



A Toast to Collaborative Innovation in Wine Packaging

Boxed wine sales are strong, and future growth prospects look promising. In the United States alone, sales of 3-liter boxes of wine have grown at double digit rates year after year since 2003, and total U.S. consumption from the box, including both 3-liter and 5-liter varieties, is over 20 percent by volume (source: AC Nielsen Scantrack Data). Given the environmental, cost, and taste benefits of boxed wines, it's no wonder they continue to gain momentum among consumers and retailers alike.

Unfilled bags in bag-in-box wine packaging require up to 88 percent less storage space than bottles, making them much more economical to warehouse and ship. Boxed wines also are lighter than bottled wines, less

prone to breakage, and easier to transport. Perhaps most important, bag-in-box packaging minimizes the product oxidation that occurs when conventional bottles are opened. Bag-in-box wine stays fresh for as long as six weeks after opening versus two to three days for bottled wine.

Scholle Packaging is the pioneer of Bag-In-Box™ technology and a worldwide supplier of bags for the wine industry. Scholle has manufacturing locations on five continents, and its products are sold in more than 60 countries. The breadth of Scholle's complete bag-in-box offering includes flexible films, fitments and caps, bags, and filling equipment for the food, beverage, and industrial markets. Scholle has deployed significant resources in the areas of R&D and innovation and is at the forefront of bringing flexible packaging technology and trends to life.

When Scholle decided to replace the ethylene vinyl acetate (EVA) based film it had been using in its bag-in-box packaging for wine with a new and improved film that would enhance the quality of packaging and freshness of product, it turned to long-time supplier The Dow Chemical Company for new material options. Scholle needed a supplier with the capabilities and knowledge to formulate a distinct product that would meet its customers' needs with breakthrough technology for the bag-in-box wine industry. As a global company, Scholle also needed uniformity of resins across geographies, and Dow's 14 manufacturing locations for polyethylene in four continents were a perfect fit.



Case Study

Food & Specialty Packaging

Plastics – North America

“Dow is Scholle Packaging’s number one supplier because they really understand the flexible packaging industry and have a tremendous product portfolio,” said David Bellmore, manager of global product development, Scholle Packaging. “Their multi-source capability (multiple polyethylene trains) both in North America and other continents enhance the security of supply that our customers value immensely.”

“Effective collaboration was really the key to successful innovation in this case. As the largest polyethylene producer in the world, we knew we could develop a resin with our strong polymer and material science expertise. Collaboration really adds value by getting it right the first-time, accelerating the speed to market, and helping our customers rapidly achieve success in the marketplace,” said Anand Sundaresan, Sr. North American Market Manager, Food & Specialty Packaging at The Dow Chemical Company.

Scholle outlined three specific requirements of the new film it sought to develop. The new film needed to have improved strength for better puncture and flex crack resistance which is crucial for maintaining package integrity to prevent leakage. It should allow for faster sealability, and it must deliver improved organoleptic properties for freshness, taste, and odor. This last requirement was especially important to Scholle as it looked to appeal to higher-end and more specialty wine producers. Dow listened to Scholle’s specifications, helped identify a variety of ideas to match Scholle’s vision, produced various films in its fabrication facility, and then presented important findings and suggestions to Scholle for consideration.

The result of the collaboration was Scholle FlexiTech™, a single-layer, polyethylene, non-barrier film that offers strong seals and robust package performance. Dow’s in-house R&D group designed a resin for Scholle based on Dow’s catalyst, process, and product know-how that met Scholle’s key requirements and unique requests. The new film, which serves as the wine contact layer in bag-in-box packaging, offers the durability and flex crack resistance Scholle’s customers demand. FlexiTech™ allows for consistent sealability which ensures the high-quality of Scholle’s bags. It also helps to provide optimal taste and odor properties of the wine.

“The bag-in-box wine industry is an important market for Scholle – one in which we routinely have seen double-digit growth year after year,”

said Bellmore. “The distinct material that Dow created with Scholle’s vision and guidance enabled us to meet the needs of wine manufacturers and vintners looking to capitalize on the benefits of bag-in-box packaging without compromising the quality of their product.”

Extending Bag-in-Box Innovation to Dispensing

Scholle’s innovation and leadership in the boxed wine marketplace does not end with films alone. The company designs and sells revolutionary dispensing taps, too. Chief among its fitments is FlexTap™, an ergonomically-designed spigot that offers push button dispensing of low-viscosity liquids and features easy-on, automatic-off functionality and flow rate control. Unlike standard closures found on



conventional bottles and rigid packaging containers that allow product-degrading oxygen to enter the container each time the cap is removed, FlexTap's™ positive flow design blocks oxygen from entering the package, preserving and prolonging the product's life. Equally important, FlexTap™ is easy to use.

FlexTap's™ applicability extends beyond the wine industry to also include the water, health drink, and juice markets where consumers appreciate its easy-to-use, stay fresh design. With FlexTap™, Scholle also saw an opportunity to meet a need in the edible oil packaging marketplace, particularly among consumers and foodservice operators using cooking oils since the tap allows for easy dispensing.

Prior to launching into the edible oil market, Scholle's Global Technology Laboratory conducted a series of pre-commercialization tests to ensure a smooth transition into the edible oil market. This early testing revealed a unique challenge – that over time edible oils would begin to migrate through the soft push-button of the FlexTap™. Scholle again collaborated with Dow.

"Dow offers nearly every product in the polyolefin industry and has a variety of grades to select from, so we knew they would be able to help us find a material that offered the density we needed to help eliminate oil migration from the tap without sacrificing ease of use," said Bellmore.

In a very collaborative process, Scholle defined the modulus properties of the existing push-button and its level of flexibility that it sought to keep. Dow presented Scholle with samples from its wide product portfolio, and together they helped identify the grade that had the right density and melt index to meet Scholle's needs. Scholle conducted injection molding trials and lab testing.

"What we found was that using denser materials made the button harder to push but provided a better barrier," said Bellmore.

"Ultimately, Dow and Scholle together identified the sweet spot that presented the right density with effective oil barrier resistance."

"Dow has continually proven its value to Scholle beyond that of resin supplier," continued Bellmore. "They work hard to understand their customers' business challenges and bring back novel ideas that help drive business growth."

"Collaborative innovation between Scholle and Dow is continually driving innovation in the bag-in-box packaging industry and identifying opportunities to meet the unique needs of its customers with opportunities that are desirable, economically competitive, and sustainable. This constant innovation can be seen in our ever-expanding DOWLEX™, ELITE™ and ATTANE™ portfolio," said Sundaresan.

Bellmore concluded, "From wine to edible oils, Dow is able to innovate across market segments and offer opportunities to meet our customers' needs."

Rachael Hopkins is the Value Chain Manager for Packaging Sustainability at The Dow Chemical Company. DOWLEX™, ELITE™ and ATTANE™ are trademarks of The Dow Chemical Company.

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