

## A Perfect Combination: Exceptional Quality and Enhanced Productivity

A top-tier supplier to a key European automaker selects PolyOne's UV-stabilized Onflex-S™ TPE to optimize both properties and processing.

### Situation

A well-known and top-ranking automotive supplier with multiple global locations supplies molded parts and subassemblies to a major German automotive OEM recognized around the world for its quality and innovation.

Automakers and key automotive suppliers currently face challenges brought on by a record plunge in demand and an equally unprecedented rise in costs. At the same time, the level of quality that consumers expect has increased significantly. For these reasons, a material that can combine high productivity and lower production cost with elevated quality meets both OEM and supplier needs on multiple levels.

Several months ago, application development engineers at the supplier contacted PolyOne and requested help in creating an elastomeric insert for the map case pocket used in each door of a compact SUV now in series production.

While the supplier had developed interior TPE parts in the past, its development engineers and designers created a new manufacturing technology that makes greater demands on the elastomeric material. Based on a history of successful collaboration between the two companies, the supplier felt confident that PolyOne could provide a material solution that met both performance and cost targets.

### The PolyOne Difference

Working in close cooperation with the customer, PolyOne sales and technical professionals identified Onflex-S™ TPE with UV-stabilization as the material that would best fulfill cost and performance goals for this application. Based on styrenic block copolymers, this thermoplastic elastomer offers low temperature flexibility, good abrasion resistance, excellent colorability, and resistance to attack from UV radiation.

Each of these properties satisfies key requirements for the application, which includes both aesthetic and performance criteria. First, the products need to match each of the three interior colors the manufacturer offers for its automobile (black, gray, and beige). Further, the mats must remain flexible during the winter and withstand normal use without showing signs of wear or scratches.

The team chose a grade that includes UV stabilization for improved weathering performance. While vehicle doors are typically exposed directly to sunlight only when open, the mats need protection from indirect UV rays that reach the car's interior when the doors are closed.



Because it exhibits a higher flow rate than other SBC-based TPEs, Onflex-S™ TPE helps to reduce cycle times during injection molding, a feature that satisfies productivity objectives set by the supplier. A high melt flow rate for the PolyOne solution reduces packing and cooling time requirements to improve overall molding cycle times. In addition, the high flow properties allow the automotive molder to run the material in a special mold that effectively doubles production volume and can also lower energy and related production costs by up to 40%.

## Delivering a Value-Added Solution

The material solution, PolyOne's Onflex™-S EH 80A-3S7005 UV TPE, offers an outstanding balance of processability, tactile qualities, UV resistance, abrasion resistance and colorability that capably satisfies the application's requirements. This specific grade is based on styrene-ethylene butylene-styrene (SEBS), and its 80 Shore A hardness provides desirable toughness.

- **High-performance material = consumer satisfaction:** Because Onflex™-S contains superior properties in the areas of tactile quality, abrasion resistance, toughness and UV stabilization, the map case mats exhibit greater durability, more gripping action, and less fading and cracking due to sun exposure. The higher performance improves perceived quality among consumers and reduces replacement costs.
- **Ease of coloring = reduced scrap rate:** Because it is readily colorable, the PolyOne material helps the automotive molder meet their customer's requirements for interior colors while generating less scrap due to off-spec or inconsistent color.
- **Improved flow = lower unit costs:** High flow characteristics of the PolyOne solution allow the supplier to use a double mold, resulting in doubled production volume for a 50% reduction in machine-related costs per part.
- **Faster processing = lower energy costs:** Higher melt flow rates enable shorter injection molding cycles, resulting in reduced energy requirements.

According to the supplier's project manager, the PolyOne TPE delivered results on several fronts: appearance and quality improvements; productivity enhancements and manufacturing cost reductions; and added product longevity due to UV stabilization. Further, he noted that his company has realized system cost benefits by collaborating with PolyOne and implementing an optimum materials solution.

**Product choices often vary by region due to differences in regulatory and agency requirements, availability and other key factors. Please contact your nearest sales office for assistance in choosing the right solution for your locale.**

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