

Pioneering design with futuristic charm

GRAFE develops customer-specific solutions with PLEXIGLAS® moulding compounds

The invisible integration of operating elements into the housing is currently a major trend, driven primarily by automotive applications. Classic knobs, levers or conventional rotary controls and switches disappear behind the surface and offer two advantages at the same time: On the one hand, the increasing number of switches and control elements associated with new operating concepts, digitalization and greater functional scope can be better integrated into the cockpit, and on the other hand, high-quality surfaces, pleasant haptics, pleasing structures, diverse colors and modern designs are becoming increasingly important.

In new car models, digital controls have mostly replaced the classic knobs and buttons, but comparable solutions are also being worked on in other industries worldwide. Aesthetic design as well as individual coloring and illumination of control elements that blend harmoniously into the design of the product are also highly valued by consumers in other areas.

Black panel: operating elements can be integrated indiscernibly into the housing.

The so-called black panel effect or secret-until-lit-function plays an important role here. Information is displayed in the exact color of the display, which is only visible when the device is switched on and is otherwise perceived as a dark, high-gloss cover. The grey coloring of the display covers merges with the housing to form a uniform black unit. The installed LEDs are only activated when touched and then depict the display or the operating elements in strong colors.

GRAFE combines these color properties with the entire range of PLEXIGLAS® moulding compounds. Robust, impact-resistant molding compounds, such as PLEXIGLAS® Resist AG100 or PLEXIGLAS® Heat resist FT15 for higher heat resistance, can be used as application polymers. "There is increasing demand for molding compounds in grey colors for the black panel effect," reports Elke Milus, technical contact for PLEXIGLAS® applications at GRAFE. The expert points out that GRAFE can offer a tailor-made solution for every enquiry and every customer requirement.

Light Diffuser: Light diffusion enables innovative LED design

Initially, the GRAFE team used transparent and muted colors and glossy surfaces, but now they also work with diffuse materials from Röhm. The various light-scattering PLEXIGLAS® molding compounds enable homogeneous backlighting of surfaces. They can be used to create velvety matte surfaces when extruding profiles or to mask out disturbing LED spots. Light-diffusing PLEXIGLAS® molding compounds are also available, which have been specially developed for edge lighting and ensure uniform light emission over the entire surface.

According to Elke Milus, GRAFE also combines the light-diffusing PLEXIGLAS® molding compounds with the diverse color ideas of the product design, making many applications conceivable. As examples, the expert lists brake lights in the exterior of cars and Ambilight solutions for interior lighting, displays in the cockpit, infotainment systems or speedometer covers in the interior. The product focus can also include brand logos or manufacturer lettering with light. Elke Milus: "In principle, this effect can be realized for everything that lights up with the help of LEDs." In the furniture industry, it would be possible to optimize edge design in this way, and in the electronics sector, high-gloss surfaces can be realized on the operating and display windows of household appliances such as washing machines, dryers or electric ovens.

GRAFE, headquartered in Blankenhain, produces and distributes colored PLEXIGLAS® molding compounds as a cooperation partner of Röhm GmbH, Darmstadt. The Thuringian compound and masterbatch specialist has been doing the small-volume business for them for two years now. GRAFE is flexible in this respect and contributes its know-how as a competent partner in color design according to customer requirements. The company offers special colorings and compounding's in quantities as low as 25 kilograms. Here, the Röhm's modular system for formulation and colorants is used, and new color developments from GRAFE are also implemented. This ensures the same product quality, regardless of whether small quantities are produced at GRAFE or larger quantities at Röhm.

"We do what we do best: Developing color according to the customer's wishes, no matter how great the need," explains Ms. Milus. "For this, we have our established structures and are faster than any competition. We work out customized formulations, are the competent contact for color enquiries as well as customer-specific developments. Customers benefit from direct contact with the producer, fast production as well as short delivery and development times, and the quick solution

of technical enquiries with close advice and support."

Röhm has been the recognized specialist for decades and sets the standard with its PLEXIGLAS® molding compounds. For the world's leading trade fair K 2022 in October, the company has numerous innovative application examples from the optics, automotive and consumer/electronics (household appliances) sectors in its luggage. The focus is also on sustainability, because PMMA molding compounds are easy to recycle and, thanks to their outstanding weather resistance, they are extremely durable in use and thus contribute to the careful use of resources.

About **GRAFE**:

In addition to color and additive masterbatches, **GRAFE's** product range also includes a wide range of functional polymer compounds. One of the sector's largest research and development departments is working on cutting-edge technologies to equip polymers with smart functions. Founded in 1991 by the four Grafe brothers, this family business today has over 300 staff developing and manufacturing products for national and international markets in the company's ultra-modern plant in Blankenhain in Thuringia, central Germany. GRAFE attaches great importance to quality management - and does so with great success, being certified to ISO 9001:2015, IATF 16949:2016 and ISO 50001:2018. Further information: www.grafe.com

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