

Challenge Accepted.

THE LOGICAL CHOICE FOR ACQUA PLOSE



 **AVIENT™** » CASE STUDY: GLS™ THERMOPLASTIC ELASTOMERS





A CLOSURELOGIC ALUMINUM CAP WITH A TPE LINER KEEPS THE TASTE OF MINERAL WATER AS FRESH AS THE MOUNTAIN SPRINGS IN ITALY

THE CHALLENGE

Water purity is valued the world over. Acqua Plose natural spring water is one of the purest waters in the world and bottled without any treatment or other human intervention. The minimally mineralized water has a very low dry residue of only 21.0 mg/l and optimal physiological pH of 6.6. Acqua Plose, founded in 1957 by Giuseppe Fellin, is still owned by the Fellin family today.

Even the slightest off-taste can compromise the refreshing experience of bottled still or mineral water. Acqua Plose needed a cap that would maintain their highest standards of water quality, seal integrity and sustainability.

For more than 50 years, closurelogic GmbH has been manufacturing aluminum closures in Germany. In 2014, it was spun off from Closure Systems International (CSI), and currently produces over three billion aluminum closures annually in 28 and 30 millimeter diameters suitable for any type of still, carbonated or alcoholic beverage packaged in glass, PET or aluminum bottles. The company is headquartered in Worms, Germany, with subsidiaries in Spain and Turkey supplying more than 50 countries worldwide. Over half of closurelogic's revenues are generated from sales outside of Germany.

THE SOLUTION

Maintaining high organoleptic standards while easing processing windows can be difficult. When closurelogic turned to Avient for material selection help, the team developed a GLS™ TPE (thermoplastic elastomer) based on a stable, low migration TPE with a lower processing temperature compared to competitive TPEs, thus resulting in even fewer volatiles. The material was formulated specifically for sensitive applications such as still and mineral water. Lower processing temperature was another key for this application—this saves energy and makes start ups or conversions faster, generating less waste. In addition, the material was engineered for good bonding and adhesion to aluminum closures.

Maintaining a seal for carbonated water with high internal pressure can be difficult and closurelogic caps compression molded with GLS TPE liners are known to have excellent pressure retention. Sealing of reusable glass bottles with rim imperfections presents an even greater challenge compared to sealing of one-way, disposable bottles. The Avient team addressed this challenge with the new formulation, which is optimized for compression set. Lined with TPE, closurelogic caps have outstanding tightness for sealability of both one-way and refillable bottles, while maintaining good removal torque.

In addition, the GLS TPE from Avient passed migration, extraction and sensory testing by Nehring Institute as required by food contact regulations (EU) 10/2011 and FDA 177.1210.

THE IMPACT

Caps made by closurelogic with Avient's low migration cap liner technology preserve water quality while ensuring seal integrity. Brand owners are seeking more easily recycled materials, such as aluminum, and closurelogic's use of TPE cap liners satisfy all three challenges—water quality, seal integrity and sustainability.

Finding a cap that would not compromise the integrity of the water was critical for Acqua Plose. When looking for a cap for their mineral water, Acqua Plose chose closurelogic aluminum caps with TPE cap liners to ensure that the taste of Plose bottled water is just as natural as when it flows from the spring high up in the Dolomite Mountains of Northern Italy.

Avient offers GLS TPE cap liner formulations that are suitable for aqueous, acidic and low alcohol beverages processed under ambient, pasteurized or hot fill conditions.

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