

Case Study

Beckry®Silk DA DJ-390: Redefining Touch and Aesthetics for the Future of Home Appliances

In China, the evolution of home concepts and consumer demand is driving the market for enhanced performance coil coatings. While standard coatings may provide adequate protection against rust and regular wear and tear, aesthetically they often fall short in the eyes of customers seeking a more premium finish. With the focus going beyond functionality alone, tactile and aesthetic appeal have become contested space in the realm of home appliances, where consumers are increasingly attentive to texture and visual characteristics.

Project overview

China's leading home appliance coil coater approached Beckers in 2021 to address growing consumer demand for coatings with refined texture, including matt finish, but which also deliver exceptional levels of durability over time. A close collaboration ensued, as we developed from concept to pilot production a coating solution that would answer this increasing market need. In August 2024, Beckry®Silk DA DJ-390 was successfully deployed to market by China's largest home appliance manufacturer.

Product overview

Beckry®Silk DA DJ-390 is a polyester crosslinked with amino resin coating designed specifically for the cold segment of the domestic appliance market (refrigerators and freezers). With its soft 'silk' feeling plus exceptional stain resistance, it offers enhanced practical performance as well as a distinctive aesthetic and tactile experience for consumers.

Project challenges

- **Balance of Tactility and Durability**

Soft-touch coatings seek to emulate the delicate and smooth texture of natural materials such as leather and silk. Yet the increased tactility often makes the product more prone to scratches.

- **Retaining Acid & Alkali Resistance**

Standard coil matt coatings typically have a gloss level no lower than 10GU@60°. But to achieve a delicate and soft effect, a gloss level below 5GU@60° is required. The challenge is that conventional methods that reduce gloss substantially decrease both acid and alkali resistance.

- **Achieving Formability with Stain Resistance**

Enhanced Formability broadens the range of applications. Soft resins and low crosslinking level improve this performance, but the challenge lies in maintaining stain resistance.

Technical innovation

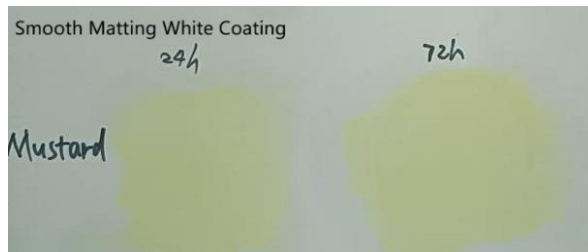
Beckry®Silk DA DJ-390 is a holistic and innovative solution that responds to these challenges in a way that is specifically designed for cold segment application.

This includes several technical breakthroughs:

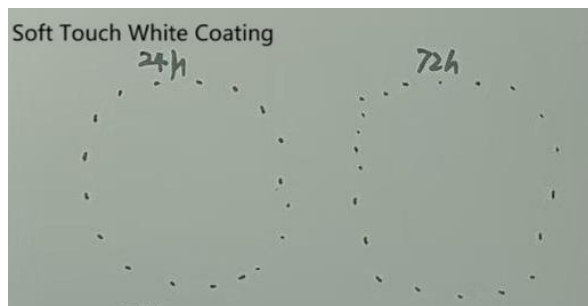
- **The ultimate tactile experience** was achieved through the coating's excellent micro-deformation recovery performance and low surface friction coefficient. This gives it its delicate, silk-like feel and transforms a 'cold' item such as a refrigerator into something that feels natural and appealing to the human touch.
- **A unique aesthetic effect** was created by using the matt texture and diffuse reflection of micro-suede, with a gloss below 5GU@60°, presenting a soft matt visual effect that adds warmth to the home environment.
- **Comprehensive high performance** was fully achieved. With superior Formability (T-bend $\leq 1T$), the coating provides all-sided protection including Stain Resistance, Acid and Alkali Resistance, and Scratch Resistance.

Product features

For the cold segment (refrigerators and freezers), the product surface exhibits a touch-friendly texture and diffuse reflection, enhancing aesthetic appeal and enabling manufacturers to create the products that consumers want to own.



Mustard test on typical smooth matt product



Mustard test on Beckry®Silk soft touch

The anti-fingerprint and anti-pollution properties contribute to the coatings' functional sustainability. Excellent formability, meanwhile, ensures compatibility with a wide range of models, offering more possibility for coil coaters and OEM customers.

Conclusion

The successful launch of Beckry®Silk DA DJ-390 underlines a shift in the market that is driven by consumer demand and the requirements of leading OEM manufacturers. After three years of close collaboration, we have been able to overcome significant technical challenges to move swiftly from laboratory development to production line testing, culminating in regular production. Indeed, Beckry®Silk DA DJ-390 has already become a star feature and point of differentiation for China's largest home appliance OEM manufacturer.