



**AFFINITY™ GA 1001R**

## **Functionalized Polyolefin Elastomer Bound by innovation**

AFFINITY™ GA Polyolefin Elastomers (POEs) offer the same benefits while helping address even tougher adhesion challenges and enabling sustainable HMA formulations.

**Affinity**™ GA  
polyolefin elastomers by 

Combining superior adhesion with a host of other attributes, AFFINITY™ GA POEs offer opportunities to create formulations that meet and potentially exceed the requirements of HMA applications.

AFFINITY™ GA 1001R POE is a cutting-edge solution designed to meet the increasing regulatory demands for HMAs without sacrificing performance such as strong adhesion to hard-to-bond surfaces.

## AFFINITY™ GA Functionalised Polyolefin Elastomer



**Specifically Designed For  
Hot Melt Adhesives**

### Product Property Ranges:

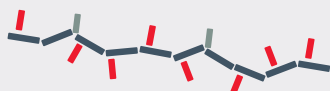


MI:  
**500 – 1250**  
**g/10 min**  
(measured at 190 °C)



Density:  
**0.870 – 0.878**  
**g/cm³**

**Functionalized  
Random Ethylene-α-  
olefin Copolymer**



**Table 1: Typical properties of Functionalized AFFINITY™ GA POEs<sup>(1)</sup>**

	AFFINITY™ GA 1001R
<b>Food Contact Approved Mineral Oil Free</b>	<b>Yes</b>
<b>Low Residual MAH</b>	<b>Yes</b>
Density (g/cm³)	0.878
Brookfield Viscosity @ 350 °F / 177 °C centi-poise / mPas	13,000
Melt Index (g/10 min) <sup>(2)</sup>	660
DSC Melting Point (°C) <sup>(3)</sup>	68
DSC Glass Transition Temperature (°C) <sup>(3)</sup>	-58

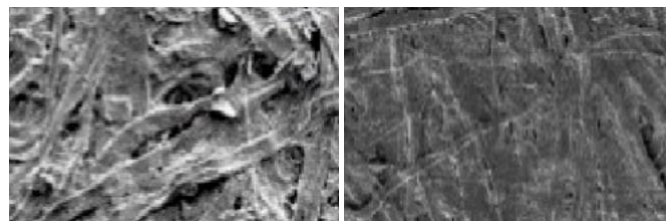
<sup>(1)</sup> Data per tests conducted by Dow. Test protocols and additional information available upon request. Properties shown are typical, not to be construed as specifications.

<sup>(2)</sup> Melt index value is calculated

<sup>(3)</sup> Indicative values

In testing we compared the bonding performance of HMAs using AFFINITY™ GA 1001R with those based on ethylene-vinyl acetate (EVA) and AFFINITY™ GA 1950, using challenging substrates such as dense corrugated carton board.

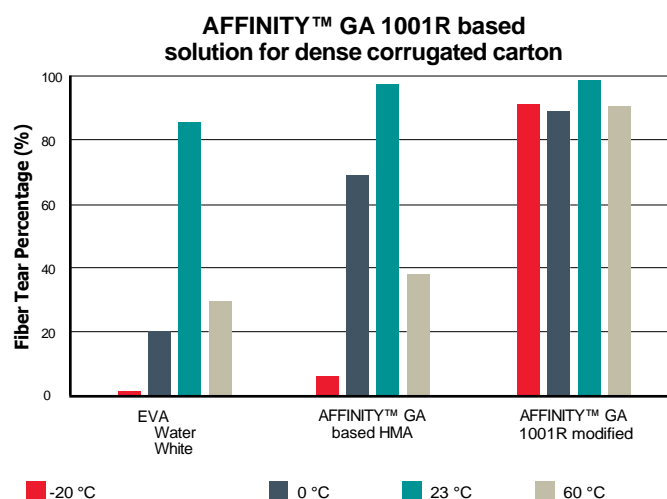
**Figure 1: Scanning electron micrographs (SEM) comparing regular corrugated board and dense corrugated board**



Regular corrugated carton

Dense corrugated carton

**Figure 2: Percent fiber tear of dense corrugated board using HMA formulated with EVA, AFFINITY™ GA 1950 and AFFINITY™ GA 1950 modified with AFFINITY™ GA 1001R<sup>(4)</sup>**



Dow generated pictures & data:

AFFINITY™ GA 1950 based HMA: AFFINITY™ GA 1950/H2HCR/FT wax;  
AFFINITY™ GA 1001R based HMA: AFFINITY™ GA 1950/AFFINITY™ GA 1001R/H2HCR/FT wax

<sup>(4)</sup> Properties shown are typical, not to be construed as specifications.

## Creating stronger bonds

As a maleic anhydride (MAH) grafted polymer, AFFINITY™ GA 1001R enhances the adhesive properties found in all AFFINITY™ GA resins. This enables HMAs made with AFFINITY™ GA 1001R to tackle some of the toughest bonding challenges faced by formulators, packaging manufacturers, and brand owners, including:

- low surface energy substrates like polyethylene (PE) and polypropylene (PP);
- low porosity or smooth substrates such as coated paper or cardboard;
- substrates with short fiber lengths due to high recycled content

## Increased formulation flexibility

AFFINITY™ GA 1001R is a polyolefin elastomer that enhances the compatibilization of tackifiers, in adhesive formulations. It works by improving the miscibility between hydrogenated as well as natural tackifiers and the base polymer, leading to better performance in terms of adhesion, flexibility, and stability. This enables adhesives to exhibit improved cohesive strength and tack, resulting in more uniform and reliable adhesive properties, even in demanding conditions.

Every hard-to-bond substrate is unique, with bonding relying on the specific nature of the material. AFFINITY™ GA 1001R offers formulators the flexibility to tailor adhesives to meet the distinct needs of different HMA applications. It can serve as an excellent alternative to existing materials or be combined with other AFFINITY™ GA polymers for added benefits. Moreover, AFFINITY™ GA 1001R allows customization in terms of viscosity, MAH graft level, and cost savings.

## Improved heat resistance

Beyond enhancing adhesive properties, MAH grafting in AFFINITY™ GA 1001R improves heat resistance, offering up to 10 °C (18 °F) more heat stability during transport and storage compared to AFFINITY™ GA 1900 alone. Tests on coated cardboard showed the highest heat resistance with formulations containing 30-40 wt% AFFINITY™ GA 1001R, passing the 60 °C (140 °F) heat stress test.

## Bound by innovation

Dow is committed to delivering exceptional performance and value through advanced materials, technology, and service tailored to customer needs. The introduction of AFFINITY™ GA 1001R POE to the AFFINITY™ GA Polyolefin Elastomers (POEs) line gives HMA formulators even more reason to choose Dow for unmatched performance, processability, and end-use advantages, surpassing some EVA formulations.



AFFINITY™ GA 1001R is specifically designed to address hard-to-bond substrates such as recycled cardboard



Specification and performance equivalent to AFFINITY™ GA 1000R



New process development and new analytical technique development to deliver reduced residual MAH and no intentionally added mineral oil



Specification and performance equivalent to Potential for EU Label Free HMA (EUH2008)

About Dow

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Dow Europe GmbH Bachtobelstrasse 4 8810 Horgen Switzerland	US		dow.com
	Toll Free	800 441 4DOW 989 832 1542	
	International		
	Europe / Middle East	+ 800 36 94 63 67	
	Italy	+ 800 783 825	
	Asia / Pacific	+ 800 77 76 77 76 + 60 37 958 3392	
	South Africa	+ 800 99 5078	

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