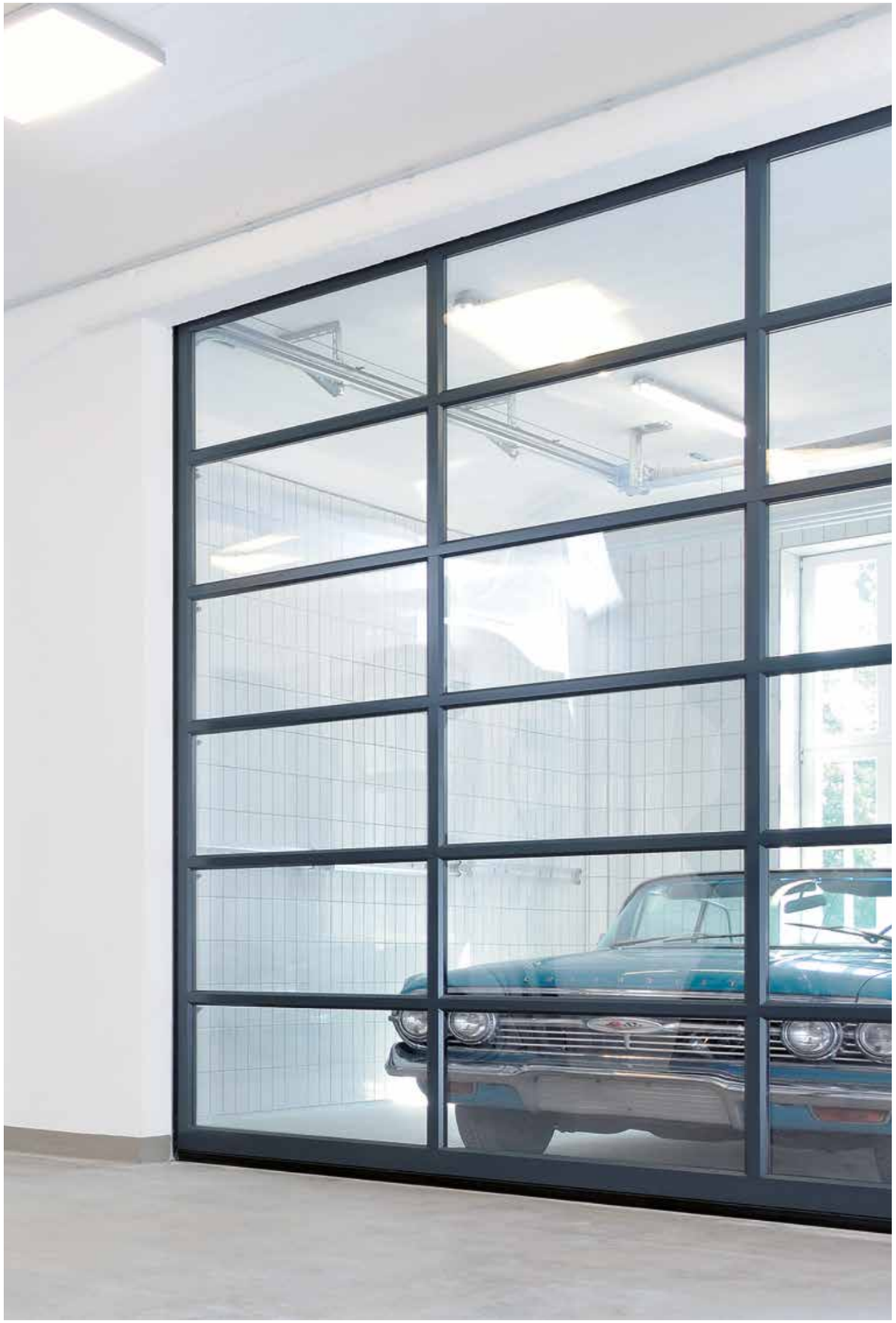
SAN

PRODUCT GUIDE

LIGHTER, BUT STIFFER.

3A COMPOSITES



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POLYCASA® SAN

POLYCASA® SAN are extruded styrene acrylonitrile copolymer (SAN) sheets. The SAN programme offers solutions for both indoor and outdoor applications. For outdoor use we recommend the version with UV protection.

Compared to conventional transparent materials, these sheets provide real benefits – weighing 10 % less but with considerably enhanced rigidity, POLYCASA® SAN sheets can be up to one third thinner for similar applications. In addition, POLYCASA® SAN is exceptionally resistant against water and chemical absorption.

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 CO_2 emissions are being made at the POLYCASA® SAN 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 m^3 (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® SAN sheets are subject to the highest quality standards and stringent monitoring. Our top priority is to ensure that POLYCASA® SAN sheets do not contain any hazardous substances. None of the raw materials used to produce POLYCASA® SAN sheets contain any heavy metals.

Read more about our commitment to sustainability starting on page 8.

POLYCASA® SAN – LIGHTER, BUT STIFFER.

POLYCASA® SAN

LIGHTER, BUT STIFFER.

CHARACTERISTICS

- Good optical properties and a brilliant surface
- Easy to handle and vacuum form
- Show a very good dimensional stability
- Very good chemical resistance: to most fats, dilute acid solutions, oils and common bleaching agents, as well as some solvents and weak alkaline solutions
- Can be used in – and outdoor (in UVP version) and are resistant to temperature fluctuations
- Can be used in contact with foodstuffs (non UV version)

APPLICATION

- Displays (POS/POP)
- Signage | Lettering
- Shop design | Shop window decoration
- Partitions | Cladding
- Exhibition design and construction
- Glazing (e.g. industrial (door) glazing, greenhouse glazing)
- Flat or curved shower screens
- Food contact approved

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

COLOURS

Clear transparent

For more details on the processing of POLYCASA® SAN, please contact our technical team.

PRODUCT			POLYCASA® SAN
GENERAL			
Density	ISO 1183	kg/m³	1080
Food contact	EU 10/2011	–	conform
Biocompatibility	ISO 10993-5	Classification	no cytotoxic
MECHANICAL			
Tensile modulus	ISO 527-2	MPa	3900
Tensile strength	ISO 527-2	MPa	60
Elongation at break	ISO 527-2	%	1.8
Flexural modulus	ISO 178	MPa	3750
Flexural strength	ISO 178	MPa	105
Impact strength Izod, notched	ISO 180	kJ/m²	1.3
Impact strength Charpy, unnotched	ISO 179-1/1eU	kJ/m²	13
Rockwell hardness	ISO 2039-2	M scale	105
Ball indentation hardness	ISO 2039-1	MPa	187
OPTICAL			
Light transmission	ISO 13468-2	%	86
Refractive index n_D^{20}	ISO 489	–	1.57
THERMAL			
VICAT temperature (method B 50)	ISO 306	°C	106
Heat deflection temperature (method A)	ISO 75-2	°C	98/101
Specific heat capacity	ISO 11357-4	J/gK	1.38
Coefficient of linear thermal expansion	ISO 11359-2	mm/m x °C	5 – 7
Thermal conductivity	ISO 22007-1	W/mK	0.17
Degradation temperature	–	°C	> 280
Max. service temperature	–	°C	85
Forming temperature	–	°C	165 – 190
Fire resistance	EN 13501-1	Classification	E, no burning droplets
	UL94	Classification	HB
ELECTRICAL			
Volume resistivity	IEC 62631-3-1	Ω m	10^{14}
Surface resistivity	IEC 62631-3-1	Ω	$\geq 10^{15}$

Note: Technical data of our products are typical ones for POLYCASA® SAN. 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 CO_2 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 CO_2 BOUND IN THE MATERIAL

This category shows the weight of fossil CO_2 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.

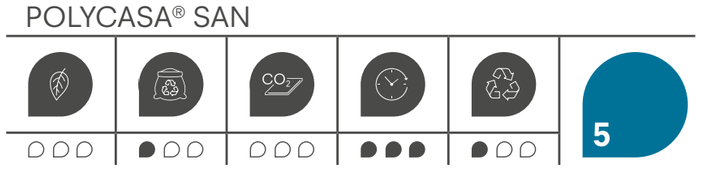
Join us on our sustainable mission!

mission™
TOGETHER. RESPONSIBLE.

SUSTAINABILITY

POLYCASA® SAN FIVE-DOT-MISSION

POLYCASA® SAN extruded styrene acrylonitrile copolymer (SAN) 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® SAN sheets already contains a proportion of recycled material which is mainly recovered from our own production waste. After being sorted into individual types, the regrind is returned to the production process. We aim to continue increasing the proportion of recycled regrind in the sheets in the future.

All raw materials used in our POLYCASA® SAN sheets comply with the requirements in the current version of the European Union's Chemicals Regulation (REACH). In particular, POLYCASA® SAN 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).

PRODUCT LIFE CYCLE

Our POLYCASA® SAN family is made of styrene acrylonitrile (SAN), a durable thermoplastic copolymer which is suitable for long-term interior applications and also for use outdoors in the version featuring UV-protection. POLYCASA® SAN in exterior applications provides resistance to weathering and, according to feedback from our clients, can be used for outdoor applications for periods of more than 10 years. In addition, the sheets are extremely resistant to chemicals and to absorbing water.

RECYCLABILITY

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

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