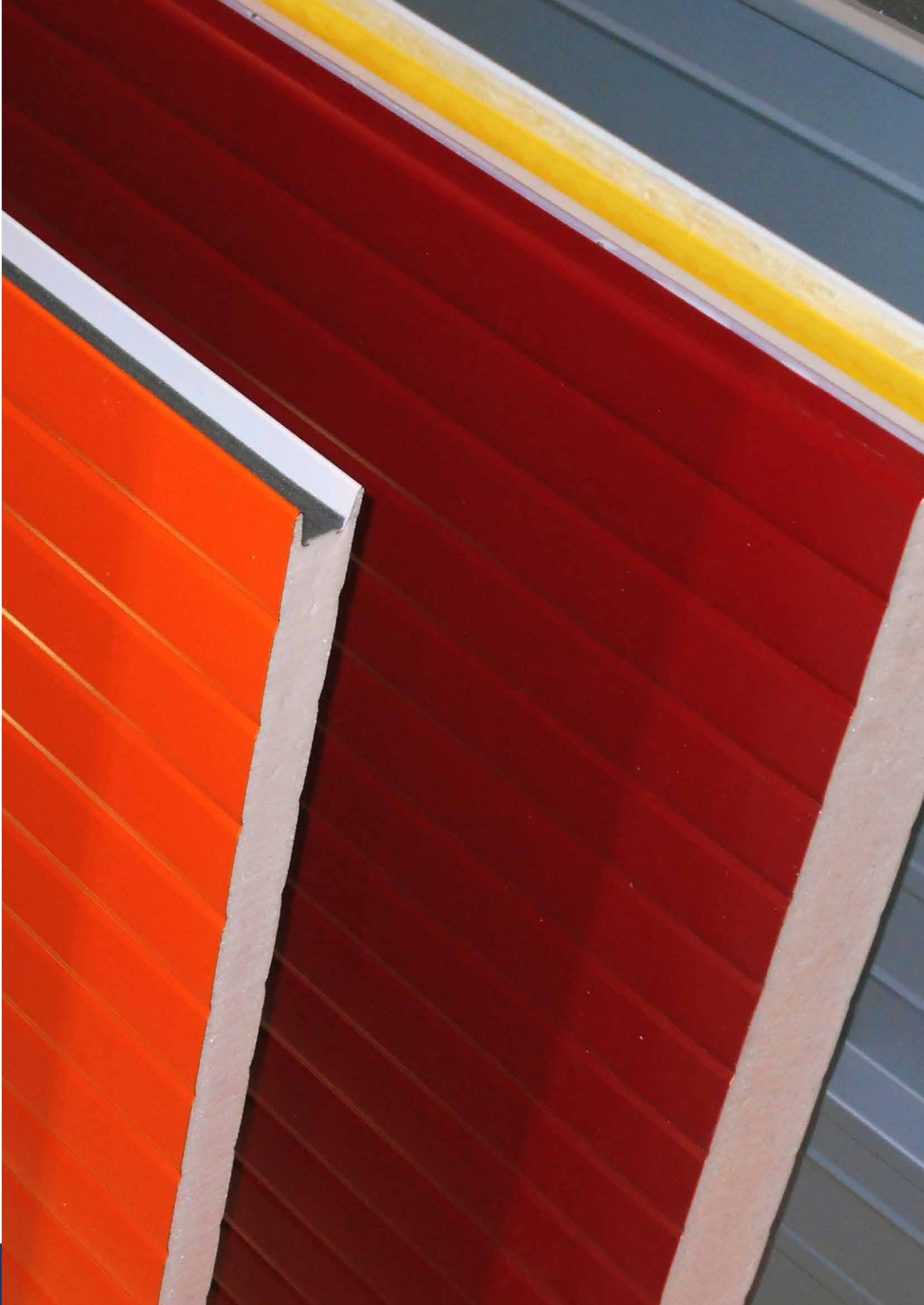
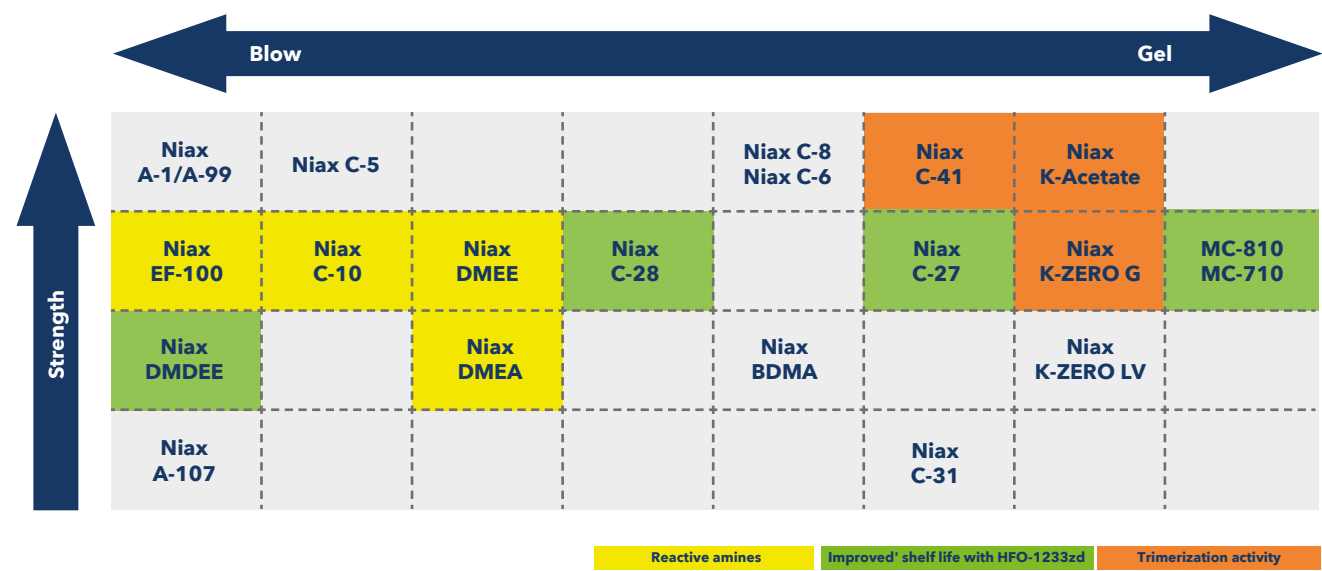
Catalysts	PUR discontinuous	PUR continuous lamination and block	PIR continuous lamination and block	Water blown PUR	Packaging, open cells foam	Product Description
<b>A-1</b>	●	●	●	●	●	Very effective blowing catalyst, promote selectively water-NCO reactions, can improve foam flow and rate of expansion
<b>C-5</b>	●	●	●			General purpose blowing catalyst
<b>EF-100</b>	●	●	●	●	●	Reactive blow catalyst, excellent candidate for applications where low odor is a relevant feature
<b>C-6</b>		●	●			Efficient gel catalyst for a variety of PU application
<b>C-8</b>	●	●		●	●	General purpose PUR catalyst
<b>C-10</b>		●	●	●	●	Reactive amine catalyst, ideal for spray and open-cell applications. Blowing catalyst giving a smooth reaction profile, good candidate also in flexible moulded foams
<b>PM-40</b>		●	●			Blowing catalyst based on A-1, moderate odor and viscosity and may be used with direct metering
<b>BDMA</b>	●	●		●	●	Dimethylbenzylamine, weak gel catalyst, can reduce surface friability and can improve foam adhesion in particular with mainly water-blown foams
<b>DMEA</b>	●	●				Moderate odour, typically cost-effective, reactive catalyst
<b>DMEE</b>	●			●	●	Moderate odour, typically cost-effective, reactive catalyst, more blowing efficiency compared to DMEA
<b>DMDEE</b>	●				●	Moderate activity blow catalyst, excellent storage stability also in isocyanate and prepolymers, 1K/OCF foams
<b>PM20 PLUS</b>		●	●	●	●	Blow-gel catalyst for direct in line metering in the continuous lamination of PUR or for PIR in combination with a potassium catalyst
<b>C-27</b>	●	●	●	●	●	Low odor catalyst offering improved shelf life for water co-blown systems
<b>C-28</b>	●	●	●	●	●	Balanced blow-gel catalyst, good shelf-life with HFO-1233zd
<b>C-31</b>	●	●	●	●		Delayed action catalyst for PIR and PUR, improve green strength and surface curing, reduce post expansion in thick panels
<b>C-41</b>	●	●	●			Strong gel catalyst promoting both PUR and PIR reaction, promote fast crosslinking, can reduce demould time and improve foam adhesion
<b>A-107</b>	●			●		Acid blocked delayed action blow catalyst
<b>C-520</b>		●	●			Formulated blowing catalyst for a safer and more accurate handling
<b>C-520 Plus</b>		●	●			Formulated balanced blow-gel catalyst, for a safer and more accurate handling
<b>MC-710/ MC-810</b>					●	Bismuth based catalysts, exhibiting strong gel catalytic activity.

HFC = Hydro Fluoro Carbon, HCFC = Hydro Chloro Fluoro Carbon, HFO = Hydrofluoro Olefin, PIR = Polyisocyanurate, PUR = Polyurethane, Features: Strong = ●●●●, Moderate = ●



Niax Catalysts	PUR discontinuous	PIR discontinuous panels	PIR continuous lamination and block	Spray	Water blown PUR	Packaging, open cells foam	Product Description
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
Niax Special Additives							
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, can reduce surface friability in high water and/or high index formulations
FRP	●	●	●	●	●	●	Halogen free additives to help improve fire properties in both PUR or PIR foams

Niax Catalysts for Rigid Foams Applications



NIAX  
SPECIALTIES  
APPLICATIONS

POLYURETHANE COATINGS,  
ADHESIVES, SEALANTS AND  
ELASTOMERS (CASE)



Niax Silicone and Modifiers

Silicones	Microcellular (Polyether)	Microcellular (Polyester)	SRIM/Composite	Integral Skin Foam	PU Leather/Coatings	Mechanical Froth	Product Description
L-1500	●						Standard surfactant for microcellular systems (PES)
L-1501	●	●					Wide processing latitude with excellent open cells 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-5309J	●		●	●			Surfactant for I-skin with HFO or CP, medium-low stabilization, good open foam content
L-620	●			●			Strong stabilizing surfactant for I-skin and high density microcellular applications
L-5302	●		●	●			Medium stabilizing surfactant can be considered for use in integral skin and high-density polyether-based microcellular systems
L-1131				●			Cell stabilizer for wet process PU leather, provides good deposition, increases thickness, speeds up DMF and water exchange
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				●			Low 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
L-5641				●			Low VOC surfactant for increased closed cell content and decreased density (< 300 kg/m³)

Niax Catalysts

Catalysts	Microcellular/Shoe Sole	SRIM/Composite	Elastomers	Spray Elastomer	Integral Skin Foam	PU Leather/Coatings	Product Description	Urea Selectivity	Urethane Selectivity	Pot Life	Curing Speed	Hydrolytic Stability
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
LC-5619		●	●			●	Gel selective tin carboxylate catalyst for polyurethane production, transesterification catalyst			1	4	2
LC-5636		●	●			●	Heat activated catalyst Sn/Hg/Ni free.	●		3	2	2
MC-710	●	●		●	●	●	Enhanced reactivity and stability over MC-810	●		1	4	3
MC-810	●	●		●	●	●	Tin free metal based catalysts, strong gelling, can replace DBTDL	●		1	3	2

4 = more ; 1 = less





## CUSTOMER SERVICE CENTERS

### AMERICAS

+1 800 295 2392 Toll free\*  
+ 704 805 6946 Direct Number

### LATIN AMERICA

#### BRAZIL

+55 11 4534 9650 Direct Number

#### MEXICO

+52 55 2169 7670 Direct Number

\*All American countries

### EMEAL- EUROPE, MIDDLE EAST, AFRICA & INDIA

#### EUROPE

+ 390510924300 Direct number

#### INDIA, MIDDLE EAST & AFRICA

+ 91 44 71212207 Direct number\*

\*All Middle Eastern countries, Africa, India, Pakistan, Bangladesh, Sri Lanka.

### ASIA PACIFIC

#### CHINA

800 820 0202 Toll free  
+86 21 3860 4892 Direct number

#### JAPAN

+81 3 5544 3111 Direct number

#### KOREA

+82 2 6201 4600 Direct number

### SOUTH EAST ASIA, AUSTRALIA & NEW ZEALAND

+60 3 9206 1543 Direct number\*

\*South East Asia countries (Malaysia, Singapore, Thailand, Indonesia, Vietnam, Philippines, Cambodia, Myanmar / other countries located in Pacific region).

#### DISCLAIMER:

THE MATERIALS, PRODUCTS AND SERVICES OF MOMENTIVE PERFORMANCE MATERIALS INC. AND ITS SUBSIDIARIES AND AFFILIATES (COLLECTIVELY "SUPPLIER"), ARE SOLD SUBJECT TO SUPPLIER'S STANDARD CONDITIONS OF SALE, WHICH ARE INCLUDED IN THE APPLICABLE DISTRIBUTOR OR OTHER SALES AGREEMENT, PRINTED ON THE BACK OF ORDER ACKNOWLEDGMENTS AND INVOICES, AND AVAILABLE UPON REQUEST. ALTHOUGH ANY INFORMATION, RECOMMENDATIONS, OR ADVICE CONTAINED HEREIN IS GIVEN IN GOOD FAITH, SUPPLIER MAKES NO WARRANTY OR GUARANTEE, EXPRESS OR IMPLIED, (i) THAT THE RESULTS DESCRIBED HEREIN WILL BE OBTAINED UNDER END-USE CONDITIONS, OR (ii) AS TO THE EFFECTIVENESS OR SAFETY OF ANY DESIGN INCORPORATING ITS PRODUCTS, MATERIALS, SERVICES, RECOMMENDATIONS OR ADVICE. EXCEPT AS PROVIDED IN SUPPLIER'S STANDARD CONDITIONS OF SALE, SUPPLIER AND ITS REPRESENTATIVES SHALL IN NO EVENT BE RESPONSIBLE FOR ANY LOSS RESULTING FROM ANY USE OF ITS MATERIALS, PRODUCTS OR SERVICES DESCRIBED HEREIN. Each user bears full responsibility for making its own determination as to the suitability of Supplier's materials, services, recommendations, or advice for its own particular use. Each user must identify and perform all tests and analyses necessary to assure that its finished parts incorporating Supplier's products, materials, or services will be safe and suitable for use under end-use conditions. Nothing in this or any other document, nor any oral recommendation or advice, shall be deemed to alter, vary, supersede, or waive any provision of Supplier's standard Conditions of Sale or this Disclaimer, unless any such modification is specifically agreed to in a writing signed by Supplier. No statement contained herein concerning a possible or suggested use of any material, product, service or design is intended, or should be construed, to grant any license under any patent or other intellectual property right of Supplier covering such use or design, or as a recommendation for the use of such material, product, service or design in the infringement of any patent or other intellectual property right.

Momentive and the Momentive logo are registered trademarks of Momentive Performance Materials Inc.

The use of the "TM" symbol designates registered or unregistered trademarks of Momentive Performance Materials Inc. or its affiliated companies.

Copyright 2021 Momentive Performance Materials Inc. All rights reserved.