

Press Release



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New copolycarbonate blend from Covestro for parts with a metallic finish

High-temperature stable and electroplatable

- **Concept study for exhaust trim made of plastic**
- **Significant reduction in weight and costs compared to sheet metal**
- **Greater design freedom**
- **Light integration possible**

Covestro has developed a blend for fabricating chrome-plated plastic components that is extremely heat-resistant and suitable for electroplating. Apec[®] 150 PG (plating grade) is based on a copolycarbonate and acrylonitrile-butadiene-styrene copolymer (PC-HT+ABS). Its Vicat B softening temperature (ISO 306) is 146 Grad Celsius, or about 35 degrees higher than that of electroplatable standard polycarbonate/ABS blends.

“The combination of high heat resistance and good electroplating properties is rare on the main market. It considerably expands the performance and application range of such materials in the production of chrome-plated design components,” explained Walter Köppchen, electroplating materials expert at Covestro.

Search for a temperature-stable and electroplatable plastic

The high-tech material was developed in response to an idea by Gerhards Kunststofftechnik GmbH for making the exhaust trim part from plastic. Based in Lüdenscheid, Germany, the electroplating specialist had engineered a substitute for the part, usually fabricated from stainless steel, and needed a thermoplastic material that could be decoratively electroplated and also withstand the temperatures prevailing in the vicinity of the exhaust. The first prototype vehicles with the plastic exhaust trim have already been out on the road to test the long-term performance. The objective is to soon establish widespread use of this



innovative part in motor vehicles. Covestro showcased a prototype at the recent K 2016 plastics trade fair in Düsseldorf.

Smaller radii, integration of lighting effects

The attraction of fabricating exhaust trim from a thermoplastic is that it weighs up to 50 percent less than its sheet steel counterpart. In addition, the plastic can be shaped much more easily than sheet steel to achieve tight radii and 3D geometries. Furthermore, plastic provides greater design freedom in terms of color and function integration. For example, LEDs could be integrated into the exhaust trim to enhance its appearance with lighting effects in combination with either selective two-component electroplating or Gerhardi Strukturchrom®.

“In addition to these advantages, injection molding significantly reduces manufacturing costs compared to sheet steel. Complex welding and sheet metal shaping steps can be eliminated,” explained Dirk Kieslich, head of Product and Process Development and Patent Management at Gerhardi, who initiated the development of the plastic exhaust trim.

Excellent mechanical properties, good adhesion

The new blend displays high toughness, strength and rigidity across a wide range of temperatures. The thin metal coating deposited during the electroplating process adheres strongly to the plastic surface. “The plastic part easily passes the heat aging and cross cut adhesion tests that are so critical for automotive components.”

Other potential “hot” applications in automotive engineering include visible, electroplated parts under the hood, such as logos, emblems, lettering and covers. Walter Köppchen also sees good opportunities in the electrical/electronics segments, i.e. in the production of chrome-plated bezels, trim strips and ventilation grilles.

Extensive customer service

Covestro supports its partners in developing electroplatable components with targeted services, such as rheological computations to minimize component warpage and to shift weld lines to non-visible areas. Covestro experts also help to design injection molds to suit the properties of the plastic. “Both of these services have a decisive influence on the flawless electroplating of an injection molded part,” said Walter Köppchen.

About Covestro:

With 2015 sales of EUR 12.1 billion, Covestro is among the world’s largest polymer companies. Business activities are focused on the manufacture of high-tech polymer materials and the development of innovative solutions for products used in many areas of daily life. The main segments served are the automotive,



electrical and electronics, construction and the sports and leisure industries. Covestro, formerly Bayer MaterialScience, has 30 production sites around the globe and as of the end of 2015 employed approximately 15,800 people (full-time equivalents).

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