

# PLEXIGLAS<sup>®</sup> for Industry and Safety



PLEXIGLAS<sup>®</sup> 



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## A good choice – for sure

Protection and safety are called for in many places – at machine workplaces, at bus stops, behind stadium barriers. Usually, it is people who require protection, but in some cases products do, too. Everyone would like to work without accidents, get home safely and enjoy their leisure time without harm. That applies to people all over the world.

Mechanical engineers, building contractors, vehicle manufacturers and shop builders all have to meet rising demands. Protective systems are gaining importance in global competition. These must provide permanent safety on the one hand and on the other, their appearance must reflect their purpose: to harm nothing and no one. In the best case, design serves safety, such as in public spaces. PLEXIGLAS® is the material of choice for such demanding applications.

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.

**Use our products to be on the safe side!**



## 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, light-diffusing, light-focusing, sight-screening, heat-reflective, heat-shielding, heat-insulating, noise-reflecting, resistant to scratching and chemicals.

It is lighter in weight than glass but impact-resistant. This is an important criterion especially in applications whose foremost requirement is protection and safety. A further advantage is that the material can take rough treatment and is easy to machine. PLEXIGLAS® can be cold-curved or durably thermoformed to provide new, surprising effects and shapes that encourage attractive design. The low forming temperatures keep costs down. And, important not just for store fixtures: PLEXIGLAS® XT meets both EU food contact requirements and the FDA food contact regulations that apply in the USA.

PLEXIGLAS® stays as clear as new, even many years later. There is no yellowing or embrittlement. Our clear-transparent PLEXIGLAS® solid sheets,



Source: Hecker Kunststofftechnik GmbH & Co. KG

multi-skin and corrugated 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. In addition, PLEXIGLAS® can be completely recycled, either by chemical conversion to its starting materials, or by direct reuse. These aspects, together with environmentally sound production, contribute to the material's sustainability.

To offer proof of this sustainability, we have performed an extensive life cycle assessment of the material from cradle to grave.

From production to recycling, the different environmental impacts of PLEXIGLAS®, including its greenhouse gas reduction effect due to the material's longevity, were determined and confirmed in this Life Cycle Assessment (LCA) in accordance with DIN ISO 14040ff.

PLEXIGLAS® also makes an essential contribution to reducing the burden on the environment during manufacture.

PLEXIGLAS® is also a good choice in terms of safety. It burns with almost no smoke, forms no acutely toxic smoke gases and can be easily extinguished with water.

PLEXIGLAS® products come in many forms, as solid, multi-skin and corrugated sheets, blocks, tubes, rods and molding compounds.

PLEXIGLAS® offers convincing toughness, ease of fabrication, weather resistance, brilliance and colorfastness. It provides reliable protection and safety both indoors and outdoors. At the same time, it enables fabricators, mechanical engineers, vehicle manufacturers and shop builders to fulfill even the most unusual design wishes.



## PLEXIGLAS® stands firm

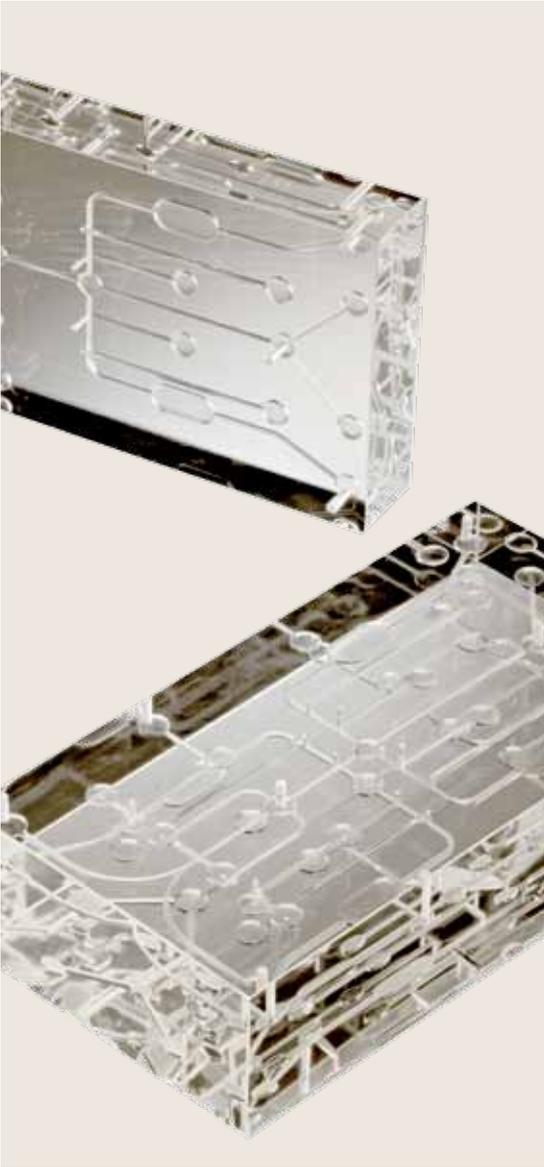
Machines are meant to work properly and keep on producing. Every interruption costs time and money. One of the main aims of mechanical engineers is to protect the machine from external influences and at the same time save its operators from being injured. Everyday operation calls for hard-wearing material that offers a clear view of the machine workings at all times.

Highly transparent PLEXIGLAS® unites all these requirements, for example in protective hoods or industrial clean room glazing. Both offer a clear view as well as all-round protection and resistance. The robust material withstands knocks, scratches

and chemicals almost without a trace. The clear view of the machine workings is retained for many years because the material is insensitive to light and protects against UV radiation. This helps machines make a good impression even on factory tours, while complying with safety regulations.

Users of food and beverage dispensers want to see what they are getting for their money. Operators want their machines to withstand kicks or blows. Impact-resistant PLEXIGLAS® Resist satisfies both requirements. Yet another reason to trust in this material.

Source: Hecker Kunststofftechnik GmbH & Co. KG



PLEXIGLAS® XT  
PLEXIGLAS® GS  
PLEXIGLAS® Resist  
PLEXIGLAS® Optical  
with Hardcoat  
PLEXIGLAS® Optical  
with anti-reflective coating

# PLEXIGLAS® provides insight

Being open for innovations is among the success factors in every industry. A new material is to be profitably used for structural components? No problem with PLEXIGLAS®. It is not only transparent, but also easy to handle. Precision drilling, routing and laser cutting pose no problem whatsoever. What's more, the plastic is so easy to form that it offers almost unlimited freedom of design to constructors, unlike other materials.

Its properties even make it possible to cut extremely complex lines into the material, like those used in fluid technology, by means of a router.

Liquid or gaseous substances wind their way through channels that are precisely routed into transparent PLEXIGLAS® sheets. The brilliant appearance of PLEXIGLAS® enables viewers to observe the process in every detail.

A multitude of options, fewer errors, greater efficiency – PLEXIGLAS® offers crucial benefits.



- PLEXIGLAS® XT
- PLEXIGLAS® GS
- PLEXIGLAS® Resist
- PLEXIGLAS® Optical with Hardcoat

# PLEXIGLAS® in mobile use

Driving a forklift truck, an excavator or sizing up the 18th hole on a golf course: outdoor activities call for maximum protection from all winds and weathers. They also call for maximum safety. It is no small feat to fulfill all these demands. The suitable material helps manufacturers of special-purpose vehicles to find the right solution.

PLEXIGLAS® weighs only half as much as glass, for example, but offers 11 times its impact strength. This is a dual benefit. Firstly, the weight saving increases transport capacity – funicular rail cars can transport more passengers, forklifts more goods.

And a lightweight golf cart leaves hardly any trace as it glides over the grass, much to the delight of the greenkeeper. Secondly, the chemical-resistant surface of PLEXIGLAS® Optical HC, with its scratch-resistant coating, withstands scratches, blows and ball impact, and therefore meets the most stringent requirements for a tough surface.



PLEXIGLAS® XT  
PLEXIGLAS® GS  
PLEXIGLAS® Resist

## PLEXIGLAS® in public spaces

Thermal processes are ideal for forming glazing to the required shape. PLEXIGLAS® can also be cold-curved. That makes it possible to realize individual design ideas in public spaces at no great expense. From curved roofs for bus stops to barrel vaults above a hotel entrance, a welcoming exterior makes for a pleasant atmosphere. Experience also shows that attractive structures are less likely to be vandalized.

Seen in this light, there are no obstacles to mobile leisure activities or to safe work and travel. Winds, weathers and vandalism stand little chance of inflicting damage.



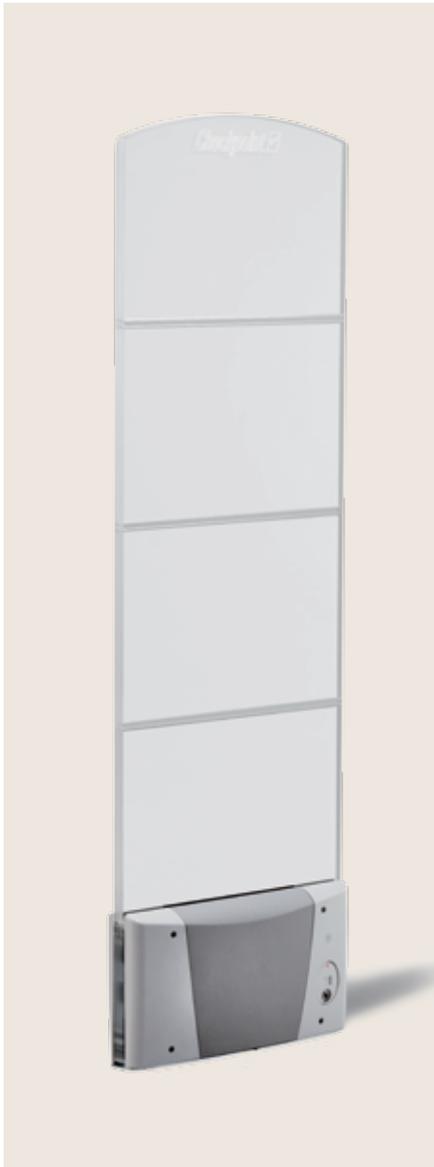
- PLEXIGLAS® XT
- PLEXIGLAS® GS
- PLEXIGLAS® Resist
- PLEXIGLAS® Optical with Hardcoat
- PLEXIGLAS® Reflections

# PLEXIGLAS® at play

Whoosh, bang. When things hot up at the ice hockey stadium, the crucial strengths of PLEXIGLAS® come into play: impact resistance, formability, transparency. It is so tough it can even withstand the impact of a puck shot at top speed. No damage done!

Even 6 mm thick sheets give stadium builders the certainty that spectator protection around the playing field meets requirements in terms of resistance to ice hockey pucks. The transparent acrylic barrier can be easily adapted to the circumstances at the stadium. What's important from the fans' perspective is that they are well protected behind completely transparent

PLEXIGLAS®, but still have the best possible view of the fast and furious action on the rink. There are no annoying reflections or optical distortions. PLEXIGLAS® provides pure, unalloyed pleasure for sports spectators.



**Products, applications and properties**

Products	Properties	Housing for machines	Industrial parts	Vehicle glazing	Structural glazing outdoors	Ice hockey stadiums	Retail security systems
<b>PLEXIGLAS® GS/XT</b>	PMMA sheets, blocks, tubes and rods 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.	•	•	•	•	•	•
<b>PLEXIGLAS® Resist</b>	These impact-modified multiskin, corrugated and solid sheets and tubes combine toughness with excellent weather resistance.	•	•	•	•	•	•
<b>PLEXIGLAS® Optical HC</b>	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. A sheet material with excellent resistance to abrasion and chemicals which is almost UV-resistant is available (PLEXIGLAS® Optical HC), as well as a nonreflecting variant with an anti-reflective coating (PLEXIGLAS® Optical AR).	•	•	•	•		•
<b>PLEXIGLAS® Optical AR</b>			•				
<b>PLEXIGLAS® Reflections</b>	Attractively mirror-coated and reflective solid sheets with a metallic, glossy, matte or rainbow-colored surface, to be used e.g. for safety and observation.						•

# PLEXIGLAS® no chance for shoplifters

Department stores offer an impressive and tempting variety of merchandise. That's why it is so important to protect stores and goods from theft. PLEXIGLAS® even turns the security gates at the exit into functional eye-catchers. With their brilliance and transparency, they help make sure that cashiers don't miss a trick. At the same time, the material's ease of fabrication and the hard-wearing plastic surface makes the created items suitable for everyday use. Any traces of wear can easily be removed by polishing. The countertop looks clean and the security mirrors stay clear.

PLEXIGLAS® in industrial premises and stores. A good solution, for sure.

® = 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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