



PRODUCT GUIDE

VERSATILE, EFFECTIVE AND ATTRACTIVE.

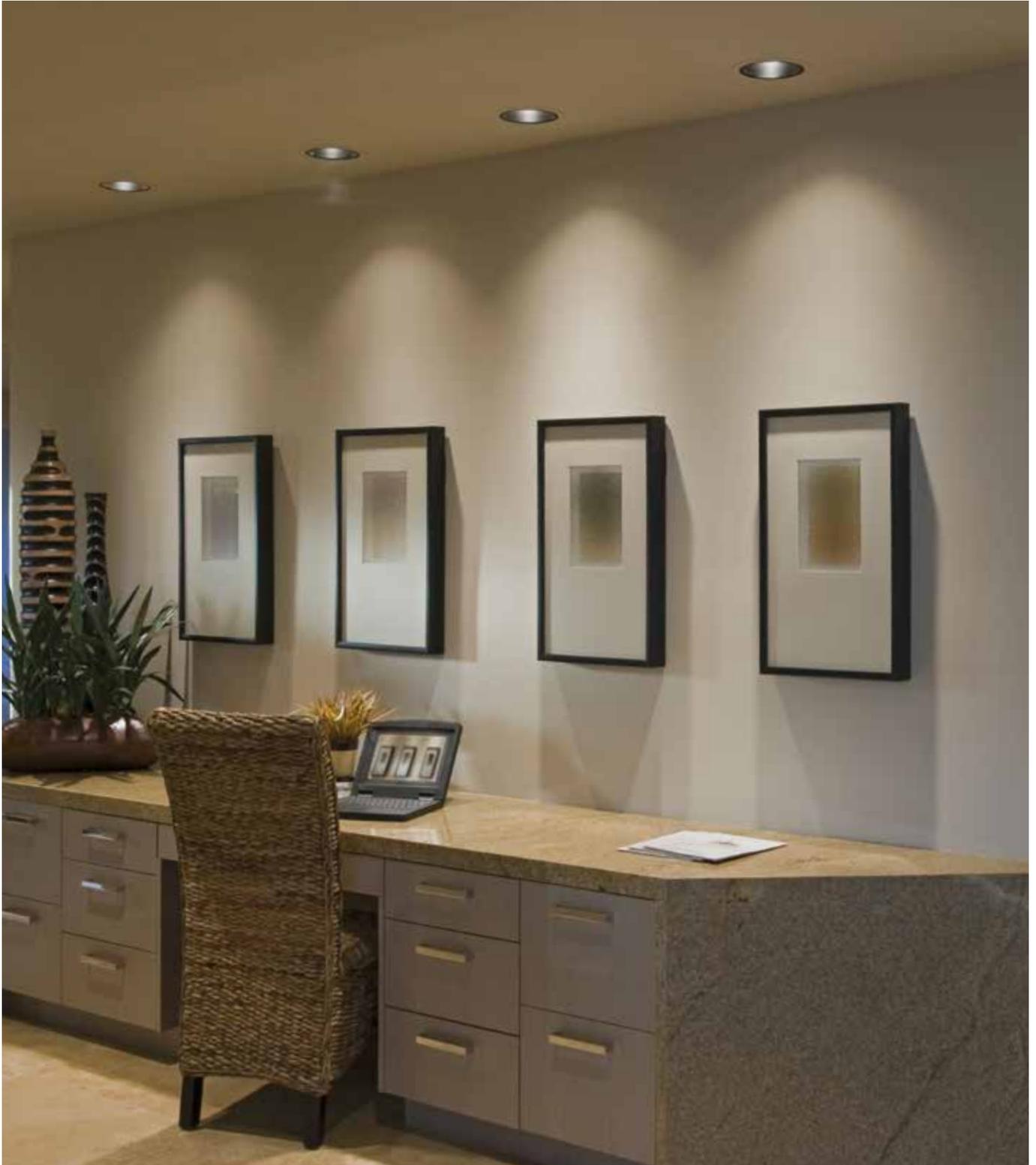
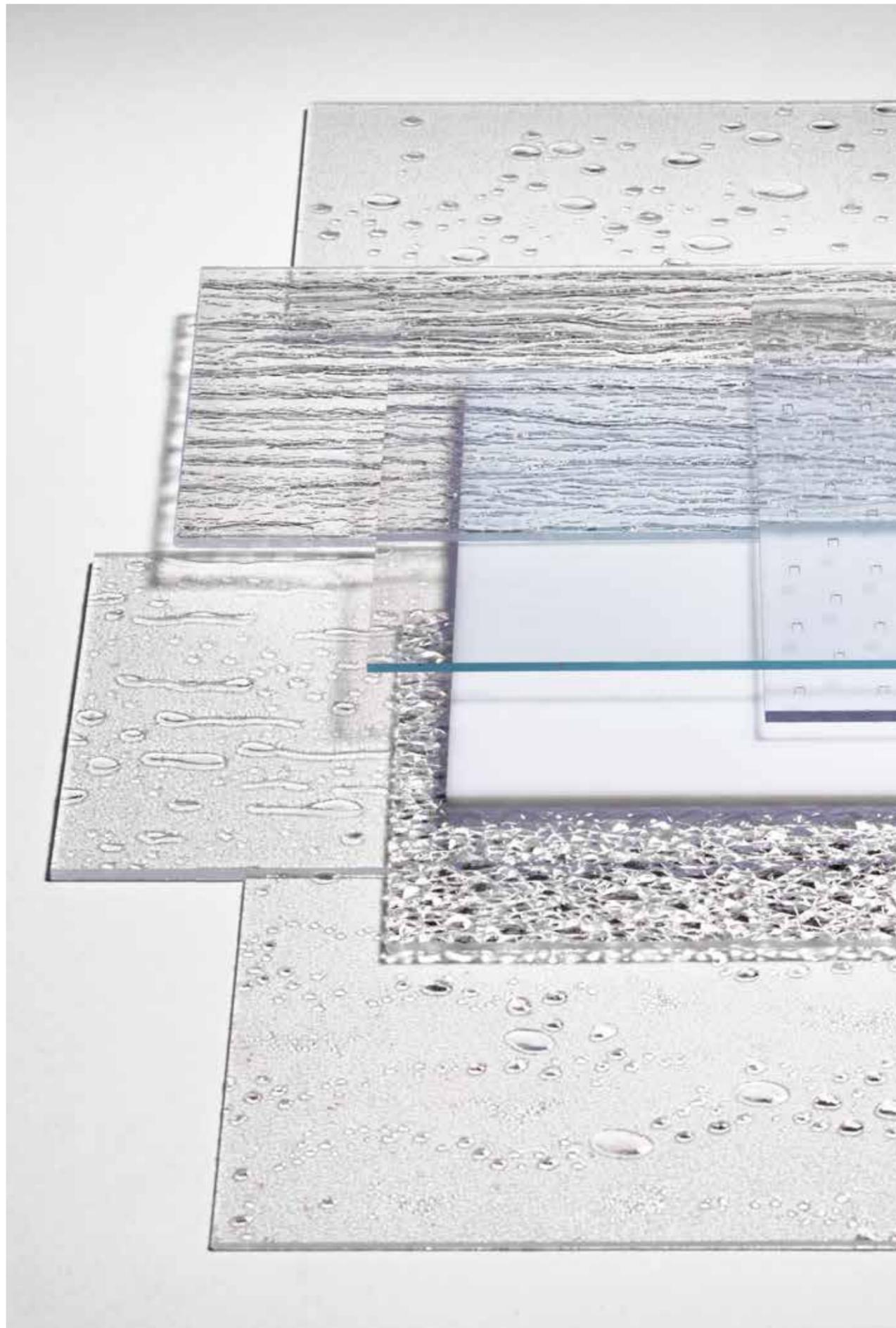




TABLE OF CONTENTS

POLYCASA® PS

■ At a glance	06 – 07
■ Technical Data Sheet	09
■ Sustainability	10 – 13



POLYCASA® PS

POLYCASA® PS stands for extruded crystal polystyrene sheets which provide solutions for many indoor applications. Thanks to the extrusion process, alongside the clear transparent standard products (with or without anti-reflective), there are also a variety of colours and patterns on offer.

POLYCASA® PS sheets are not only used for a number of different purposes in the field of visual communication, e.g. as signage for advertising campaigns, as POS / POP displays or as glazing for picture frames but also for sanitary ware (e.g. shower cabins).

Sustainable involvement and environmental protection have always been amongst the essential corporate objectives at 3A Composites. The minimisation of risks for man and environment as well as the reduction of environmental pollution through careful and efficient utilisation of resources is part of the corporate philosophy.

Our production site in Pribram, Czech Republic, is certified according to DIN EN ISO 9001, the standard defining internationally recognised requirements for quality management. The site is also participating in the programme Operation Clean Sweep® (OCS), which is dedicated to preventing plastic resin loss and to ensuring that this material does not end up in the environment.

Ongoing efforts to significantly reduce CO₂ emissions are being made at the POLYCASA® PS production site by scaling back energy and water consumption, increasing productivity and avoiding waste. A sustainability project has achieved a reduction in energy consumption of least 10% per kilogram of the product. Open cooling cycles are currently being replaced by a closed system to bring about significant savings in water consumption and resulting in a reduction of up to 5000 m³ (or 5 million litres) of water. In addition, investments are being made in new and sustainable production technologies, for instance, by installing a new, energy-efficient production unit to replace two older production lines.

POLYCASA® PS sheets are subject to the highest quality standards and stringent monitoring. Our top priority is to ensure that POLYCASA® PS sheets do not contain any hazardous substances. None of the raw materials used to produce POLYCASA® PS sheets contain any heavy metals.

Read more about our commitment to sustainability starting on page 10.

POLYCASA® PS – SPARKLING CLARITY AND EASY FORMABILITY.

POLYCASA® PS

VERSATILE, EFFECTIVE AND ATTRACTIVE.

CHARACTERISTICS

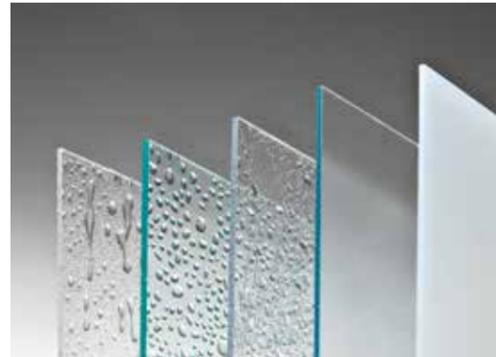
- Good optical properties and a brilliant surface
- High light transmission
- Low density
- Good chemical resistance and high rigidity
- UV-stabilised – remains colour constant for many years when used indoors
- Excellent transparency
- Good surface hardness
- Good recyclability
- Low water absorption

APPLICATION

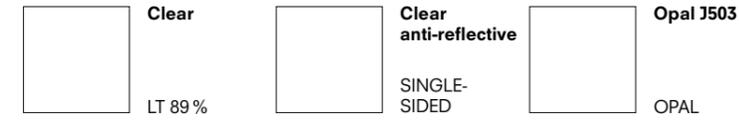
- Displays (POS/POP)
- Signage | Lettering
- Picture frames
- Shop design | Shop window decoration
- Partitions | Cladding
- Lighting | Light boxes
- Glazing
- Shower cabin doors (flat and curved)

PROCESSING

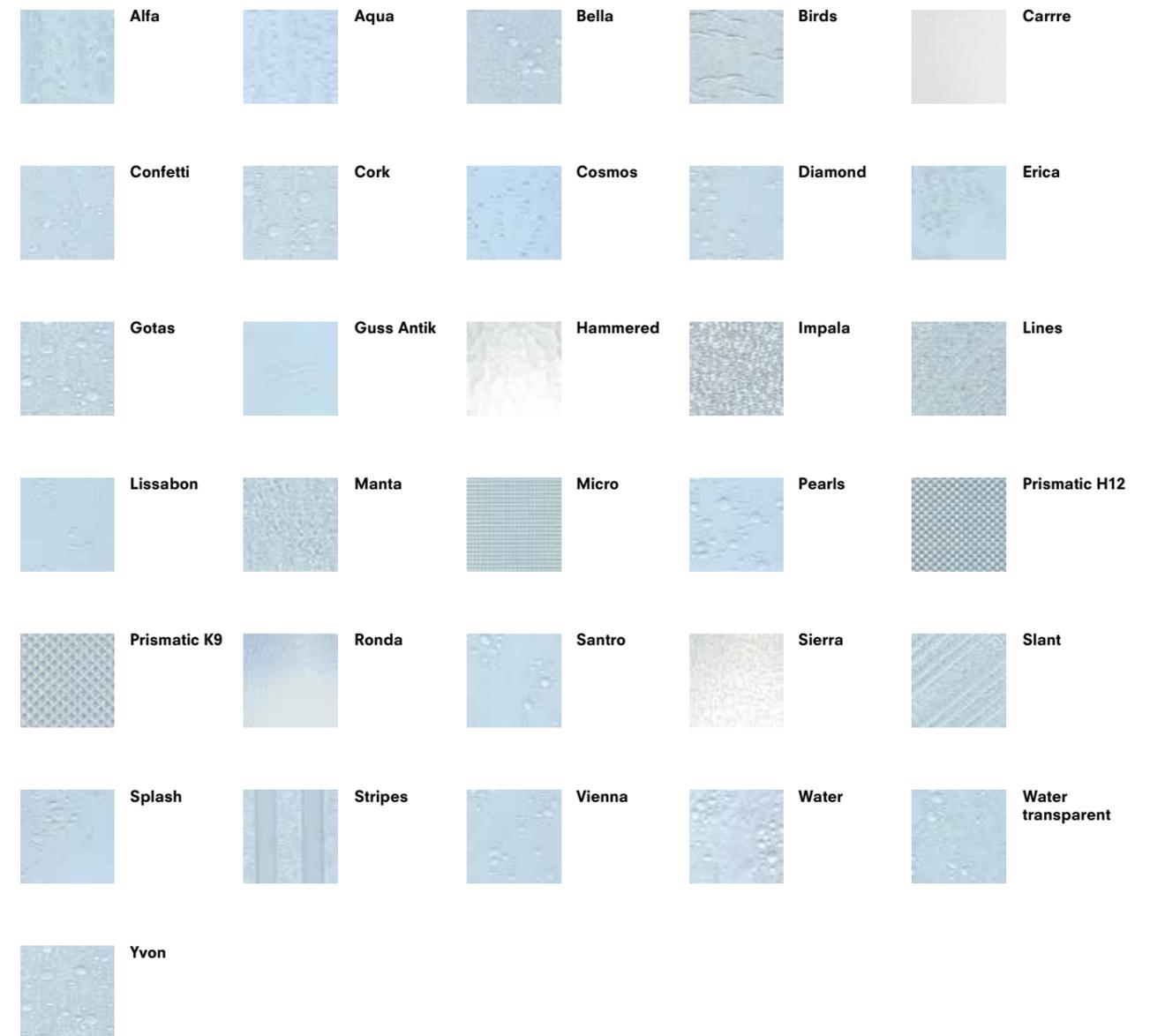
- Digital printing | Screen printing
- Laminating
- Painting | Spray painting | Lacquering
- Cutting | Die cutting | Plotting
- Contour milling
- Laser cutting
- Water jet cutting
- Sawing | Punching
- Gluing
- Drilling | Screwing
- Thread cutting
- Folding (V-groove) | Cold bending
- Hot bending
- Thermoforming
- Engraving



CLEAR TRANSPARENT



PATTERNS





PRODUCT			POLYCASA® PS
GENERAL			
Density	ISO 1183	kg/m ³	1050
Food contact	EU 10/2011	–	conform
MECHANICAL			
Tensile modulus	ISO 527-2	MPa	3400
Tensile strength	ISO 527-2	MPa	45
Elongation at break	ISO 527-2	%	3
Flexural modulus	ISO 178	MPa	3450
Flexural Strength	ISO 178	MPa	85
Impact strength Charpy, unnotched	ISO 179-1/1eU	kJ/m ²	6
Impact strength Charpy, notched	ISO 179-1/1eA	kJ/m ²	–
Ball indentation hardness	ISO 2039-1	MPa	150
OPTICAL			
Light transmission	ISO 13468-2	%	89
Refractive index n _D ²⁰	ISO 489	–	1.59
THERMAL			
VICAT temperature (method B 50)	ISO 306	°C	101
Heat deflection temperature (method A)	ISO 75-2	°C	86
Specific heat capacity	ISO 11357-4	J/gK	1.8
Coefficient of linear thermal expansion	ISO 11359-2	mm/m x °C	8
Thermal conductivity	ISO 22007-1	W/mK	0.16
Degradation temperature	–	°C	> 280
Max. service temperature	–	°C	80
Forming temperature	–	°C	130 – 170
Fire resistance	EN 13501-1	Classification	E
	UL94	Classification	HB
ELECTRICAL			
Volume resistivity	IEC 62631-3-1	Ω m	>10 ¹⁴
Surface resistivity	IEC 62631-3-2	Ω	>10 ¹⁴

Note: Technical data of our products are typical ones for POLYCASA® PS. The actually measured values are subject to production variations. All mentioned data is based on sheets in a thickness of 4 mm.

SUSTAINABILITY

MISSION: TOGETHER. RESPONSIBLE.

Sustainability is at the core of everything we do. Our corporate ecological commitment is summed up by the **MISSION: TOGETHER. RESPONSIBLE.** As we also apply and comply with this mission in regard to our products, we have created a classification system. The five different categories in our **FIVE-DOT-MISSION** system indicate the factors with the greatest impact on sustainability. Our intention is to offer our partners guidance with their purchasing decision-making and to provide a transparent system. A system which focuses on the use of materials, the CO₂ content, the product life cycle and, of course, recycling, a topic of particular relevance for our products. Our FIVE-DOT-MISSION makes an assessment of a product on the basis of five categories and awards points per category, the product is then assigned to one of the five coloured DOTs. By this means we achieve a transparent, quick valuation logic which we can also use to gauge product innovation and improvement at 3A Composites.

THE FIVE-DOT CATEGORIES ARE:

1. BIOBASED CONTENT
Depending on the product, different raw materials are used to manufacture our panels. In this case, we look at the percentage of renewable raw materials used in our products. Our aim is to increase the percentage whenever possible and appropriate.

2. RECYCLED CONTENT
The industry selects recycled raw materials for use in the manufacture of new products which also fulfil requirements such as fire ratings, processing prerequisites and customer expectations in terms of functionality and appearance. This category is where we gauge the proportion of high quality recycled raw material in our products' total material input.

3. FOSSIL CO₂ BOUND IN THE MATERIAL
This category shows the weight of fossil CO₂ embedded in our panels. Differences here are principally due to the raw material type and origin, the density, the composition and the proportion of recycled content.

4. PRODUCT LIFE CYCLE
The plastic sheets and composite panels we produce are used by our customers for a longer period of time. In contrast to products used in the short term, these longer-term alternatives make an active contribution to saving resources. In this category we show our panels' average service life. Material properties result in disparities, so life cycles range from <1 year to even >30 years.

5. RECYCLABILITY
One of the most important aspects of sustainability is contributing to environmental protection by saving valuable raw materials and avoiding waste. Unlike the second category "recycled content", in this assessment category, we show options for recycling the panels after they have been in use. There are already, for instance, established recycling loops for paper and metals. At some production sites, the material can already be returned, so that material for new panels can be created from it. As a company, we came to the conclusion that thermal recycling does not seem sustainable enough, so it is not included in our FIVE-DOT classification. Instead, we are actively working with partner companies to establish a closed-loop, sustainable and future-oriented recycling economy.

As many as 3 points can be achieved in each of the categories presented, totalling a maximum of 15 points. According to the total number of points achieved (1-15), the FIVE-DOT classification is conducted using the following colour gradation.



Transparency is important to us! We will review the product assessment annually to see in which areas the product can be improved. We have set ourselves the goal of achieving the majority of our sales with products which achieve a rating of ≥ 7 points in the FIVE-DOT classification by 2030.

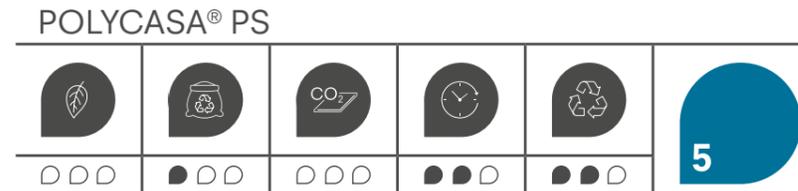
Join us on our sustainable mission!



SUSTAINABILITY

POLYCASA® PS FIVE-DOT-MISSION

POLYCASA® PS extruded crystal polystyrene sheets have been assessed in line with the criteria described above. The product currently achieves a FIVE-DOT classification of 5 points in total.



RECYCLED CONTENT
 The current production of our POLYCASA® PS sheets already contains a proportion of recycled polystyrene which is mainly recovered from our own production waste. After being sorted into individual types, the material is returned to the production process in the form of regrind. We aim to continue increasing the proportion of recycled regrind in the sheets in the future.

PRODUCT LIFE CYCLE
 Our POLYCASA® PS family is made of polystyrene, a durable thermoplastic polymer which is suited to interior applications, for instance: signage, displays or glazing in picture frames, and also for sanitary ware such as shower cabins. The version featuring UV-protection ensures sheets remain colour constant for many years in interior applications.

All raw materials used in our POLYCASA® PS sheets comply with the requirements in the current version of the European Union's Chemicals Regulation (REACH). In particular, POLYCASA® PS sheets are free of any of the substances listed in the current version of the ECHA Candidate List of Substances of Very High Concern (SVHC).

RECYCLABILITY
 POLYCASA® PS sheets can be recycled and then reused without significant impact on the material properties. Styrene based polymers can even be recycled numerous times.



Polycasa N.V.
Van Doornelaan 2A | 2440 Geel, Belgium
www.display.3AComposites.com
A member of 3A Composites