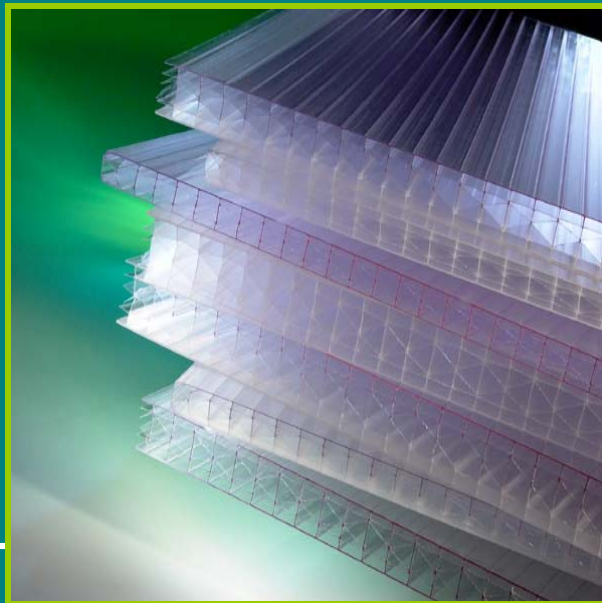


BARLO[®] SPC

DIAMOND STRUCTURE
Technical datasheet



BARLO SPC – DIAMOND STRUCTURE

1. PRODUCT IDENTIFICATION

BARLO SPC is the brand name for extruded structured polycarbonate sheets made by Barlo Plastics. The BARLO SPC programme offers solutions for both indoor and outdoor applications.

BARLO SPC can offer clear, bronze and the standard opal white versions, as well as a variety of colours, which are subject to minimum quantities and price surcharges.

BARLO SPC Diamond is a new range of structured sheets, specially designed to offer cost saving and improved mechanical properties.

BARLO SPC Diamond has a lower weight. However this is a stiffer product due to the design of its structure, which allow better span capabilities. Diamond is cost saving because fewer glazing bars will be used. The sheet is designed to look similar to a rectangular box structure when installed and this also improves the light transmission compared to other rigid sheets available on the market.

BARLO SPC Diamond Solar Control range has been developed to reduce the heat build up (IR transmission), combined with improved light transmission. Diamond is available in Cool White (opal sheet with white layer) and Super Cool White (clear sheet with white layer).

2. CHARACTERISTICS

- 10 year warranty for optical and mechanical properties
- Lower weight
- Thermal insulation as good as 1.4
- Higher stiffness
- Higher impact resistance
- Extensive span capabilities
- Resistant to chemical agents (except solvents)
- Transparency improved due to the design
- Resistance to weathering i.e. UV-rays with co-extrusion capability
- Resistance to heat build up i.e. IR-rays (Solar control range)
- Fire performance, conforming to European standards
- Resistance to extreme temperature variations (-40° C up to +120° C)
- Aesthetic quality
- 10 year warranty for optical, mechanical properties and for resistance to hail on thickness 10 mm and above

3. APPLICATIONS

- Conservatories
- Skylights
- Sheds
- Vaults
- Ceilings
- Pergolas.
- Rooflights
- Atriums
- Cladding
- Winter gardens
- Stadium roofing
- Greenhouses

4. FABRICATION AND FINISHING TECHNIQUES

BARLO SPC Diamond sheets are easy to handle due to their stiffness and lower weights.

All BARLO SPC Diamond sheets are UV-protected on one side. The printed masking film shows the side for external exposure to the sun and ageing UV-rays. We recommend removing the masking only after the installation to prevent sheet damaging.

Diamond SPC sheets should be taped with solid aluminium and/or micro-perforated aluminium tapes to prevent moisture, insects and dust developing inside the flutes.

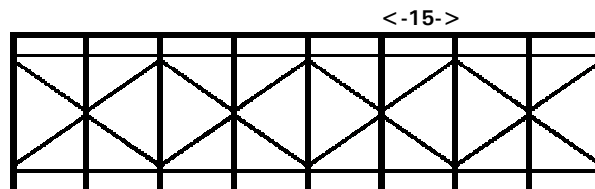
Diamond SPC sheets must be treated differently compared to glass, as they cannot be rigidly clamped. The clamping must enable the expansion and contraction of the sheets (see below). During the installation avoid any horizontal positioning of the sheets and foresee a slope and an angle along the lengths of the sheets.

Diamond SPC sheets can be cut with standard electric saw tools. Air pressure cleaners can get rid of the sawdust. Nowadays knife blades give clean products, as there is no dust generated inside the flutes of the sheets

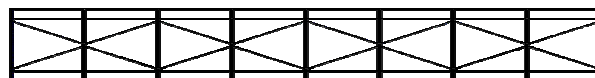
More detailed information on Diamond SPC sheets can be found in our technical product information brochure, available on request.

5. SHEET DESIGN

BARLO SPC 35 Diamond

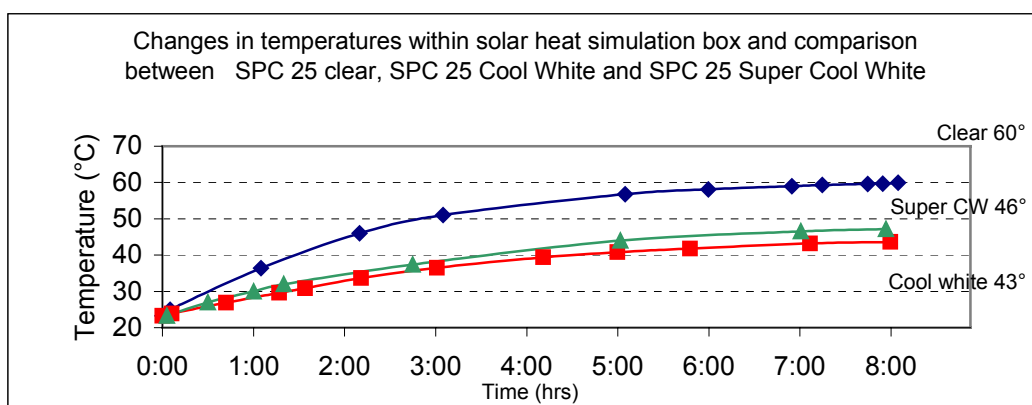


BARLO SPC 16 Diamond



6. SOLAR CONTROL

Barlo Plastics has developed a range of solar control (SC) sheets, specially designed for closed conservatories. In the summertime temperature inside conservatories can sometimes reach more than 60° C. Infrared radiance is the cause of the temperature increase. Barlo Diamond SC multi-wall polycarbonate sheets are made to reduce the heat radiance. Diamond SC sheets are also long-life UV-protected products.



The three sheets have been exposed to IR radiation in a black box, separated in two parts by the sheet, with in the upper side an IR lamp and in the lower side a thermometer.

7. BARLO SPC DIAMOND SHEET CHARACTERISTICS

SPC DIAMOND	16 mm	25 mm	32 mm	35 mm
Weight in kg/m ²	2.5 kg/m ²	3.3 kg/m ²	3.7 kg/m ²	4.0 kg/m ²
Number of walls	6	6	6	6
U-value	1.8 W/m ² .C°	1.5 W/m ² .C°	1.4 W/m ² .C°	1.4 W/m ² .C°
Min. bending radius	3500 mm	5300 mm	7300 mm	8400 mm
Light transmission according to Norm NF-38511				
Clear	60%	57%	57%	56%
Opal 3B	40%	41%	44%	44%
Bronze	25%	15%	16%	16%
Cool White	37%	36%	34%	34%
Super Cool White	45%	44%	42%	41%
Solar transmission				
Cool White	34%	30%	29%	29%
Super Cool White	40%	36%	35%	35%
Solar ratio (LT/ST)				
Cool White	1.09	1.20	1.17	1.17
Super Cool White	1.12	1.22	1.20	1.17

8. TECHNICAL INFORMATION

PROPERTY	METHOD	UNITS	BARLO SPC
GENERAL			
Density	ISO 1183	g/cm ³	1,2
Rockwell Hardness	D-785	M - scale	-
OPTICAL			
Light Transmission	DIN 5036	%	86
Refractive Index	T3	nD20	1.585
MECHANICAL			
Flexural Modulus	ISO 489	MPa	-
Flexural Strength	ISO 178	MPa	> 95
Tensile Modulus	ISO 527	MPa	2200
Tensile Strength	ISO 527	MPa	60
Elongation	ISO 527	%	80
THERMAL			
Vicat Temp. (VST/B 50)	ISO 306	°C	145
Heat Deflection Temp. (A	ISO R 75	°C	135
Specific Heat Capacity	-	J/gK	1.17
Coefficient of linear thermal expansion	DIN 53328	K ⁻¹ x10 ⁻⁵	6.5
Thermal conductivity	DIN 52612	W/mK	0.2
Degradation temperature		°C	> 280
Max. service temperature continuous use		°C	115
Max. service temperature short term use		°C	130
Sheet forming temp. range		°C	180-210
IMPACT STRENGTHS			
Izod (notched)	ISO 180	kJ/m ²	-
Charpy (notched)	ISO 179	kJ/m ²	> 40
Charpy (unnotched)	ISO 179		NB
ELECTRICAL			
Dielectric constant 50 HZ	DIN 53483		3.0
Volume Resistivity	DIN 53482	Ω.cm	10 ¹⁵
Surface Resistivity	DIN 53482		10 ¹⁵
Dielectric strength	DIN 53481	Ω	> 30
Dissipation Factor (50HZ)	DIN 53483	kV/mm	8x10 ⁻⁴



9. LOADING CHARACTERISTICS

In order to determine the required dimensions for BARLO SPC Diamond sheets fixed on all sides, the following factors have to be taken into account:

A) COEFFICIENT OF THERMAL EXPANSION

The figure of $65 \times 10^{-6} \text{ K}^{-1}$ corresponds to 0.065 mm per m length and 1° C change in temperature on the inside width of the frame.

The frames can be made of plastic, wood or metal. It is recommended to allow the frame to have rebates for relatively dense materials. For a defined edge length of the sheet, the frame must allow the following rebates:

Edge length addition in mm				
500 mm	1000 mm	1500 mm	2000 mm	3000 mm
+ 3 mm	+ 5 mm	+ 7 mm	+ 10 mm	+ 15 mm

B) LOADING CAPACITY (DAN / M²)

BARLO SPC Diamond 16 mm		Lengths in mm					
		1000	2000	3000	4000	5000	6000
Widths in mm	500	200	175	150	125	110	100
	700	160	135	110	90	75	65
	900	135	110	90	75	65	60
	1000	125	100	75	65	60	55
	1200	100	75	65	60	55	50

BARLO SPC Diamond 25 - 32 - 35 mm		Lengths in mm					
		1000	2000	3000	4000	5000	6000
Widths in mm	500	285	250	225	200	175	150
	700	250	225	200	175	150	140
	900	225	200	175	150	140	125
	1000	200	175	150	140	125	110
	1200	175	150	140	125	110	105

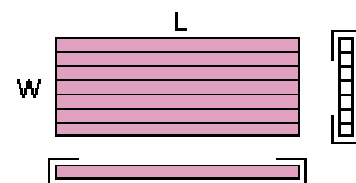
Conditions



Deflection d : 50 mm
Pop-out p : 15 mm
Ratio d/s : 0.05

Support on 4 sides

Minimum clamping required: 20 mm
For SPC 25, 32 and 35 Diamond, we recommend clamping to be equal to the thickness of the sheet.
(i.e. 25 mm for SPC 25-mm)





barlo plastics

HEADQUARTERS

BARLO PLASTICS EUROPE N.V.

Leukaard 1 – 2440 Geel

BELGIUM

Tel.: +32 (0) 14 – 57 67 11

Fax: +32 (0) 14 – 58 85 97

YOUR CUSTOMER SERVICE CENTRE

Benelux, France, Italy, all other countries

Tel.: +32 (0) 14 – 57 67 11

Fax: +32 (0) 14 – 58 11 27

Eastern Europe

Tel.: +421 (0) 41 – 733 11 11

Fax: +421 (0) 41 – 764 68 79

Germany, Switzerland, Austria

Tel.: +49 (0) 6131 – 63 11 82

Fax: +49 (0) 6131 – 63 11 03

Spain, Portugal

Tel.: +34 (0) 93 – 575 19 90

Fax: +34 (0) 93 – 564 87 00

UK, Ireland

Tel. UK: 0800 – 169 00 73

Tel. Ireland: 1800 – 55 32 64

Fax: +32 (0) 14 – 58 11 27

www.barloplastics.com

Setting a clear course towards plastic excellence

Your point of contact:

Barlo Plastics N.V. and its marketing subsidiaries disclaim responsibility for results of use of this information, which is furnished without charge, or any product, method or apparatus mentioned herein. It is the user's responsibility to make and to be guided by his own test in determining suitability of any product, method or apparatus for this purpose. No statement or suggestion herein is to be considered a recommendation or inducement of any use, manufacture or sale that may infringe any patents now or hereafter in existence.

Specification : Barlo Plastics – SPC Diamond - Technical Datasheet – English version – Vol.1-2 - (Copyright 10/2003, Barlo Plastics Europe N.V., All rights reserved – Printed in Belgium.)