

## Niax\* catalyst A-537

### Description

Niax catalyst A-537 is a liquid, delayed action, tertiary amine catalyst selective to the gelling (urethane forming) reaction.

### Key Features and Benefits

- Delayed-action extends pour time needed for pouring complex parts with
- Excellent foam endcure relative to other delayed-action catalysts
- Improved flowability

### Typical Physical Properties

Specific Gravity, @ 25°C	1.168
@ 55°C	1.148
Viscosity, cSt @ 25°C	25
Freezing Point, °C	<-20
Flash Point, °C. (PMCC)	none
Hydroxyl Number, mg KOH/g	
without water	1327
apparent with water	1514
Water, %	3.0

### Potential Applications

Niax catalyst A-537 is a delayed-action analog to Niax catalyst A-533 and provides the added benefit of delayed cream time that is necessary for pouring complex parts without hurting foam endcure. Niax catalyst A-537 is an excellent candidate for microcellular integral-skin applications that include shoe soles and steering wheels. Niax catalyst A-507 and Niax catalyst A-537 belong to a family of new catalysts that offer the benefits of delayed cream time and improved flowability without negatively affecting foam cure and demold time.

### Processing Recommendations

Niax catalyst A-537 offers a combination of improved flowability and excellent endcure. Table 1 below shows

a fast-curing midsole formulation using Niax catalyst A-537. Table 2 below shows the reactivity profile and Table 3 on the next page shows the physical properties of this system. Figure 1 compares the reactivity profiles of Niax catalyst A-537 as the sole catalyst versus Niax catalyst A-533, the non-delayed version of Niax Catalyst A-537, and versus Niax catalyst A-507, another delayed-action version of Niax catalyst A-533.

**Table 1: Fast-Cure Polyester-Based Midsole System Featuring Niax Catalyst A-537**

Polyester Polyol Blend	100
Ethylene glycol / Diethylene glycol	
Average OH#: 66, Average functionality	2.1
Ethylene Glycol	7.5
Water	1.3
Niax catalyst A-507 (amine blow catalyst)	0.10
Niax catalyst A-537 (amine gel catalyst)	0.3
Niax catalyst A-533 (amine gel catalyst)	1.10
Niax silicone L-1505 (surfactant)	0.5

**Table 2: Reactivity Profile of Low-Density Polyester-Based Midsole System Featuring Niax Catalyst A-537**

Cream Time, sec.	6
Gel Time, sec.	18
Rise Time, sec.	48
Tack Free Time, min.	2 <sup>1/2</sup>
Pinch/Pull Time, min.	6
Free-rise Density, g/cc.	0.142

**Table 3: Physical Properties of Fast-Cure Polyester-Based Midsole System Featuring Niax Catalyst A-537**

Physical Property	Value
Molded Density, g/cc	0.350
Tensile Strength, kgf /cm <sup>2</sup> ASTM D-412	31.6
Elongation, % ASTM D-412	410
Die C Tear Strength,kgf /cm ASTM-624	14.2
Split Tear Strength, kgf /cm ASTM D-3574	3.8
Hardness, Shore A ASTM D-2240	43-45
Compression Set, % ASTM D-3574	
After 30 min.	8.1
After 16 hours	6.6

The physical properties listed above for this fast-cure midsole system show the outstanding capabilities that can be achieved using Niax catalyst A-537. Niax catalyst A-537 is a highly efficient catalyst that gives a long delay to the cream time but still gives an excellent endcure. Niax catalyst A-537 is the delayed-action version of Niax catalyst A-533 (33% triethylenediamine in ethylene glycol). The blocking agent used in Niax catalyst A-537 reacts in the foaming process and adds to the blowing of the foam by its reaction products while liberating the base catalyst. Niax catalyst A-537 also improves foam flowability over that of Niax catalyst A-533.

Figure 1: Gel Catalyst Reactivity Profiles

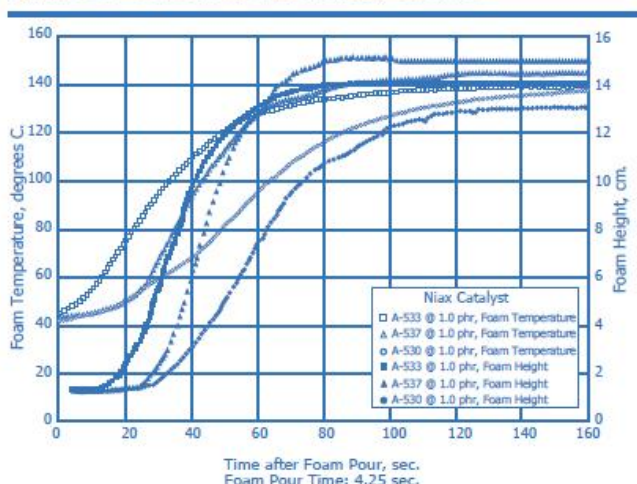


Figure 1 shows the reactivity profiles for a low-density midsole system having either Niax catalyst A-530, Niax catalyst A-533 or Niax catalyst A-537 as the sole catalyst. The use level of the active catalyst ingredient (not including blocking agent) is the same for all of these catalysts. The above figure shows the delay and moderation of the activity in Niax catalyst A-537 and Niax catalyst A-530 versus the base catalyst, Niax catalyst A-533.

The rise profile shown above for Niax catalyst A-537 is much more delayed when compared to Niax catalyst A-533 but not as delayed as for Niax catalyst A-530. The final rise height for Niax catalyst A-537 is significantly higher than that of Niax catalyst A-533 demonstrating the reaction and disappearance of the blocking agent with the added benefit of increased blow. This disappearance of the blocking agent in Niax catalyst A-537 gives it the same curing potential as Niax A-533 with the added benefits of a longer cream time and improved flowability.

**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](http://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**

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

### **Contact Information**

For product prices, availability, or order placement, contact our customer service at [Momentive.com/Customerservice/](https://www.momentive.com/Customerservice/)

For literature and technical assistance, visit our website at: [www.momentive.com](https://www.momentive.com)

### **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.

\*Niax is a trademark of Momentive Performance Materials Inc.1033

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