PLEXIGLAS®
THE ORIGINAL BY RÖHM

**PLEXIGLAS®**
Solid Sheet

# PLEXIGLAS® GS, UV transmitting
Clear 2458, Clear 2458 SC

## Product

UV transmitting PLEXIGLAS® GS is a kind of cast acrylic (= polymethylmethacrylate, PMMA) specially developed for tanning beds, with high UV (ultraviolet) transmission and UV resistance.

## Properties

Besides the general properties of PLEXIGLAS® like

- Excellent light transmission and brilliance
- Outstanding weather resistance
- Easy to fabricate
- High surface hardness
- Light weight – half the weight of glass
- 11 times more break resistant than glass

PLEXIGLAS® GS UV transmitting possesses the following properties:

- perfectly coherent surface
- feels pleasantly warm to the skin and is hygienic
- ideally suited for use in both cosmetic and therapeutic UV appliances
- particularly resistant to extremes of climate, i.e. ideal for applications exposed to heat and humidity in addition to UV radiation
- exhibits high mechanical strength at low weight

## Applications

Due to these properties PLEXIGLAS® GS UV transmitting is suitable for the following application

- tanning beds

## Fabrication

UV transmitting PLEXIGLAS® GS can be sawn, drilled, routed, sanded and polished using all tools suitable for acrylic. Scratches on UV transmitting PLEXIGLAS® GS parts with a smooth surface can be polished away, using suitable polishing pastes or waxes and a soft cloth (glovelining fabric) or a buffing wheel. The thermoforming temperature should be between 130 °C and 160 °C.

If the masking film is left on the sheet during thermo-forming to provide continued protection to the finished item for economical reasons, mark-off cannot always be avoided on the thermoformed part. This may be due to air entrapment in and below the film. The quality of acrylic can be upgraded by annealing. Therefore, all parts made from UV transmitting PLEXIGLAS® GS must be annealed after manufacture to allow for the chemical and other loads to which tanning beds are exposed. This relieves the material stress produced by mechanical treatment and greatly reduces the risk of stress cracking. Annealing is performed in airflow ovens at 70 °C for two to four hours (depending on thickness), followed by slow cooling.



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## Hints for Application

UV transmitting PLEXIGLAS® GS is easy to clean. However, care should be taken to employ only cleaning agents that do not damage acrylic, and to follow closely the relevant manufacturer's instructions for use.

Furthermore, we advise against using cosmetics such as body oils, lotions and creams before and during tanning where there is direct contact between the skin and the tanning bed made from UV transmitting PLEXIGLAS® GS, since these substances may damage acrylic.

We as the sheet manufacturers cannot be held responsible for damage due to the use of the above-named and similar cosmetic products.

The mechanical loads to be expected in use must be considered when developing parts, particularly those of new design. You are advised to consult our technical service department.

## Product range

UV transmitting PLEXIGLAS® GS solid sheets are supplied

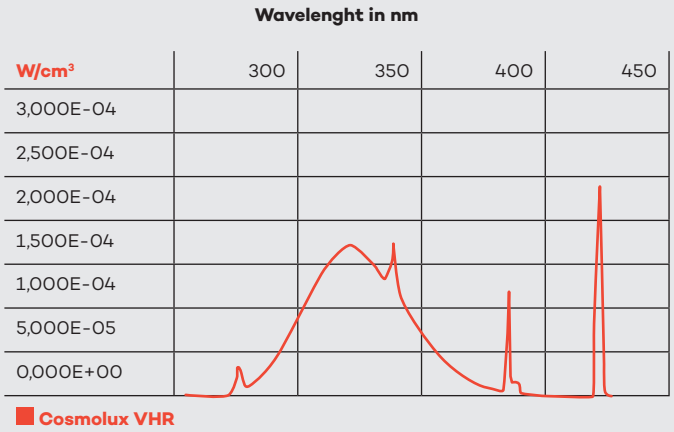
- PLEXIGLAS® GS Clear 2458
  3120 × 2120 mm; thickness 3 –8 mm
  2500 × 2050 mm; thickness 3 –8 mm
- PLEXIGLAS® GS Clear 2458 SC
  2500 × 2050 mm; thickness 3 –8 mm

For further details please consult the PLEXIGLAS® Sales Handbook.

Both sheet surfaces are covered with a recyclable PE masking film to protect them from dirt pickup and scratching during storage, transport as well as mechanical and thermal treatment. This film can be left on the sheets even during thermoforming, provided the process is performed as befits the material, but should be removed before the finished items are used.

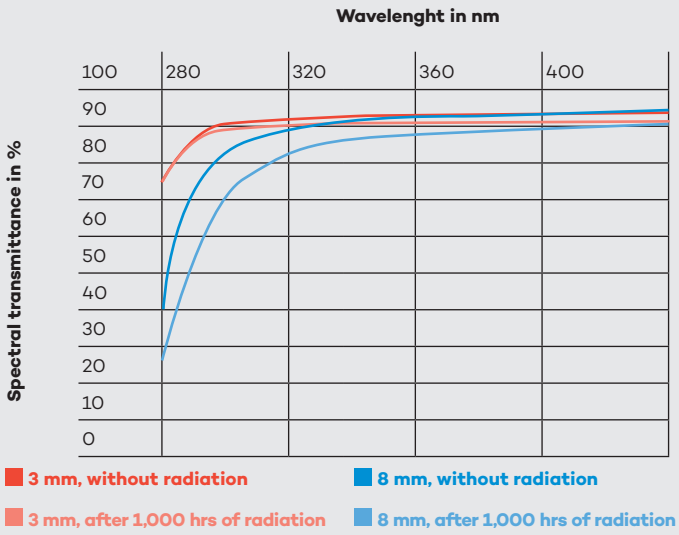
The following graph shows the emission spectrum of the radiation source employed for the transmittance measurement, a Cosmolux VHR 160 Watt lamp:

**Cosmolux VHR**




The diagram shows the spectral transmittance of PLEXIGLAS® GS Clear 2458* measured on 3 and 8 mm thick sheets prior to irradiation and after 1,000 hours' exposure to the radiation of a Philips CLEO Professional 160 W lamp:

**PLEXIGLAS® GS, UV transmitting**




* Spectral transmittance curves of UV transmitting PLEXIGLAS® GS Clear 2458 SC available on request.

# PLEXIGLAS®
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| Technical Data | | | | |
|---|---|---|---|---|
| **Typical Values (23 °C/50 % r. F.) (3 mm thickness)** | **Clear 2458** | **Clear 2458 SC** | **Unit** | **Test Method** |
| **Mechanical Properties** | | | | |
| Density | 1,19 | 1,19 | $g/cm^3$ | ISO 1183 |
| Elongation at break | ≥ 5 | ≥ 5 | % | ISO 527 |
| Tensile strength | ≥ 60 | ≥ 60 | MPa | ISO 527 |
| Flexural strength | ≥ 90 | ≥ 90 | MPa | ISO 178 |
| Elastic modulus | ≥ 2500 | ≥ 2500 | MPa | ISO 527 |
| **Thermal Properties** | | | | |
| Coefficient of linear thermal expansion (0 to 50 °C) | $7 \cdot 10^{-5}$ | $7 \cdot 10^{-5}$ | 1/K | DIN 53752-A |
| Thermal conductivity | 0,19 | 0,19 | W/mK | DIN 52612 |
| Vicat softening temperature | 100 | 100 | °C | ISO 306/B 50 |
| Building material class (according to Baustoffklasse DIN 4102) | B2 | B2 | - | DIN 4102 |
| Combustion behavior | Class E | Class E | - | DIN EN 13501 |
| **Optical Properties** | | | | |
| Transmission in the UV range 315 nm | | | % | DIN 5036, Part 3 |
| 33 mm thickness | ≥ 80 | ≥ 80 | | |
| 8 mm thickness | ≥ 70 | ≥ 70 | | |
| Transmission in the visible range from 380 to 780 mm | ≥ 90 | ≥ 90 | % | DIN 5036, Part 3 |

For further typical data please see the Technical Information of PLEXIGLAS® GS/XT (211-1).

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