

TPE Heightens Product Impact and Profitability

To create a new, upscale line of garden sprayers, a top manufacturer selects PolyOne's OnFlex-S™ thermoplastic elastomer for overmolding attractive, practical handgrips onto ABS resin.

Situation

Facing strong competition from all-plastic garden sprayers, a leading garden equipment manufacturer decided to create a new, high-end line of sprayers featuring enhanced quality, durability and aesthetics. To provide a secure grip for safety and usability, the company planned to overmold a thermoplastic elastomer (TPE) onto the handle and other selected areas of the sprayer. In order to optimize its profit margins, the company sought to control system costs by avoiding secondary assembly and handling. The use of 2K (two-component) molding – in which the base resin is injected and allowed to set up for a short time, and then is overmolded by injecting the TPE – streamlines the manufacturing process.

However, the original TPE that the company selected caused issues during 2K molding. It required a high temperature and a strong injection pressure to bond to the acrylonitrile-butadiene-styrene (ABS) substrate, which caused the resin to deform. In turn, deformation negatively impacted part tolerances, leading to poor fit and performance of the sprayer.

Product developers reported that they needed a better TPE to provide superior bonding performance with ABS without requiring high temperature and pressure during 2K molding. Without it, the company faced the prospect of having to use another production technique that would cost more and take longer. Other requirements were abrasion resistance and excellent aesthetics.

The PolyOne Difference

Based on previous work with PolyOne, the company asked the supplier to suggest a suitable TPE for this application. PolyOne recommended OnFlex-S K 65A-3E1709 multicomponent TPE, which offers excellent adhesion to ABS and can be molded at lower temperatures and injection pressures than competitive products. OnFlex-S TPEs also provide an attractive appearance and resist scratching and marring.

For this manufacturer, another appealing aspect of working with this material was PolyOne's dedicated TPE production line in Spain, which is used solely to manufacture TPEs for overmolding applications. The company valued the high quality and technical precision offered by this specialized production line.

PolyOne's technical experts assisted the company with molding trials to ensure the ideal temperature and pressure parameters.



Delivering a Value-Added Solution

With its enhanced processability, OnFlex-S K 65A-3E1709 thermoplastic elastomer enabled the company to solve its 2K molding issues and reduce system costs. The material helps the company produce attractive, high-quality garden sprayers featuring precisely fitting parts.

The new products have been very well received by consumers, and have allowed the company to address the competitive threat from all-plastic sprayers.

- **Lower system costs = higher margins:** By reducing waste from part deformation, the PolyOne TPE allowed the manufacturer to leverage efficient, fast 2K molding for system cost reduction. These savings help the company to achieve high margins on its top-of-the-line sprayers.
- **High-end product line = competitive advantage:** With PolyOne's OnFlex-S TPE, developers successfully designed and produced a new, high-end product line that compares favorably with all-plastic sprayers in terms of appearance, performance and durability.
- **Gripping feel = safety and usability for customers:** Hand grips created from overmolded OnFlex-S TPE provide excellent anti-slip performance even when wet. Customers can keep a firm grasp of the sprayer to prevent dropping or twisting.
- **Abrasion resistance = excellent appearance to uphold corporate image:** The PolyOne material resists scratching and scraping that commonly occur when sprayers are dragged along the ground or left out in all types of weather. Maintaining aesthetics is vital to the customer's perception of Gardena as a high-end, high-quality brand.

According to company sources, the PolyOne TPE not only delivered the high-quality appearance and excellent gripping performance needed for the upscale sprayers, it also met the challenges of 2K molding with ease. With OnFlex-S TPE, the company achieved system cost benefits that have made this product line a profitable one.

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.

CONTACT INFORMATION

Americas

U.S. – Avon Lake, Ohio
+1 440 930 1000
Argentina – Buenos Aires
+0054 11 4200 5917
Brasil – Campinas
+55 19 3206 0561
Mexico – Toluca
+52 722 2790200
GLS – McHenry, IL
+1 815 385-8

Asia

China – Shenzhen
+86 (0) 755 2969 2888
China – Suzhou
+86 (0) 512 6823 24 38

India – Mumbai
+91 9820 194 220
Singapore
+65 (0) 6861 9325
GLS – Hong Kong
+852 2690 5332
GLS – Suzhou
+86 (0) 512 6265 2600
GLS – Taipei
+88 6 9396 99 740

Europe

Czech Republic – Praha
+420 224 142 214
Germany – Gaggenau
+49 (0) 7225 6802 0

Italy – Gallarate (Varese)
+39 03 31 797 448
Poland – Kutno
+48 24 357 47 00
Spain – Barbastró (Huesca)
+34 (0) 9 7431 0314
Sweden – Angered
+46 (0) 31 92 84 50
Turkey – Istanbul
+90 (0) 212 549 2256
United Kingdom – Widnes
Cheshire
+44 (0) 05600 760 800
GLS – The Netherlands
+31 (0) 165 331 293



*Beyond Polymers.
Better Business Solutions.™*

www.polyone.com

PolyOne Americas

33587 Walker Road
Avon Lake, Ohio 44012
United States
+1 440 930 1000

PolyOne Asia

Guoshoujing Road No. 88
Z.J Hi-Tech Park, Pudong
Shanghai, 201203, China
+86 (0) 21 5080 1188

PolyOne Europe

Rue Melville Wilson 2
5330 Assesse, Belgium
+32 (0) 83 660 211