Perspex® Edge
Technical Data Sheet

Perspex® Edge cast acrylic has been specifically designed to give optimum performance in terms of even light distribution and superb brightness when the sheet is illuminated along the edge.

Perspex® Edge is a transparent sheet optimised for use in lighting panels and luminaires. It is an extremely versatile product giving excellent edge lighting capability regardless of the size of the lighting unit. Although the sheet has been optimised for use with LEDs, any light source can be used.

1. Benefits of using Perspex® Edge sheet

In service, Perspex® Edge sheets allow the development of lighting solutions that offer many potential benefits to customers:

- Excellent light distribution to give remarkably even illumination
- Outstanding brightness
- Cost savings as fewer and lower energy LED light sources can be used
- Good surface hardness and scratch resistance
- The development of elegant slim lighting solutions
- Easy to produce curved illuminated signs that retain a slim and elegant appearance
- Optimised for different panel sizes and available in a range of grades and thicknesses to provide full flexibility in the design of lighting solutions
- No requirement for additional surface processing such as laser etching, printing or engraving
- Environmental benefits due to lower energy use and lower heat output
- Fully recyclable
- Excellent weatherability (retains physical properties for a very long time and no yellowing)

All Perspex® Edge grades are manufactured using Perspex® cell cast acrylic sheet. They therefore retain the superior physical attributes and characteristics of Perspex® cast acrylic sheet products (e.g. lightweight, rigid, ease of fabrication).

2. Fabrication Details

All of the fabrication techniques applicable to standard Perspex® cast acrylic sheet also apply to Perspex® Edge. Refer to The Perspex® Design Guide which can be found at www.perspex.com.

For optimum performance when using Perspex® Edge the following should be considered:

- Light sources e.g. LEDs should be positioned close to the edge of the sheet but with a sufficient gap to allow for thermal expansion, typically about 1mm each side of the panel.
- To maximise light output the edges of the sheet should be flat and polished e.g. laser-cut or diamond polished.
- All non-illuminated edges should be covered with highly-reflective paint or self-adhesive tape.
- To maximise light output a white reflector panel, such as Perspex® 1T8A, should be positioned behind the Perspex® Edge.
- Do not bond or laminate diffuser or backing panels to the Perspex® Edge as this will cause localised light distortions.
- The light panel frame should overlap the edge of the Perspex® Edge sheet to avoid light escaping and causing a bright edge. In the case of LED light sources the frame should be as wide as the spacing between the individual LEDs, typically about 20 mm.
- Scratches can be repaired by polishing.
- The performance of any edge lit lighting unit can vary depending on the equipment used e.g. LEDs and the expertise of the fabricator.
- The general construction of a Perspex® Edge lighting unit should meet local lighting unit standards, in terms of safety and performance.

- During the production of lighting units it is recommended that gloves are worn. This is to avoid finger prints being left on the light guide panels as they will illuminate when the light source is switched on.

- The use of an opal diffuser, such as Perspex® Diffuse, in front of the light guide panel is recommended, to give the luminaire a good overall appearance both when lit and unlit.

3. 10 year guarantee

The normal Perspex® 10 year outdoor weathering guarantee applies to this range.

4. Masking

Perspex® Edge sheet is supplied with double-sided, non-thermoformable masking.

5. Table of Properties

Values quoted for the properties of Perspex® cast sheet are the results of tests on representative samples and do not constitute specifications.

Property	Test Method	Unit	Value
General			
Density	ISO 1183	g cm^{-3}	1.19
Rockwell Hardness	ISO 2039-2	M scale	102
Water Absorption	ISO 62	%	0.2
Flammability	BS 476 Part 7	Class	3
	DIN 4102	-	B2
	NFP 92-507	-	M4
	UL94	-	HB
	ISO 11925-2	-	E
Optical Properties			
Refractive Index	ISO 489 A	-	1.49
Thermal Properties			
Vicat Softening Point	ISO 306 A	°C	> 110
Coefficient of Thermal Expansion (Linear)	ASTM D696	x 10^{-5}. K^{-1}	7.7
Mechanical Properties			
Tensile Strength	ISO 527 (5 mm/min)	MPa	75
Elongation at Break	ISO 527 (5 mm/min)	%	4
Flexural Strength	ISO 178 (2 mm/min)	MPa	116
Flexural Modulus	ISO 178 (2 mm/min)	MPa	3210
Impact Strength – Charpy (unnotched)	ISO 179	kJ M^{-2}	12
Poisson's Ratio	ISO 179	kJ M^{-2}	0.38
Electrical Properties			
Surface Resistivity	IEC 93	Ω.m-2	> 10^{14}
Electrical Strength	IEC 243	kV.mm-1	15