

Replacing Metal With Vinyl Shines A Light On Value

PolyOne's solution enables its customer to add \$500,000 to the bottom line by making the switch from metal to Geon™ Vinyl Compounds.

Situation

Smart Hero, a contract manufacturer headquartered in China, produces a variety of electronic products for OEMs around the globe. While its product range is broad, this company specializes in outdoor lighting. A team of engineers at this firm was looking for a way to reduce the manufacturing cost of its line of painted metal solar-powered lights. Because this supplier fabricates with both metal and plastic in its operations, the team decided to find out if converting metal parts to plastic would be an option. At first, they experimented with pre-colored ABS, but the ABS parts failed the company's requirements for color retention after exposure to UV light. The team then turned to PolyOne in Dongguan, China to see if it could offer a solution.

The PolyOne Difference

PolyOne's Dongguan location was ideally located to provide support to Smart Hero. The first step involved a meeting between PolyOne's team and Smart Hero's technical group to understand the requirements of the outdoor lighting application. The group explained that they needed a material which would exhibit minimal color change after exposure to outdoor environments.

Having experience in plastic injection molding, they knew the material also had to have excellent flow characteristics to be able to fill the complex geometry required for the light. Additionally, the part had to have excellent surface finish and appearance because it is a highly visible consumer part. Most importantly, the plastic light had to have lower manufacturing costs than a painted metal light.

Based on the requirements provided, PolyOne recommended Geon™ M5705, a high flow vinyl molding compound for outdoor use. PolyOne provided a pre-colored version of Geon M5705, in which the color was matched to the manufacturer's gray and black painted metal lights. Samples of the Geon M5705 gray and black were placed into a trial using



an existing lighting tool to provide samples for evaluation. PolyOne's technical service representative attended the molding trials to help optimize processing conditions, resulting in the ideal parts for the evaluation. Geon M5705 passed the company's internal testing requirements, including color retention after exposure to UV light. The results of the evaluation gave Smart Hero the confidence to build a new tool to replace the painted metal lights.

Delivering a Value-Added Solution

Moving from painted metal to pre-colored Geon M5705 in black and gray reduced Smart Hero's manufacturing costs by over \$300,000 annually as a result of the elimination of painting and lower scrap rates.

Further, by moving to a paintless material, this customer was able to eliminate the volatile organic compounds (VOCs) produced during paint operations, thereby reducing the carbon footprint of their production facility.

Due to the commercial success of the gray and black colors, Smart Hero plans to introduce seven new colors made with Geon M5705 to expand its product line. Using Geon M5705 for these seven colors will save an additional \$200,000 per year.

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
1 866 POLYONE

Argentina – Buenos Aires
+0054 11 4200 5917

Brasil – Campinas
+55 19 3206 0561

Canada – Mississauga
+1 905 673 1213

Canada – St Remi
+1 450 454 5498

Mexico – Toluca
+52 722 279 0200

Asia

China – Dongguan
+86 (0) 769 8587 8800

Japan - Tokyo
+81 3 6912 9102

Europe

Belgium – Assesse
+32 (0) 83 660 211



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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

6, Giällewee
L-9749 Fischbach
Luxembourg
+32 (0) 83 660 211

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