INNOVATIVE SOLUTION HELPS **BUILD STRONGER BONDS** FOR HARD-TO-BOND SUBSTRATES

AFFINITY™ GA Polyolefin Elastomers offer a hot melt adhesive solution for bonding straw attachments to milk cartons

Identifying the challenge

Putting the pieces together

Colquímica, a leading Portuguese adhesive formulation company, was challenged to provide a solution that would successfully attach two items with hard-to-bond surfaces – polyethylene (PE) coated milk cartons and straws wrapped in oriented polypropylene (OPP) film – in support of the country's School Milk Program. With three hundred million cartons of milk given to young school children each year, it was important to ensure that the cartons and straws stayed together. Colquímica also understood that non-porous substrates such as these typically result in poor adhesion with traditional hot melt adhesives (HMAs) based on ethylene-vinyl acetate (EVA).

A "remarkable" reduction in odor and fumes was observed by workers during the production process

Adhesives based on AFFINITY™ GA helped to enable the attachment of more straws per kilogram of adhesive used

The solution

Stronger adhesion to hard-to-bond substrates

To meet the distinct needs of this demanding application, Colquímica suggested Kmelt Evolution C 2800*, an HMA based on AFFINITY™ GA 1900 and 1950 Polyolefin Elastomers (POE) from Dow Elastomers. AFFINITY™ GA POEs offer the required adhesion properties along with ease and efficiency of application. Compared with some traditional EVA-based HMAs, Colquimica recognized the enhanced performance as well as other aesthetic and functional benefits.

In addition to helping enable excellent bonding with the PE coated cartons and OPP film, the use of AFFINITY™ GA offered several other benefits.

Enhanced temperature resistance

The excellent low temperature performance of AFFINITY™ GA allows Colquímica's HMA formulation to offer improved flexibility and resistance to cold, even when the milk cartons are stored at temperatures from 0-4 °C (32-39 °F).

Improved processing

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

Greater mileage

The high bond strength and low density of adhesives based on AFFINITY™ GA helped to enable the attachment of more straws per kilogram of adhesive used.

Enhanced workplace conditions

HMAs formulated with AFFINITY™ GA offer clean-running systems with virtually no smoke, or odor. In fact, a "remarkable" reduction in odor and fumes was observed by workers during the production process.

Food contact compliance

AFFINITY™ GA complies with Commission Regulation (EU) No 10/2011 and U.S. FDA 21 CFR 175.105 as amended (please consult the regulations for complete details). You can also contact your Dow Elastomers representative or your nearest office (see back cover) for additional information.

Lower overall costs

The greater mileage, improved processing and end-user advantages offered by adhesives based on AFFINITY™ GA can generate efficiencies that offer the opportunity to lower system costs. In Colquímica's case, the overall cost reductions enjoyed by their customers were estimated to be up to 30 percent.

Better aesthetics

The clear, "water-white" appearance of the AFFINITY™ GA polymer and the need to use less adhesive combine for a cleaner, more pleasing appearance on the carton.

30%

The performance, processing, and end-user benefits offered by AFFINITY™ GA helped Colquímica reduce their customer's total costs by up to 30 percent

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About Colquímica

Founded as a family company in 1953, Colquimica has been pioneering in the development, manufacturing and commercialisation of industrial adhesives for almost 60 years. Since the start of its hot melt production lines in the 1970s and internationalisation programme in the 1990s Colquímica has grown to become one of the top 8 producers in Europe with an expanding global distribution network. The company main area of activity lies in fastest growing area of industrial adhesives: the hot melt adhesives. Colquímica´s growth has been persistent in both product range and the diversity of industries it serve. At the beginning of this century Colquímica took a head start in securing and expanding its position, as international sales are now making up over 90% of business. Its brand new facilities are designed to meet up to the reputation as a flexible, sustainable and environment-friendly company, complying with international standards. Colquímica´s R&D labs create a state-of-the-art environment for the team to tackle increasing demands in high-tech applications, ranging from non-wovens in personal hygiene applications to speciality packaging for food and beverage.

**Kmelt Evolution C2800 is a trademark of Colquimica SA*

About Dow

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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.

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