



AFFINITY™ GA

POLYOLEFIN ELASTOMERS

**POLYOLEFIN ELASTOMERS FOR HOT
MELT ADHESIVES**



Imagine what's next

About AFFINITY™ GA for Hot Melt Adhesives

AFFINITY™ GA Polyolefin Elastomers (POEs) are a range of polymers based on proprietary technology from Dow that have proven successful due to their performance, processing, and end-user advantages not seen with EVA (Ethylene-Vinyl Acetate) formulations. These polymers help you reliably stick boxes and other substrates together over a broad range of temperatures, while saying goodbye to odor, gelling, machine wear and tear, and color disadvantages of EVA-based hot melt formulations.

Main Characteristics

The low density and low viscosity of AFFINITY™ GA POEs are the keys to achieve better Hot Melt Adhesive (HMA) properties such as an attractive cosmetic appearance, and aggressive bonding across many different substrates. Applications include case and carton sealing, multi-wall structure fabrication, non-woven construction, and food and beverage packaging.

AFFINITY™ GA POEs offer good thermal stability, so they have a longer pot life and reduced gel formation translating into less frequent maintenance and downtime. The stable viscosity helps to consistently and easily apply hot melts, precisely controlling bead size and placement.

Performance Benefits of Hot Melt Adhesives Based on AFFINITY™ GA



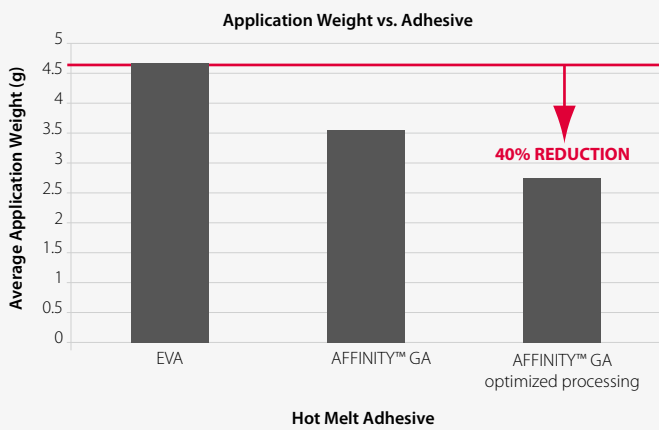
FEATURE	BENEFIT
Increased mileage	Reduced adhesive usage, lowers cost as much as 15-40% (depending on application)
No stringing and spider webbing	Enhanced package appearance, reduced labour cost, reduced downtime, reduced scrap
Low colour	Enhanced packaging appearance
Low gel and char formation	Low applicator maintenance due to cleaner filters and nozzles, reduced downtime
High green strength (Tack)	High line speed, reduced waste
Rapid set during compression cycle	High line speed, reduced waste
High bond strength	Enhanced package integrity (Fibre Tear Test)
Stable viscosity	Excellent control of viscosity resulting in precise control of bead size and bead placement
Good bond strength over a range of temperatures	Enhanced packaging integrity (Fibre Tear Test as a function of temperature, SAFT and PAFT)
Adhesion to a range of substrates	Flexibility, reduced waste, reduced cost
Reduced odor	Provides an environmentally friendly workplace
Clean running	Reduced wear and tear on equipment, reduced downtime

Cost Savings of AFFINITY™ GA for Hot Melt Adhesives

AFFINITY™ GA POEs provide significant cost savings for the HMA user in comparison to EVA-based HMAs. As revealed in the chart below, even without optimizing the application parameter, a reduction in adhesive consumption is obtained versus EVA-based HMA. Furthermore, the consumed quantity can be reduced even further by optimizing the application parameters¹. The cost savings are the result of aggressive bonding, which lead to increased mileage. Moreover, adhesives based on AFFINITY™ GA give fewer line problems and a tremendous decrease in downtime since the nozzles and filters rarely need to be changed.



Adhesive Consumption: AFFINITY™ GA POE based HMA vs. EVA-HMA¹ in Packaging



HMA Polymer Component – AFFINITY™ GA – Current Grade Slate

Polymer	AFFINITY™ GA 1875	AFFINITY™ GA 1900	AFFINITY™ GA 1950	AFFINITY™ GA 1000R
Density, g/cc	0.870	0.870	0.874	0.878
Brookfield Viscosity @ 177°C (350°F), cps	6,700	8,200	17,000	13,000
Approximate Melt Index, g/10min (190°C, 2.16g weight)	1,250	1,000	500	660
DSC Melting Point, °C (°F)	70 (158)	68 (154)	70 (158)	68 (154)
Crystallinity, % ₃	22	16	18	20
Glass Transition Temperature °C (°F)	-57 (-71)	-58 (-72)	-57 (-69)	-58 (-72)

AFFINITY™ GA POEs are versatile polymers designed to help your applications flow faster, flex longer and stick better. Combining high flow with low crystallinity, these raw materials allow you to reach higher levels of performance, processing ease, and value in polymer modification/compounding and hot melt adhesive applications.

There are currently four grades available:

- AFFINITY™ GA 1875: designed for low application temperature hot melt adhesives (LATHMA) of 120 °C or below
- AFFINITY™ GA 1900: designed for LATHMA of 135 °C to 150 °C (275 °F to 302 °F)
- AFFINITY™ GA 1950: designed for all standard application temperature (175 °C / 347 °F)
- AFFINITY™ GA 1000R: enabling excellent bonding on hard-to-bond substrates

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Colombia	+57-1-219-6000
Mexico	+52-55-5201-4700
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	+800-3694-6367
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South Africa	+800-99-5078
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	+60-3-7958-3392

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