

## PS - PLASKOLITE EXTRUDED POLYSTYRENE (PS) SHEETS



### DESCRIPTION

PLASKOLITE EXTRUDED PS SHEETS are produced and internally verified to ISO standards and are a cost-effective solution for a wide range of indoor applications, such as indoor glazing, interior designs and decorative solutions.

PLAZGAL extruded PS sheets have low density and high rigidity, good chemical resistance, good optical properties and a brilliant surface. Sheets are easy to fabricate and vacuum-form and can be used in food-contact applications.

PLAZGAL extruded PS sheets are available in a range of thicknesses and grades: PLAZGAL GPPS (General Purpose Polystyrene Sheets) and HIPS (non-transparent High Impact Polystyrene Sheets).

### TYPICAL PROPERTY VALUES

| Properties   | Method      | Units             | GPPS                 |
|--|-------------|-------------------|----------------------|
| <b>General</b>                                       |             |                   |                      |
| Density  | ISO 1183    | g/cm <sup>3</sup> | 1.05                 |
| Water Absorption                                     | ISO 62      | %                 | <0.1                 |
| Flammability   | UL94        |                   | HB                   |
| <b>Mechanical</b>                                    |             |                   |                      |
| Tensile Stress at Yield (23°C)                       | ISO 527-2   | MPa               | 55                   |
| Elongation at Break (23°C)                           | ISO 527-2   | %                 | 3                    |
| Flexural Strength (23°C)                             | ISO 178     | MPa               | 80                   |
| Flexural Modulus (23°C)                              | ISO 178     | MPa               | 3300                 |
| Impact Resistance (Charpy unnotched) (23°C)          | ISO 179/1fu | kJ/m <sup>2</sup> | 20                   |
| Impact Resistance (Izod notched)                     | ISO 179/1fu | kJ/m <sup>2</sup> | 1.5                  |
| Rockwell Hardness                                    | ISO 180     | M-scale           | 105                  |
| <b>Optical</b>                                       |             |                   |                      |
| Refractive Index                                     | ISO 489     |                   | 1.59                 |
| Transmittance (3 mm transparent sheet)               | ASTM D1003  | %                 | 90                   |
| Haze (3mm transparent sheet)                         | ASTM D1003  | %                 | <1                   |
| <b>Thermal</b>                                       |             |                   |                      |
| Vicat Softening Temp. (50°C/h 50N)                   | ISO 306     | °C                | 89                   |
| Heat Deflection Temp.: 1.8 MPa                       | ISO 75-1    | °C                | 76                   |
| Coeff. of Linear Thermal Expansion                   | ASTM D696   | mm/meter for 1 °C | 0.08                 |
| Recommended Continues Service Temperature            |             | °C                | 60                   |
| Recommended Maximum Service Temperature / Short time |             | °C                | 80                   |
| Minimum Service Temperature                          |             | °C                | -40                  |
| <b>Electrical</b>                                    |             |                   |                      |
| Surface Resistivity                                  | EC 60093    | ohms              | >1.0E <sup>+14</sup> |
| Volume Resistivity                                   | EC 60093    | ohms*cm           | >1.0E <sup>+18</sup> |

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| Properties   | Method    | Units             | HIPS                |
|--|-----------|-------------------|---------------------|
| <b>General</b>                                       |           |                   |                     |
| Density  | ISO 1183  | g/cm <sup>3</sup> | 1.05                |
| Water Absorption                                     | ISO 62    | %                 | 0.1                 |
| Flammability   | UL94      |                   | HB                  |
| <b>Mechanical</b>                                    |           |                   |                     |
| Tensile Stress at Yield (23°C)                       | ISO 527   | MPa               | 24                  |
| Elongation at Break (23°C)                           | ISO 527   | %                 | 35                  |
| Flexural Strength (23°C)                             | ISO 178   | MPa               | 22                  |
| Flexural Modulus (23°C)                              | ISO 178   | MPa               | 1800                |
| Impact Resistance (Charpy notched)                   | ISO 179   | KJ/m <sup>2</sup> | 93                  |
| Rockwell Hardness                                    | ASTM D785 | R-scale           | 65                  |
| <b>Thermal</b>                                       |           |                   |                     |
| Vicat Softening Temp. (50°C/h 50N)                   | ISO 306   | °C                | 90                  |
| Heat Deflection Temp. 1.8 MPa                        | ISO 75    | °C                | 74                  |
| Coeff. of Linear Thermal Expansion - 50°C            | ISO11359  | mm/m · °C         | 0.04                |
| Recommended Continues Service Temperature            |           | °C                | 60                  |
| Recommended Maximum Service Temperature / Short time |           | °C                | 80                  |
| Minimum Service Temperature                          |           | °C                | -40                 |
| <b>Electrical</b>                                    |           |                   |                     |
| Surface Resistivity                                  | EC 60093  | ohms              | 1.0E <sup>+13</sup> |
| Volume Resistivity                                   | EC 60093  | ohms*cm           | 1.0E <sup>+18</sup> |

## DIMENSIONS

| Thickness, mm | Width, mm           | Length, mm |
|---------------|---------------------|------------|
| 0.9 - 10.0    | 1000, 1250 and 2050 | 500 - 6000 |

Sheets are also available cut-to-size according to customer requirements.

## TOLERANCES FOR DIMENSIONS

| Sheet Thickness, mm | Thickness, % | Width Tolerances, mm                    | Length Tolerances, mm                   | Diagonals Tolerances, mm  | Flatness Tolerances  |
|---------------------|--------------|---|---|---|--|
| <1.5                | ± 8          | Sheets cut in production:<br>-0.0 /+3.0 | Sheets cut in production:<br>-0.0 /+3.0 | Sheets cut in production:<br>Length ≤ 4000 mm - ≤ 2<br>Length ≥ 4000 mm - ≤ 4 | Max allowed bowing - 0.5% from linear dimensions.<br>Max allowed bowing across the width of the sheet - ≤ 5 mm per meter of width.<br>Max allowed bowing along the length of the sheet - ≤ 5 mm per meter of length. |
| 1.5, < 2.0          | ± 4          |   |   |   |  |
| 2.0, < 10.0         | ± 3          | Sheets cut to size:<br>± 0.50           | Sheets cut to size:<br>± 0.50           | Sheets cut to size:<br>≤ 0.5  |  |

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## **COLORS**

PLAZGAL extruded PS sheets are naturally colorless, however pigments can be added according to customer requirements. The sheets are offered in clear, Non-Reflex, embossed patterns, opal white versions and variety of colors. The light transmission of PLAZGAL extruded GPPS colored sheets varies depending on the thickness.

For a details please contact PLASKOLITE Technical Support.

## **DEFINITIONS**

### **RESISTANCE TO WEATHERING**

PLAZGAL PS is not recommended for long-term use in the open air as it is degraded by UV radiation. The degradation results in yellowing, loss of surface gloss and by a decrease in mechanical strength. Darker formulations perform better than pale or transparent types.

For detailed information please contact PLASKOLITE Technical Support.

### **FIRE TEST PERFORMANCE**

PLAZGAL extruded PS sheets are classified by UL 94 vertical burning classification: HB

### **CHEMICAL RESISTANCE**

PLAZGAL PS is resistant to water, alkalis and dilute mineral acids, as well as to aqueous solutions of most salts. However, it swells in some organic solvents and is dissolved by others. This is true of aromatic and chlorinated hydrocarbons, ethers, esters and ketones. PLAZGAL PS is also attacked by concentrated sulphuric acid and strong oxidizing agents, e.g. nitric acid, chlorine water, bromine water and sodium hypochlorite solution.

For detailed information please contact PLASKOLITE Technical Support .

### **ENVIRONMENTAL STRESS CRACKING**

Environmental Stress Cracking (ESC) is a result of the combination of stress and chemical exposure. The level of stress needed for ESC is lower than the normal failure mechanical stress of PS in a chemical-free environment. Stresses can be created during fabrication, forming and also by improper installation. PLAZGAL PS is very susceptible to stress cracking. Parts with internal stresses as produced by cold bending can form stress cracks even in media to which PS is usually resistant.

## **GENERAL GUIDELINES**

### **STORAGE**

PLAZGAL PS sheets must be stored with their original protective masking in a dry, shady and well ventilated area, with NO EXPOSURE to direct sunlight, wind, dirt or hard objects. Avoid storage in areas with excessive heat (not higher than 50°C) or strong solvents.

Sheets should be stored horizontally on their delivery pallets and placed on a soft material (such as cardboard) to prevent damage. Pay attention to avoiding pressure on the unsupported areas.

### **PROTECTIVE FILM**

Both surfaces of PLAZGAL PS sheet are protected by a fully recyclable polyethylene (PE) film. Keep this film in position as long as possible and remove it immediately after installation.

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## **CLEANING & MAINTENANCE**

PLAZGAL PS extruded sheets are produced in a clean-room environment and do not need to be cleaned before use.

For general purpose cleaning, polystyrene should be washed with clean, cold water to which a little mild detergent has been added. The use of any solvents such as methylated spirits, turpentine, white spirit or any proprietary window cleaning products is neither necessary nor recommended.

Sponges, squeegees, brushes or sharp instruments should not be used for cleaning sheets as they can damage and / or causes scratches in the sheet surface.

## **ENVIRONMENTAL ADVANTAGES**

PLAZGAL PS sheets are environmental friendly. The sheets and their polyethylene protective layers are fully recyclable. They do not contain any toxic materials which may cause environmental damage or health risks.

PLAZGAL PS sheets can be used for energy recovery and mechanical recycling.

## **RE-WORKING**

### **- HANDLING:**

PLAZGAL PS sheets can be cut, sawn, drilled, and milled easily using standard workshop equipment for wood or metal. However, it is always recommended to use specific tools specially designed for plastics. For details please contact PLASKOLITE Technical Support.

Contact us for quotes & availability: