EVONIK INDUSTRIES

PLEXIGLAS®
for Lighting Technologies

PLEXIGLAS®

Evonik. Power to create.

Light, lighting, PLEXIGLAS®. The ideal combination.

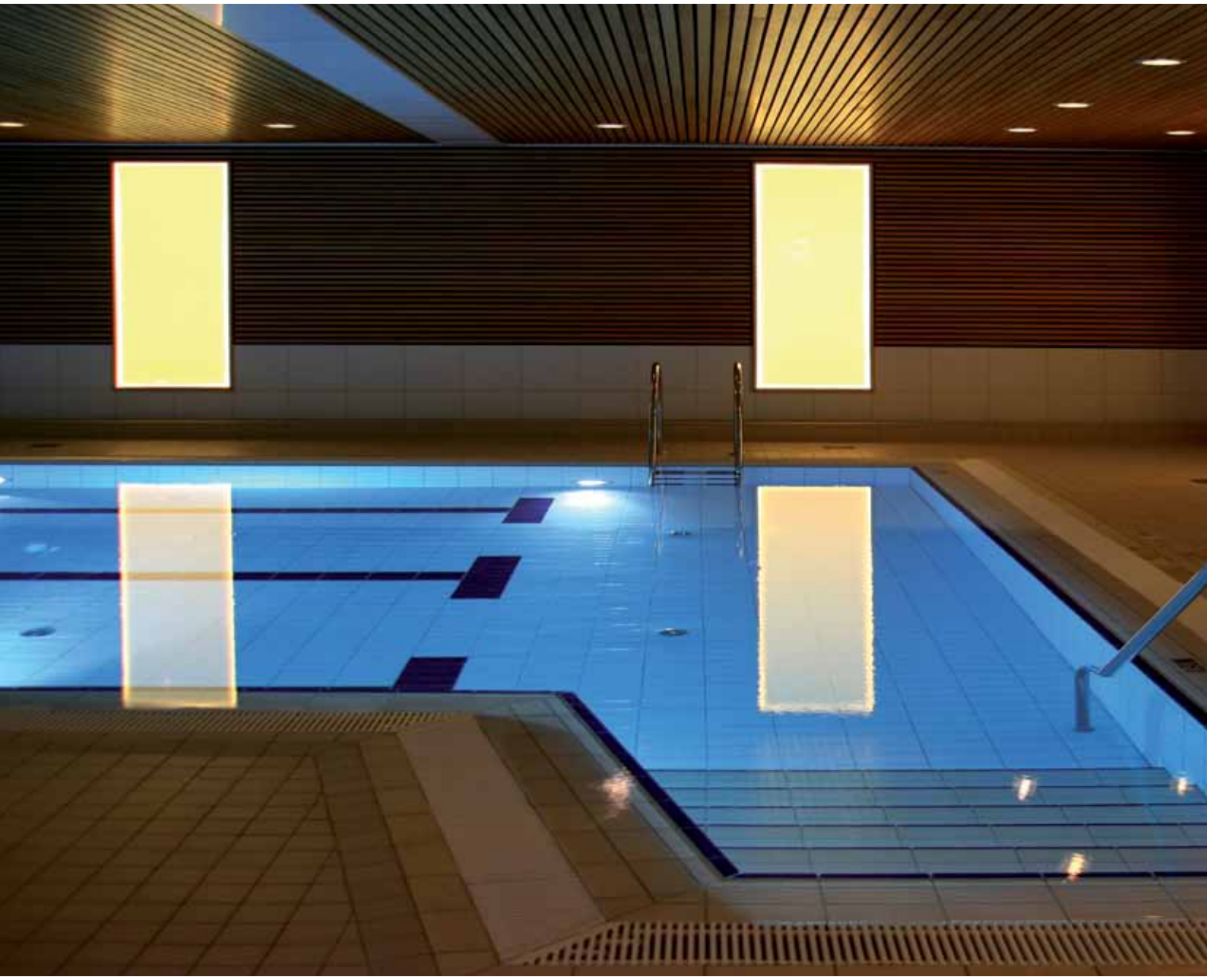
Light is much more than brightness. It creates an atmosphere and gives rooms and the items within them an unmistakable character. At home, in the world of work, in stores, on streets and in buildings. But light also has a function to perform. Offices have to be properly lit to suit their requirements, just like public buildings, roads and factory units. Key factors are the quality and distribution of light, as well as energy efficiency. PLEXIGLAS® is the ideal material to meet these demands. Its properties, such as unsurpassed transparency and brilliance, a variety of surfaces and good formability, meet the technical and design requirements of lighting planners and advertisers, lighting manufacturers and architects.

The lighting industry and its developments are currently undergoing a technological sea change, moving away from classical light sources to LED technology. This enables new types of lighting and luminaire design. The advantages are greater luminous efficiency with lower energy consumption, slimmer light boxes, and a huge variety of color – but these benefits can only be maximized if the luminaire material matches the technology.

With its unusual light-guiding properties, PLEXIGLAS® offers a wide range of options. That applies both to conventional light sources and also when the focus is on design rather than function. The material inspires designers to create entirely new light impressions that speak to the emotions.

Light fascinates people all over the world. We at Evonik are among the world's leading suppliers of PMMA and acrylic products, which were invented in 1933 by Dr. Otto Röhm and his team. The products we market under the PLEXIGLAS® brand (and under the ACRYLITE® brand in the Americas), as well as our know-how, are available everywhere, either directly via our global distribution network, via regional distributors or qualified fabricators.

Come and be inspired!



A specialized material that is reliable and durable

PLEXIGLAS® is one of the world's highest-quality and most versatile plastics. It can be manufactured with many different functional properties and surfaces: highly light-transmitting, for focused or diffuse light, with increased resistance to heat and to scratching.

Another benefit is that this brand acrylic is lighter in weight than glass, with 11 times its impact strength. It can take rough treatment and is easy to machine and fabricate. The molding compounds are ideally suited for all injection molding and extrusion processes. The semifinished materials can be drilled, routed, ground and laser cut with the greatest of ease. PLEXIGLAS® can also be cold-curved or durably thermoformed to provide new, surprising effects. It lends itself readily to imaginative designs that play with light, shape and color.

And these effects are made to last. PLEXIGLAS® stays as clear as new, even many years later. There is no yellowing or embrittlement. We guarantee that our colored PLEXIGLAS® solid sheet will remain colorfast for 10 years. Our clear-transparent solid sheets, blocks, tubes and rods come with a 30-year non-yellowing guarantee. Since PLEXIGLAS® remains virtually unchanged, it does not have to be replaced in the course of time, unlike other plastics.

Lighting manufacturers can choose between PLEXIGLAS® molding compounds and semifinished materials that are suitable for every application and forming process.

PLEXIGLAS®
sends signals

Wherever you look, advertising messages flash and wink at potential buyers. Brand names can be seen from afar and entice customers into stores. Repeated design is crucial for a high recognition factor, around the globe. PLEXIGLAS® is ideal for this purpose.

The material can be colored with excellent results and lets corporate colors appear identical at all of a company's global locations, such as those of a fashion chain in countless shopping malls. The selected color stays the same, whether lit or unlit. That makes sure the brand is recognized for a long time to come. Since the material is insensitive to UV light, both logos and large advertising signs retain their authentic color and high quality for many years to come.

But this material has more than just color to offer when it comes to realizing design ideas. Designers can attract the attention of consumers using every conceivable shape. PLEXIGLAS® makes this possible. It can be formed with the greatest of ease while retaining its lighting engineering properties and thereby supports design through its excellent functionality. PLEXIGLAS® can be uniformly backlit, for example. Its homogeneous impression is not disturbed by hot spots from the light sources.

PLEXIGLAS®
the intelligent material for LEDs

Advertising messages are often lit up round the clock, so it comes as no surprise that energy-saving structures are becoming increasingly popular. Modern LED technology consumes less energy than conventional light sources, but these energy savings can only be obtained if the right material is chosen. PLEXIGLAS® LED (truLED) for backlighting is specially designed for illuminated signs operated by LEDs. The colored grades are adjusted to the wavelength ranges (color coordinates) of red, green and blue LEDs. This makes optimum use of LED light and makes sure not a single ray of light is lost. In addition, the material offers improved light diffusion properties in order to prevent undesired hot spots or fluctuations in brightness in super-slim advertising signs.

This patented technology in PLEXIGLAS® LED enables the production of high-efficiency illuminated signs that cut energy costs to a minimum. LEDs and PLEXIGLAS® lighten the load on the environment, being durable, low-maintenance, energy-efficient and effective. They are a powerfully luminous duo that makes for a brilliant appearance

PLEXIGLAS®
LED is the solution

From unobtrusive during the day to high-impact or imaginatively colored at night, it is easy to provide objects with a change of color, given the right kind of backlighting. With PLEXIGLAS® LED for color change effects, surfaces may look deep black during the day and bright white when illuminated. This makes them just right for users who have to produce a striking illuminated sign with high visibility in the dark.

Besides this, the outstanding impact strength of PLEXIGLAS® Resist makes work easier for manufacturers of illuminated signs, luminous displays and lighting fixtures. The bottom line is a safe and less expensive manufacturing and installation process.

PLEXIGLAS®
super-slim design

LEDs shed their light in a myriad of places. Consumers and designers alike are enthused by these light sources. PLEXIGLAS® LED for edge lighting enables designers and lighting planners to use the advantages offered by LEDs for new design ideas and makes it possible to produce super-slim luminous surfaces. Bulky housings are a thing of the past. Super-slim partitions with large surface areas that glow on one or two sides, displays, luminous ceilings and citylight posters can be transposed into reality. PLEXIGLAS® LED guides light just as planners wish. Light fed into the material's edges enables it to illuminate transparent surfaces just as evenly as colored or patterned surfaces.

A variety of sheets are available in different thicknesses for edge-lit applications.

PLEXIGLAS®

effective illumination

Brightness alone is not enough. Luminaires meet a variety of demands, from functional workplace lighting and ambient lighting that creates a specific mood as part of an interior design concept, through to imaginative decorative objects. In PLEXIGLAS®, lighting manufacturers and designers find the material of choice to deal with the task in hand and bring their creations to life through light, shape and color.

Luminous efficiency and design options are key properties for materials used to design lighting. The required function determines which aspect is more important. PLEXIGLAS® offers a full range of options, and is available in the form of sheets, tubes and rods in a multitude of colors, surfaces and structures. Besides this, plastics fabricating companies that manufacture luminaires or light covers by injection molding or extrusion processes can choose from a versatile range of PLEXIGLAS® molding compounds, in impact-modified grades or as products with a high heat deflection temperature or a satin surface.

PLEXIGLAS®

crystal-clear for a good view

The best possible view: with its high optical purity, PLEXIGLAS® transmits all wavelengths in the visible range and guides light rays without loss precisely to where they are needed. PLEXIGLAS® also prevents a disturbing ring of color from showing at the edge of the light cone. In this way, luminaires made of PLEXIGLAS® efficiently achieve high impact and enable extremely comfortable viewing, whether they are equipped with LEDs, neon tubes or other light sources.

The range of possible uses is enormous. From area lighting to illuminated rods or spot lights, the material unites modern design with modern technology, like in LED panels made of PLEXIGLAS® as surface light guides. Illuminated ceiling panels provide pleasant light. Combined with LEDs, they make for super-slim structures, especially when large surfaces are to be edge-lit.

Downlights using the new LED technology are frequently used in ceilings. Here too, PLEXIGLAS® is the ideal choice. In these constructions, the material withstands the direct heat to which is exposed by being installed directly above the light source. Components made from the specialty molding compound grades PLEXIGLAS® Heatresist or PLEXIMID® can withstand even high thermal loads.

Nor is PLEXIGLAS® affected by winds and weathers. Since the material shows no yellowing either and withstands both rain and hail, it is ideal for outdoor applications with large surface areas or for street lighting. These are extremely hardwearing and retain their high quality for many years to come.

PLEXIGLAS®
designing pleasant light

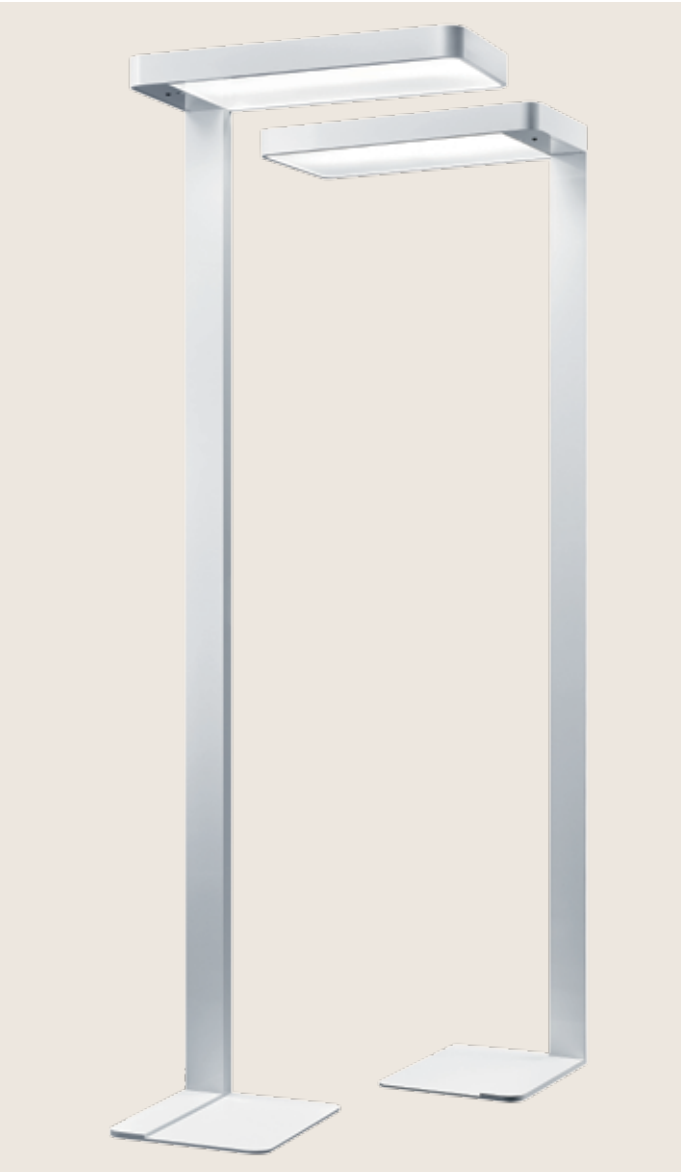
Modern lighting concepts are based on sophisticated technology. While some people find this exciting and want to show the technology involved, others prefer to conceal the interior workings. PLEXIGLAS® makes both options possible. In its clear-transparent grade, it offers an unhindered view. But when the material incorporates various diffuser particles, the workings of the lamps can also be completely concealed or only glimpses of them can be provided in finely adjusted gradations. This possibility can also be used to steer light diffusion for modeling the light distribution curve.

This makes it possible to satisfy conflicting demands for functional lights in hallways, lecture rooms or factory units: lights that are attractive to look at, pleasant to the eye and bright at the same time. PLEXIGLAS® distributes brightness evenly, both in combination with conventional light sources and with LEDs. It diffuses light and prevents unpleasant hot spots.
The luminaires keep their good looks. White stays white, even years later.

PLEXIGLAS®
no reflections

Brightness with no reflections and no glare. An extruded light cover made of PLEXIGLAS® Satinice prevents disturbing reflections through its velvet surface. Lighting manufacturers can choose from a wide range of different degrees of diffusion. Tiny bead-shaped polymer particles continuously diffract light to different degrees, with no significant light loss, and thus provide optimum diffusion. This grade of acrylic is therefore ideal for light covers or background lighting. Thanks to its special light-diffusing properties, interesting effects can also be achieved with illuminated tubes of PLEXIGLAS® Satinice.

Since it is insensitive to scratches or traces of wear, this material with its classy appearance is also highly suitable for pleasant lighting in hotel lobbies, stores and restaurants.



PLEXIGLAS®
light in the right places

Pleasant light is also crucial at the workplace. Glare-free lighting is essential so as not to exhaust the eyes when working at the computer any more than necessary. Covers made of PLEXIGLAS® create the ideal conditions, with their perfect symbiosis of form and function.

The material's calculated and precisely reproduced surface texture guides the light exactly to where it is needed. To do so, it is ideally combined with LEDs that enable precise guidance of the light cone. This not only provides uniform illumination of workplaces; lamps made of PLEXIGLAS® are also used to light stadiums or helipads, or place individual items in shop windows in a special light. PLEXIGLAS® comes in a wide range of sheets with textured surfaces, as well as specialty molding compounds with precise mold surface reproduction for the injection molding of high-precision lenses or for extruded lighting profiles.

PLEXIGLAS®
PLEXIGLAS® Hi-Gloss
PLEXIGLAS® Resist
PLEXIGLAS® Reflections
PLEXIGLAS® Satinice

PLEXIGLAS®
space for ideas

Light gives rooms and objects a unique character. PLEXIGLAS® gives designers plenty of space for their ideas. It can be shaped into virtually any form and comes in a range of different colors, surfaces and decors. Fancy something a bit more classy? Something that sparkles in gold, silver or all the colors of the rainbow?

Light designers and manufacturers use the special material PLEXIGLAS® Reflections with a radiant effect to conjure up a rainbow. Even in ambient light, the material shines in a number of beautiful colors. But it only reveals its true magic when illuminated or backlit. Passers-by then see the changing shades of color that are visible at different viewing angles. An unforgettable impression that is equally fascinating in table lamps, ceiling elements, or eye-catching shop window displays.

		Moulding Compound	Sheets		Rods/Tubes	Films
		Luminaries	Signage	Luminaries	Luminaries	Luminaries
PLEXIGLAS® LED	The new dimension of light: specialty PMMA sheets and molding compounds for efficient lighting applications combined with LEDs. Specialty products for edge lighting and backlighting offer maximum light transmission without disturbing hot spots, as well as attractive color play effects.	•	•	•	•	
PLEXIGLAS® Heatresist	A higher heat deflection temperature is the distinguishing feature of these specialty PMMA molding compounds.	•				
PLEXIGLAS® Optical	PMMA molding compounds and sheets with optical functionalities, high light guidance and distribution provide a uniformly bright and perfectly sharp picture, especially in display applications and for rear projection.	•				
PLEXIGLAS® Reflections	Attractively mirror-coated and reflective solid sheets with a metallic, glossy, matte or rainbow-colored surface.			•		
PLEXIGLAS® Resist	These impact-modified molding compounds, films, solid sheets and tubes combine toughness with excellent weather resistance.	•		•		•
PLEXIGLAS® Satinice	This material's velvet surfaces are robust, pleasant to the touch and discretely light-diffusing. Sheets and tubes are available with a matte satin surface on one or both sides, or with diffuser beads evenly distributed throughout the material, in various colors. Available as diffuser molding compounds for components with a light-diffusing effect.	•		•	•	
PLEXIGLAS® Textures	Solid sheets with a variety of classical and modern surface textures, combined with trendy colors or a rainbow effect.			•		
PLEXIGLAS® Clear	PMMA sheets, tubes, rods, films and molding compounds as basic products with unbeatable resistance to UV light and weathering, combined with durability. The products are either clear and brilliant or available in a large number of opaque, translucent, transparent and fluorescent colors.	•		•	•	•
PLEXIGLAS® White		•	•	•	•	•
PLEXIGLAS® colored		•	•	•		

Products, applications and properties

Siteco Beleuchtungstechnik GmbH

® = registered trademark

PLEXIGLAS is a registered trademark of
Evonik Röhm GmbH, Darmstadt, Germany

Certified to DIN EN ISO 9001 (Quality) and
DIN EN ISO 14001 (Environment)

Evonik Industries is a worldwide manufacturer of PMMA products sold under the PLEXIGLAS® trademark on the European, Asian, African and Australian continents and under the ACRYLITE® trademark in the Americas.

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Ref. No. 511-3 August 2012
30/0812/12.10065 (en)