



# IMPROVE PACKAGING WITH **STRONGER ADHESION** FOR HARD-TO-BOND SUBSTRATES

A hot melt adhesive based on AFFINITY™ GA 1000R Polyolefin Elastomer is helping bring the next generation of differentiated packaging to market



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*Imagine what's next*

## Identifying the challenge

# Strong bonds with increased cost efficiencies

Increased consumer demand for brightly-colored, shiny, and smooth packaging is presenting new challenges for hot melt adhesive (HMA) formulators, packaging manufacturers, and brand owners. While these materials may help increase shelf appeal and value, their low surface roughness also makes it much more difficult to develop secure bonds.

Zhu Hai United Top Adhesives Company, Ltd. (Top Adhesives), a leading adhesives company in China, believed they had found a solution. By adding a specially modified tackifier to an HMA based on ethylene-vinyl acetate (EVA), they were able to increase adhesion sufficiently for hard-to-bond heavy oil coated and/or biaxially oriented polypropylene (BOPP) laminated substrates in carton sealing and strawbonding applications. There was only one problem. The special tackifier was so expensive that it drove the HMA's price higher than customers were willing to pay. As a result, Top Adhesives turned to Dow Elastomers in search of a solution that could combine powerful bonding with increased cost efficiency.

**AFFINITY™ GA 1000R can help produce more HMA per kg of resin while requiring less adhesive to securely bond packages**

**“Thanks to AFFINITY™ GA 1000R, we have observed noticeable improvements in thermal stability/heat resistance, faster setting, and excellent adhesion in our formulations for hard-to-bond gross oil coated and/or BOPP laminated substrates. What’s more, it was fairly easy to incorporate into our production lines.”**

*Huang Yingmin*  
Technical Director, Top Adhesives



## The solution

# Innovation that really sticks

The Dow Elastomers team suggested AFFINITY™ GA 1000R Polyolefin Elastomer (POE), a maleic anhydride (MAH) grafted polymer that improves upon the excellent adhesive characteristics found in all AFFINITY™ GA resins. HMAs formulated with AFFINITY™ GA 1000R offer strong adhesion with hard-to-bond surfaces such as:

- Low surface energy substrates (e.g., polyethylene and polypropylene)
- Low porosity or low surface roughness substrates (e.g., paper or cardboard that’s coated for functionality or aesthetics)
- Substrates with short fiber length due to high content of recycled material

Top Adhesives was able to use AFFINITY™ GA 1000R as a “drop-in” replacement for EVA (and the special tackifier) in their TOPCLEAN\* 160 and 165 HMA formulations without additional modifications. As of August 2012, Top Adhesives has fully converted their product line from EVA- to AFFINITY™ GA POE-based HMAs. AFFINITY™ GA 1000R can also be blended with other resins in the AFFINITY™ GA POE family to offer excellent bonding along with other performance and processing advantages for low application temperature hot melt adhesive (LATHMA) formulations.

**“AFFINITY™ GA 1000R is a prime example of the innovative portfolio of solutions offered by Dow Elastomers to support the ever-changing needs of the global hot melt adhesives market. By combining powerful bonding with excellent processing and the potential for lower total costs, we’re offering tremendous opportunities for growth across the value chain.”**

*Alastair Hill*  
Global Marketing Manager, Dow Elastomers

## Greater mileage



The high bond strength and low density of AFFINITY™ GA 1000R compared to EVA allows Top Adhesives to close more boxes per kilogram of adhesive used.

## Food contact compliance



Compliance with appropriate food contact regulations – Commission Regulation (EU) No 10/2011 and U.S FDA CFR 175.105 as amended (please consult the regulations for complete details) – helps make AFFINITY™ GA 1000R POE as suitable for food and beverage packaging as it is for other hard-to-bond applications.



## Better aesthetics

The clear, “water white” appearance of AFFINITY™ GA polymers and the need to use less adhesive combine for a cleaner, more pleasing package appearance.

## Improved processing



AFFINITY™ GA 1000R helps to offer excellent thermal stability over extended periods of time. In turn, this helps enable clean, efficient HMA application with smaller nozzles for more precise control of bead size and placement; longer pot life; less plugging and clogging; and reduced downtime, maintenance, and lost production. Together, these benefits help make adhesives based on AFFINITY™ GA 1000R an excellent choice for use in high-speed machines (5,000 to 10,000 units per hour).

## Enhanced workplace conditions



HMAs formulated with AFFINITY™ GA 1000R offer clean-running systems with virtually no smoke or odor.

## Lower overall costs



The performance, processing, and end-user advantages offered by AFFINITY™ GA 1000R help generate efficiencies that can potentially help lead to significantly lower system costs.

**AFFINITY™ GA 1000R is an MAH-grafted polymer that offers excellent bonding to coated, BOPP, and other hard-to-bond substrates**

**The performance, processing, and end-user benefits of AFFINITY™ GA 1000R POE offer the potential to reduce overall costs**

**Forming strong bonds in packaging and beyond...**

In addition to helping develop powerful bonds for hard-to-bond substrates, innovative materials such as AFFINITY™ GA 1000R Polyolefin Elastomer allows Dow Elastomers to work closely and build strong relationships with our customers. For more information on how Dow Elastomers is Sticking to Innovation with the AFFINITY™ GA Polyolefin Elastomers family, please visit [www.stickingtoinnovation.com](http://www.stickingtoinnovation.com). Imagine what's next...





## About Top Adhesives

Founded in March 2000, Zhu Hai United Top Adhesives Company, Ltd. (Top Adhesives), is one of China's leaders in the adhesive market, predominantly producing casein glue, water-based adhesives, and hot melt adhesives.

\*TOPCLEAN is a product of Zhu Hai United Top Adhesives Company, Ltd.

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**Dow Elastomers** offers a distinct portfolio of products, allowing participation in a wide range of market segments and applications, including innovative products for adhesives with enhanced processability and improved performance. The business is focused on offering innovative solutions to customers through new applications, differentiated offerings and tailored services and dedicated technical and processing experience on all continents. For more information: [www.dowelastomers.com](http://www.dowelastomers.com).

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