

NIAX* Catalyst A-33

URETHANE ADDITIVES - FLEXIBLE SLABSTOCK FOAM



Niax catalyst A-33 imparts a high level of activity and good physical properties to flexible foam systems. Optimum performance of this catalyst can be achieved when it is used in conjunction with Niax catalyst E-A-1 or Niax catalyst A-10 in flexible foam formulations.

Typical Physical Properties	
Specific Gravity at 20°C (68°F)	1.033
Average Weight per Gallon, lb	8.59
Viscosity, cP	
at 0°F (-17.8°C)	7000
at 36°F (2.2°C)	700
at 75°F (23.9°C)	100
Solubility at 20°C (68°F)	
in Water	Infinite
in Urethane-Grade Polyol	Completely miscible
in Fluorocarbon Polyol	50% by wt
Vapor Pressure, mm Hg	
at 100°F (37.8°C)	2
at 200°F (93.3°C)	17
at 300°F (148.9°C)	65
Flash Point, Pensky-Martens Closed Cup ⁽¹⁾ , °C (°F)	88 (190)
Storage Life	Unlimited in enclosed container

(1) ASTM D 93

NIAX* Catalyst A-33

Performance Evaluation

Niax catalyst A-33 was evaluated using bench foam techniques. The effects of varying tin at constant amine and varying amine at constant tin were both evaluated. The ranges of tin and amine concentrations were well within the “operating range” of each. The dependent variables measured were: reactivity, top collapse, height of rise, breathability, density, cell count, and foam hardness (IFDs). Top and bottom gradients for breathability and density were defined.

Table 1 shows the foam screening formulation and foaming conditions. Table 2 provides evaluations of the foams produced at various tin and amine levels using Niax catalyst A-33 and a Niax catalyst A-10/Niax catalyst A-33 blend.

Table 1: Test Foam Formulation and Foaming Conditions

Foam Formulation	Parts by Wt
3000 MW EO/PO Polyol	100.0
CFC-11 Blowing Agent	5.0
Methylene Chloride	3.0
Water 4.5	
Amine Catalyst	Varied
Niax Silicone L-580	1.5
Stannous Octoate, D-19	Varied
Toluene Diisocyanate (TDI), 80:20	
Index	114
Parts	59.7
Bench Foaming Conditions	
Polyol Charge, g	600
Mixing Speed, rpm	2700
Box Size, in	14 x 14
Oven Curing Temperature, °C (°F)	125 (257)
Oven Curing Time, min	10

Table 2: Properties of Foam with Niax Catalyst A-33

	Niax Catalyst A-33					Niax Catalyst A-10/A-33 ⁽¹⁾				
Amine Level	0.26	0.26	0.26	0.21	0.31	0.25	0.25	0.25	0.20	0.30
D-19 Level	0.22	0.25	0.28	0.25	0.25	0.22	0.25	0.28	0.25	0.25
Polyol Temperature, °F (°C)	← 74 (23.3) →					← 74 (23.3) →				
Cream Time, sec	14	13	12	14	12	13	13	12	13	12
Rise Time, sec	101	96	93	102	92	102	97	93	102	92
Top Collapse, in	0.4	0.4	0.4	0.3	0.2	0.4	0.3	0.3	0.3	0.2
Height of Rise, in	13.0	13.0	13.2	13.0	13.1	13.0	13.0	13.4	13.1	13.2
Cells per in	← 45-50 →					← 45-50 →				
Breathability, SCFM										
Top	5.5	5.2	4.7	5.2	4.7	5.5	5.2	4.7	4.7	5.2
Middle	3.0	2.3	1.6	2.3	2.3	2.9	2.5	1.8	2.0	2.3
Bottom	0.9	0.7	0.6	0.7	0.7	0.8	0.7	0.6	0.7	0.7
Density, pcf										
Top	1.13	1.10	1.12	1.11	1.12	1.13	1.09	1.09	1.10	1.10
Middle	1.13	1.12	1.13	1.11	1.13	1.12	1.10	1.11	1.11	1.11
Bottom	1.25	1.24	1.23	1.23	1.24	1.23	1.20	1.21	1.21	1.21
IFD, 12 in x 12 in x 4 in, lb										
25%	30	28	31.5	29	28	28	31	32	32	30
65%	53	51	55	50	50	55	53	57	57	54

(1) 3/1 Blend

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 considering the use of this product should review the latest Material Safety Data Sheet and label for product safety information, handling instructions, personal protective equipment if necessary, and any special storage conditions required. Material Safety Data Sheets are available at www.momentive.com or, upon request, from any Momentive Performance Materials representative. Use of other materials in conjunction with Momentive Performance Materials products may require additional precautions. Please review and follow the safety information provided by the manufacturer of such other materials.

Limitations

Customers must evaluate Momentive Performance Materials products and make their own determination as to fitness of use in their particular applications.

Emergency Service

Momentive Performance Materials maintains an around-the-clock emergency service for its products. The American Chemistry Council (CHEMTREC) and CareChem24 International also maintain an around-the-clock emergency service for all chemical products:

<u>Location</u>	<u>Momentive Performance Materials Products</u>	<u>All Chemical Products</u>
Mainland U.S., Puerto Rico Alaska, Hawaii Canada Europe	518.233.2500 518.233.2500 518.233.2500 +518.233.2500 (Albanian, Czech, Danish, Dutch, English, Finnish, French, German, Greek, Hungarian, Italian, Lithuanian, Norwegian, Polish, Portuguese, Romanian, Russian, Serbo-Croatian, Slovak, Spanish, Swedish, Turkish, Ukrainian)	CHEMTREC: 800.424.9300 CHEMTREC: 800.424.9300 CHEMTREC: 800.424.9300 +44.(0)208.762.8322 (UK)
Middle East, All countries, except Israel Middle East, Israel Latin America, Asia/Pacific, all other locations worldwide At sea	+518.233.2500 +518.233.2500 +518.233.2500 Radio U.S. Coast Guard, which can directly contact Momentive Performance Materials at 518.233.2500 or CHEMTREC at 800.424.9300.	+961.3.487.287 (Lebanon) +44.(0)208.762.8322 (UK) CHEMTREC: +1-703.527.3887 (collect)

DO NOT WAIT. Phone if in doubt. You will be referred to a specialist for advice.

CUSTOMER SERVICE CENTERS

North America	E cs-na.silicones@momentive.com		
	• Specialty Fluids	T +1.800.523.5862	F +1.304.746.1654
	• UA, Silanes and Specialty Coatings	T +1.800.334.4674	F +1.304.746.1623
	• RTVs and Elastomers	T +1.800.332.3390	F +1.304.746.1623
	• Consumer Sealants & Construction Sealants and Adhesives	T +1.877.943.7325	F +1.304.746.1654
Latin America	E cs-la.silicones@momentive.com		
	• Argentina & Chile	T +54.11.4862.9544	F +54.11.4862.9544
	• Brazil	T +55.11.4534.9650	F +55.11.4534.9660
	• Mexico & Central America	T +52.55.2169.7670	F +52.55.2169.7699
	• Venezuela, Ecuador, Peru, Colombia & Caribbean	T +58.212.285.2149	F +58.212.285.2149
Europe, Middle East, Africa and India	E cs-eur.silicones@momentive.com	T +00.800.4321.1000	
		T +40.21.3111848	
Pacific	E cs-ap.silicones@momentive.com		
	• China	T +1.800.820.0202 or T +86.21.3860.4892	F +86.21.5079.3725
	• Japan	T +0120.975.400 or T +81.276.20.6182	F +81.276.31.6259
	• Korea	T +82.2.6201.4600	F +82.2.6201.4601
	• Malaysia	T +60.3.9206.1532	F +60.3.9206.1533
	• Thailand	T +662.207.3456	F +66.2207.3488
Worldwide Hotline		T +1.607.786.8131	F +1.607.786.8309
		T +1.800.295.2392	

Visit us at Momentive.com



Momentive Performance Materials
22 Corporate Woods Boulevard
Albany, NY 12211

*Niax is a trademark of Momentive Performance Materials Inc.
Momentive is a trademark of Momentive Performance Materials Holdings LLC.
Copyright 2003-2011 Momentive Performance Materials Inc. All rights reserved.

MOM-121-081-50E-GL 03/11 Printed in U.S.A.

THE MATERIALS, PRODUCTS AND SERVICES OF MOMENTIVE PERFORMANCE MATERIALS INC., MOMENTIVE PERFORMANCE MATERIALS USA INC., MOMENTIVE PERFORMANCE MATERIALS ASIA PACIFIC PTE. LTD., MOMENTIVE PERFORMANCE MATERIALS WORLDWIDE INC., MOMENTIVE PERFORMANCE MATERIALS GmbH, THEIR SUBSIDIARIES AND AFFILIATES DOING BUSINESS IN LOCAL JURISDICTIONS (collectively "SUPPLIERS"), ARE SOLD BY THE RESPECTIVE LEGAL ENTITY OF THE SUPPLIER SUBJECT TO SUPPLIERS' 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, SUPPLIERS MAKE 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 SUPPLIERS' PRODUCTS, MATERIALS, SERVICES, RECOMMENDATIONS OR ADVICE. AFOREMENTIONED EXCLUSIONS OR LIMITATION OF LIABILITY ARE NOT APPLICABLE TO THE EXTENT THAT THE END-USE CONDITIONS AND/OR INCORPORATION CONDITIONS CORRESPOND TO THE RECOMMENDED CONDITIONS OF USE AND/OR OF INCORPORATION AS DESCRIBED BY SUPPLIER IN ITS PRODUCT DATA SHEET AND/OR PRODUCT SPECIFICATIONS. EXCEPT AS PROVIDED IN SUPPLIERS' STANDARD CONDITIONS OF SALE, SUPPLIERS AND THEIR 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 Suppliers' 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 Suppliers' 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 Suppliers' Standard Conditions of Sale or this Disclaimer, unless any such modification is specifically agreed to in a writing signed by Suppliers. 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 Suppliers or any of its subsidiaries or affiliates 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.