



IMPEX[®] MULTIWALL

PRODUCT GUIDE

EXTRUDED MULTIWALL POLYCARBONATE SHEETS WITH HIGH IMPACT RESISTANCE.

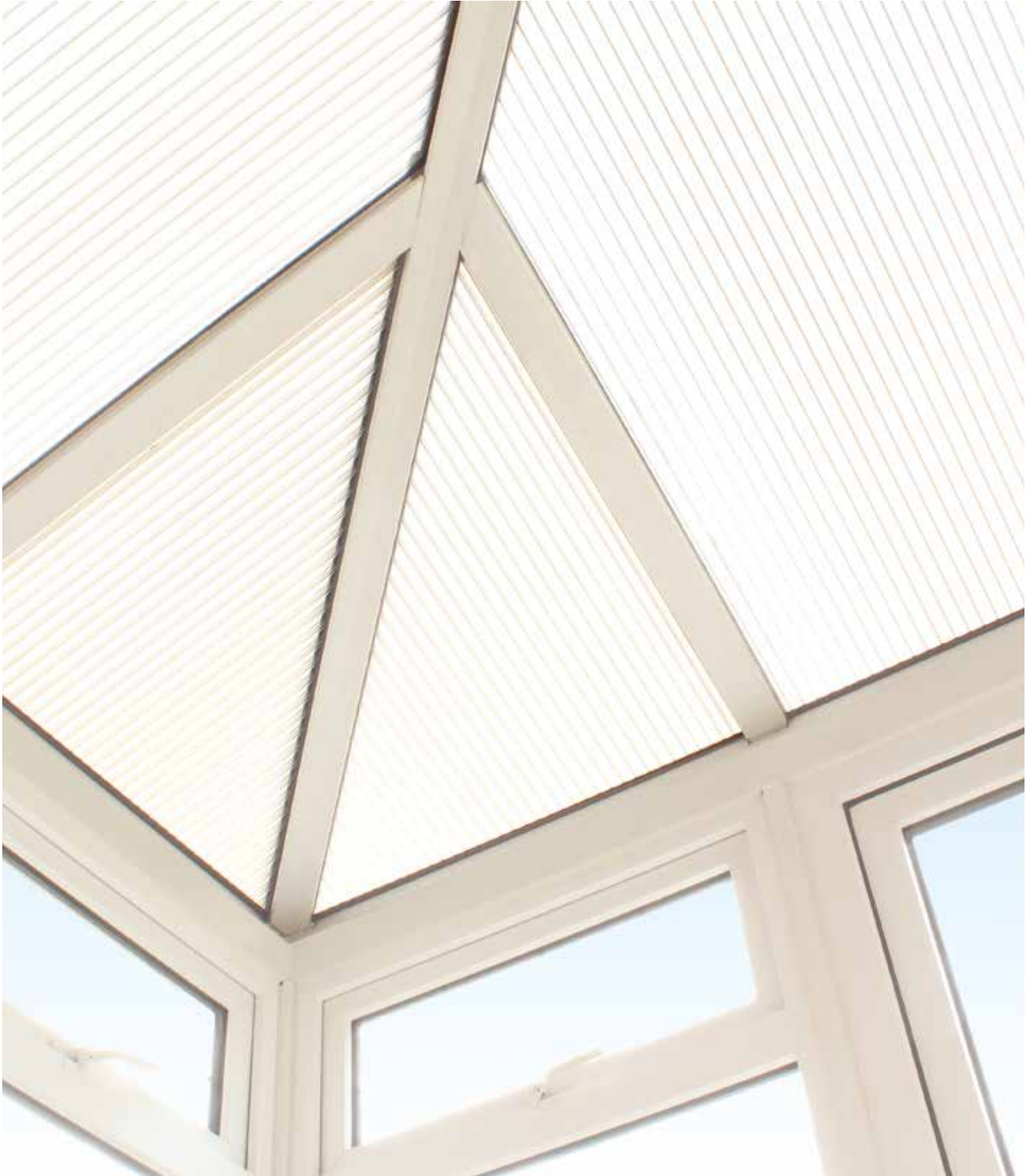




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IMPEX® MULTIWALL

IMPEX® MULTIWALL are extruded, multi-wall polycarbonate sheets which are virtually unbreakable. The particular benefits offered by the sheets are their lightweight, excellent optical properties, high impact resistance and very good resistance to weathering. They also have insulating properties for cold and hot.

IMPEX® MULTIWALL is suitable for a variety of different indoor and outdoor applications. The standard range includes the colours clear, opal and bronze in different profile design versions.

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 Nischwitz, Germany, is certified according to the management systems for Quality (DIN EN ISO 9001) and for Energy (DIN EN ISO 50001). 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.

A number of energy reduction projects have been initiated since 2012. A 22 % reduction in electricity consumption was achieved by changing the lighting in production to LED lights and by implementing a more energy-efficient process cooling system. Updating heating controls and making better and more efficient use of waste heat has led to an 84 % reduction in gas consumption since 2018.

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

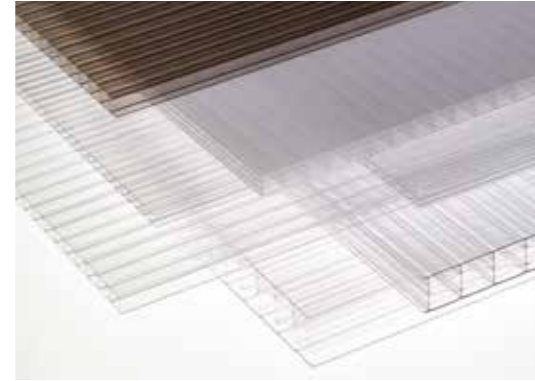
IMPEX® MULTIWALL – EXTRUDED MULTIWALL POLYCARBONATE SHEETS WITH HIGH IMPACT RESISTANCE.

IMPEX® MULTIWALL

EXTRUDED MULTIWALL POLYCARBONATE SHEETS WITH HIGH IMPACT RESISTANCE.

CHARACTERISTICS

- High impact resistance
- Cold and heat insulation
- Long life span
- Excellent resistance to chemicals
- Very good transparency
- UV protection: co-extruded single-sided or double-sided
- Very good fire behavior according to EN 13501-1
- Temperature resistant from -40°C up to +130°C
- High resistance to mechanical loading
- Lightweight
- Easy to install using common tools



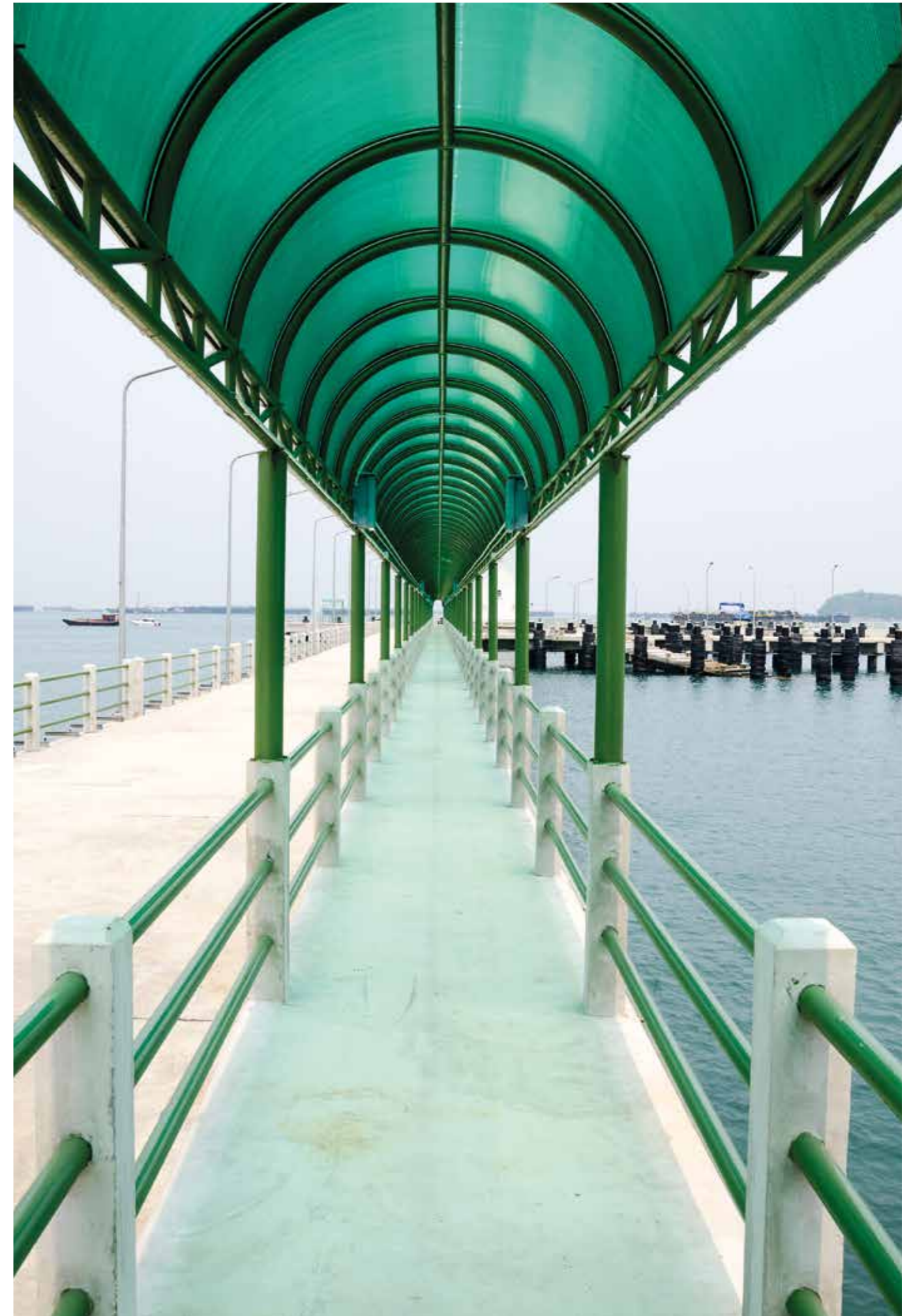
APPLICATIONS

- Roofing and glazing for carports, terraces, conservatories and pergolas
- Light domes
- Vaults
- Suspended ceilings
- Greenhouses
- Partitions | Cladding
- Swimming pool covers
- Construction business

PROCESSING

- Digital printing | Screen printing
- Laminating
- Painting | Spray painting | Lacquering
- Contour milling
- Sawing
- Gluing
- Drilling | Screwing
- Folding (V-groove) | Cold bending

COLOURS



For more details on the processing of IMPEX®MULTIWALL, please contact our technical team.

IMPEX® MULTIWALL							
		4/2w	6/2w	8/2w	8/4w	10/2w	10/4w
Design of the walls							
Thickness	mm	4	6	8	8	10	10
	tolerance	+/- 0,5 mm					
Light transmission	clear sheet	86%	86%	81%	70%	74%	67%
U value	watts/(m².K)	3,9	3,5	3,2	2,8	3,0	2,5
Weight	g/m²	900	1300	1500	1500	1700	1700
	tolerance	+/- 45	+/- 65	+/- 75	+/- 75	+/- 85	+/- 85
Standard widths	mm	2100					
	tolerance	-2/+6 mm					
Standard lengths*	mm	6000 and 7000 mm					
	tolerance	-0/+0,40% (24 – 28 mm)					

IMPEX® MULTIWALL						
		16/3w	16/5w	16 Diamond	20 Diamond	25 Diamond
Design of the walls						
Thickness	mm	16	16	16	20	25
	tolerance	+/- 0,5 mm				
Light transmission	clear sheet	73%	62%	60%	55%	50%
U value	watts/(m².K)	2,3	2,0	1,9	1,7	1,5
Weight	g/m²	2700	2500	2500	3000	3300
	tolerance	+/- 135	+/- 125	+/- 125	+/- 150	+/- 165
Standard widths	mm	980 / 1200 / 2100	980 / 2100	980 / 1200 / 2100	2100	980 / 2100
	tolerance	-2/+6 mm				
Standard lengths*	mm	6000 and 7000 mm				
	tolerance	-0/+0,40% (24 – 28 mm)				

* = Standard lengths of IMPEX® MULTIWALL sheets are 6000 mm and 7000 mm. Detailed information on the products deviating from the standard can be found in the current valid version of the delivery programme. Please contact your customer service representative.

FIRE BEHAVIOR
Fire behavior according to EN 13501-1: B-s1, d0 / C-s1, d0. We are pleased to provide you with the corresponding certificates for the different wall design variants on request. Please contact your customer service representative.

CERTIFICATIONS*



KPF Erkelenz tested
*Sheets are manufactured according to EN 16153:2013

TECHNICAL APPROVALS
Avis Technique
Aprobata Techniczna
General building authority approval 4 – 10 mm

COUNTRY
France
Poland
Germany

GENERAL			
Density	ISO 1183	kg/m³	1200
MECHANICAL			
Tensile modulus	ISO 527	MPa	2200
Tensile strength	ISO 527	MPa	60
Elongation at break	ISO 527	%	80
Flexural modulus	ISO 489	MPa	2000
Flexural strength	ISO 178	MPa	> 95
Charpy (unnotched)	ISO 179-1/1eU	kJ/m²	no break
Charpy (notched)	ISO 179-1/1eA	kJ/m²	> 10
OPTICAL			
Refractive index	ISO 489	n _D ²⁰	1,585
THERMAL			
Heat deflection temperature (method A)	ISO 75-2	°C	135
Vicat-Temperature (B 50)	ISO 306	°C	145
Coefficient of linear thermal expansion	ISO 11359-2	mm/(m*K)	0,065
Max. service temperature continuous use	–	°C	115
Max. service temperature short term use	–	°C	130
Degradation temperature	–	°C	> 280
Sheet forming temperature range	–	°C	180 – 210
Specific heat capacity	ISO 11357-4	J/gK	1,17
Thermal conductivity	ISO 22007-1	W/mK	0,20
ELECTRICAL			
Dielectric strength	IEC 60243-1	kV/mm	> 30
Volume resistivity	IEC 60631-3-1	Ω*m	10 ¹⁵
Surface resistivity	IEC 60631-3-2	Ω	> 10 ¹⁵
Dielectric constant (50 HZ)	IEC 60250	–	3,0
Dissipation factor (50 HZ)	IEC 60250	–	8x10 ⁻⁴

SURFACE LOADING 0.75 kN/m² WITH 4-SIDES FRAME COVERING					
		Sheet width (mm)	980	1050	1200
IMPEX® MULTIWALL	Thickness (mm)	Sheet length (mm)			
6/2w	6	1300	1200	1000	
8/2w	8	1600	1400	1200	
8/4w	8	1500	1300	1100	
10/2w	10	2000	1700	1400	
10/4w	10	1800	1600	1300	
16/3w	16	2600	2300	1900	
16/5w	16	2500	2200	1800	
16 Diamond	16	3300	2800	2100	
25 Diamond	25	>6000	>6000	4500	

Note: These technical data of our products are typical ones for IMPEX® MULTIWALL. The actually measured values are subject to production variations.

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!

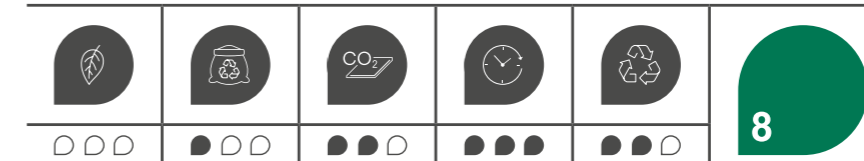


SUSTAINABILITY

IMPEX® MULTIWALL FIVE-DOT-MISSION

IMPEX® MULTIWALL, extruded, multi-wall polycarbonate sheets with high impact resistance, have been assessed in line with the criteria described above. The product currently achieves a FIVE-DOT classification of 8 points in total.

IMPEX® MULTIWALL



RECYCLED CONTENT
 We are already recovering and reusing our own production waste to create new material in the manufacture of IMPEX® MULTIWALL sheets, and we aim to continue increasing the proportion of recycled regrind content in the future.

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

FOSSIL CO₂ BOUND IN THE MATERIAL
 Our IMPEX® MULTIWALL is a very lightweight, multi-wall sheet made of polycarbonate, a thermoplastic material. In comparison with solid polycarbonate sheets, the amount of raw material required for the production of IMPEX® MULTIWALL is lower due to its specific sheet structure. The multi-wall structure combined with the excellent properties provided by polycarbonate mean IMPEX® MULTIWALL offers not only very high stability but it is also lightweight. The gaps within the sheet structure are filled with air, resulting in the use of fewer resources and very good cold and heat insulating properties.

PRODUCT LIFE CYCLE
 Our IMPEX® MULTIWALL sheets are made of polycarbonate, a durable thermoplastic material, which has excellent optical and mechanical properties. Polycarbonate sheets have a very high impact resistance and are virtually unbreakable under normal conditions of use. In addition, the sheets have an excellent resistance to weathering; even at low and high temperatures (-40°C to +130°C) they are extremely hard wearing and resilient. These qualities make IMPEX® MULTIWALL sheets ideal for long-term applications both indoors and (in the version with UV protection) outdoors.

RECYCLABILITY
 IMPEX® MULTIWALL sheets can be sorted for recycling and reuse. As a thermoplastic, polycarbonate in its pure form is ideal for mechanical recycling.



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