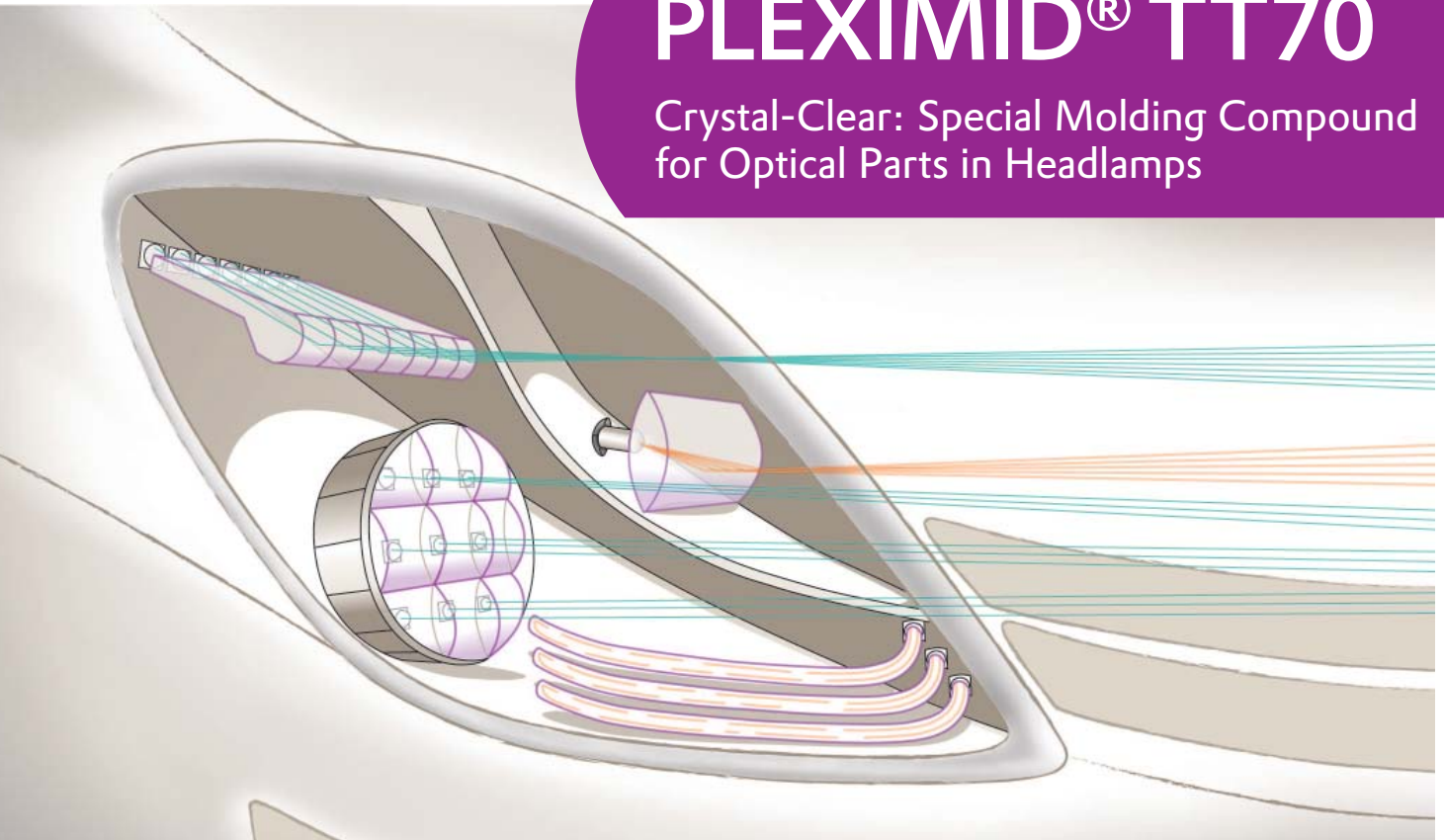


PLEXIMID® TT70

Crystal-Clear: Special Molding Compound
for Optical Parts in Headlamps





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Headlamps give cars their characteristic “face”. But besides eye-catching design, the main function of automobile headlamps is to provide strong lighting. Modern Xenon and LED technology set the corresponding standards. Because cars are being built in increasingly innovative shapes, the light sources are often located close to the optical systems such as lenses and optical light guides, which means that temperatures of over 150 degrees Celsius may often be generated at those sites. The new PLEXIMID® TT70 grade takes this challenge in its stride. It gives headlamp lens manufacturers a material that can cope with the high heat loads and permits dynamic styling at the same time.

The material is the key

PLEXIMID®, a grade of polymethyl methacrylimide (PMMI), is a further development of PLEXIGLAS® (PMMA) and shows similarly high transparency and resistance to weathering and UV light as

the familiar PMMA brand from Evonik. Now there is a new grade, PLEXIMID® TT70. This new development is especially suitable for optical parts in automotive headlamps because of its significantly enhanced optical properties.

All clear ahead

By its very nature, PMMI offers very good optical properties, and these remain stable even under permanent exposure to heat in the new grade PLEXIMID® TT70. PLEXIMID® TT70 therefore remains clear and light-transmitting at long-term high temperatures and prevents diffusion losses.

High transmission

The high light transmission of PLEXIMID® TT70 remains virtually unchanged even after 40 days’ storage at 150 degrees Celsius, and therefore provides constantly high luminous efficiency. By comparison, the transmittance of polycarbonate (PC)

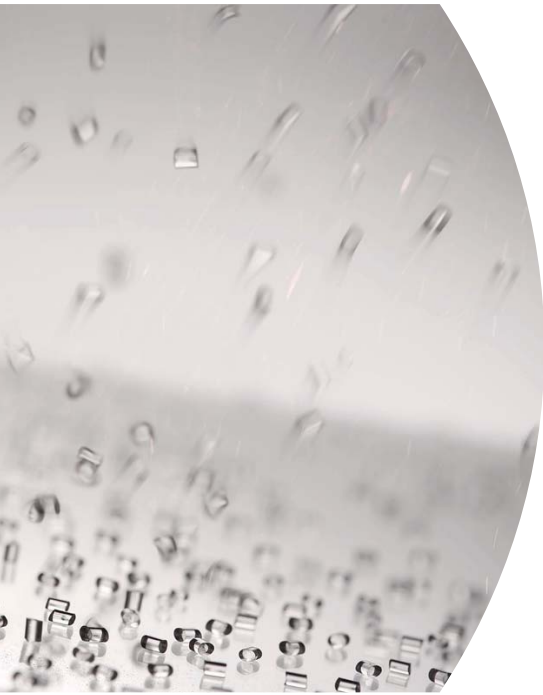
and its heat-resistant variant (PC-HT) diminishes visibly after storage under similar conditions. As a result, the luminous efficiency of these materials deteriorates perceptibly.

Low yellowness index

Whereas the highest possible level of light transmission is an advantage, the yellowness index is meant to stay as low as possible. At the end of the test period, PLEXIMID® TT70 still demonstrates a very low level, unlike PC-HT and PC, whose yellowing makes the light appear dull.

Low haze

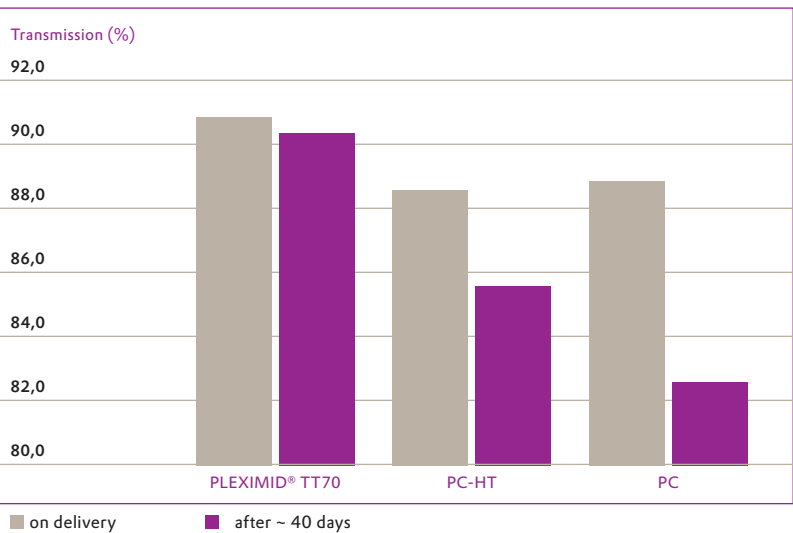
The lower the clouding or haze value, the lower the light diffusion losses. PLEXIMID® TT70 provides constantly clear results. In the 40-day long-term test at 150 degrees Celsius, the clouding remains at virtually the same level, which is much lower than that of comparative products.



Up to the minute

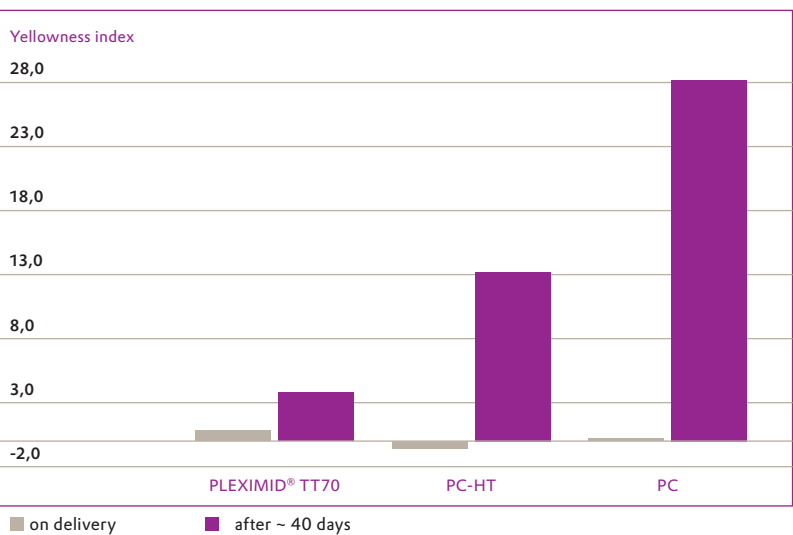
Optical light guides are very much en vogue as the answer to curved lines and narrow construction spaces for modern headlamp design. With its stable optical properties and flexible formability, PLEXIMID® TT70 is the ideal material for light guides. The high light transmission, low haze and yellowing mean that no light is lost on the way, and is reliably guided to its destination even under permanent exposure to heat. At the same time, due to its excellent heat resistance, PLEXIMID® TT70 is also suitable for lens systems that are exposed to high temperatures because of their close proximity to LEDs or Xenon lamps. Fields of application for PLEXIMID® TT70 are therefore lens systems, light guiding elements for parking lights or dipped headlights, light guides for turn signal lights and for headlamp and turn signal light covers.

Change in transmission after storage in a warm place at 150°C



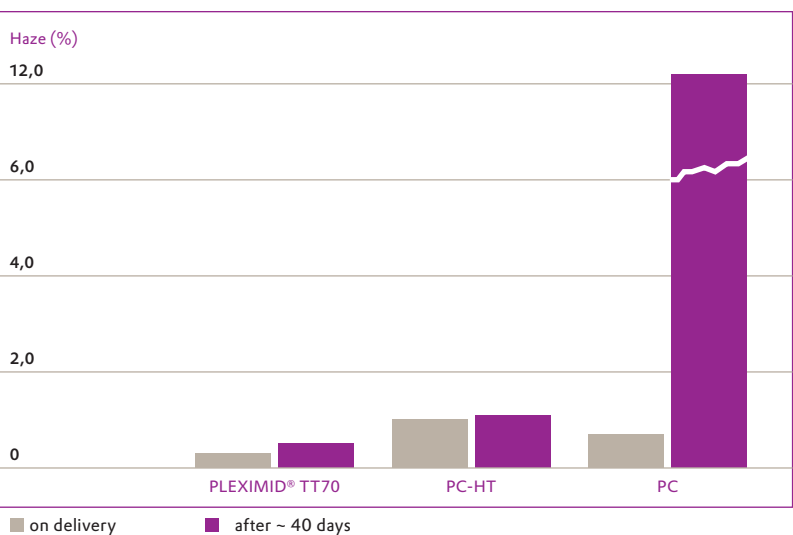
Even after 40 days' storage at 150 degrees Celsius, the light transmission of PLEXIMID® TT70 remains almost as high as before, unlike PC-HT and PC.

Yellowness index before and after storage in a warm place at 150°C



Unlike PC-HT and PC, PLEXIMID® TT70 shows hardly any yellowing upon permanent exposure to heat.

Haze after storage in a warm place at 150°C



Unlike PC-HT and PC, PLEXIMID® TT70 remains clear despite long-term exposure to heat.

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(April 2008)

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Evonik Industries
Molding Compounds Product Line

Evonik Röhm GmbH
Kirschenallee
64295 Darmstadt
Germany

TEL +49 6151 18-4772
FAX +49 6151 18-3177
E-MAIL pleximid@evonik.com
www.pleximid.eu

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