



Perspex® Forte – Improved Chemical Resistance

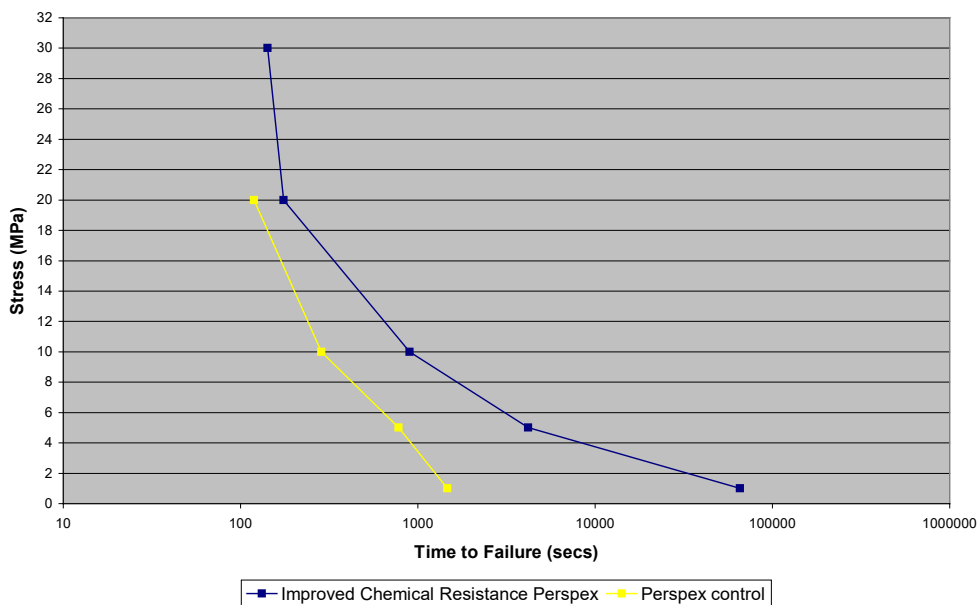
Technical Data Sheet

1. Introduction

This sheet is a cross-linked acrylic material. As this sheet has improved chemical resistance then it is recommended to use two-component polymerisation cements for bonding rather than single-component solvent cements.

The attached table exemplifies the improvement in chemical resistance of this material when compared with standard Perspex® cast acrylic sheet. This makes the material an ideal partner for applications (e.g. barrier screens, point of sales displays for perfume) where a requirement is for a product with improved chemical resistance.

Creep Rupture Test in Styrene



A creep rupture test measures the resistance of a plastic product to chemical crazing. In the test, a sample of plastic is stressed to a specific level and the time taken for the sample to break after being put into contact with the relevant chemical (in this case styrene). Styrene is a representative chemical which is known to craze acrylic materials.

The images below demonstrate how Perspex cast acrylic sheet is much more resistant to stress cracking than extruded acrylic sheet products.



Chemical Resistance Comparison
(samples laser cut and exposed to isopropyl alcohol for 30 minutes)



2. Range

Perspex® Forte cast acrylic sheet is available as a make to order product in clear, opal and many colours in a range of thicknesses, sizes and special grades.

3. Masking

Perspex® Forte cast acrylic sheet is supplied with double-sided, non-thermoformable PE masking. The showface masking is printed with the Perspex® logo.

4. Care and Cleaning

Perspex® Forte cast acrylic sheet has a hard, non-porous surface which helps to prevent dirt from accumulating and resists stains better than most other plastics. With normal use, Perspex® Forte should retain its visual quality with only a minimum of care. To maintain the high gloss look of Perspex® Forte follow these simple steps:

- Use common household, non-abrasive cleaners for most cleaning jobs. For normal care and cleaning use a soft cloth e.g. microfibre, or sponge with clean cold water to which a little detergent has been added. Rinse well and dry with a soft, clean cloth. If using a household cleaner, ensure that it is recommended for use on acrylic by the manufacturer.
- Disinfectants, typically containing > 60% isopropyl alcohol or ethanol, can be used to clean and sterilise the surface of Perspex® Forte. It is important to rinse well and dry with a soft, clean cloth.
- Do not use abrasive cleaners.
- The use of stronger solvents such as methylated spirits, turpentine, white spirit or proprietary window cleaning products is neither necessary or recommended.



5. Table of Properties

Values quoted for the properties of Perspex® cast acrylic 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 DIN 4102 NFP 92-507 UL94 ISO 11925-2	Class - - - -	3 B2 M4 HB E
Optical Properties			
Light Transmission	ASTM D1003	% (3 mm)	> 92
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
Maximum Working Temperature		°C	80 - 85
Specific Heat	ASTM C351	cal/g °C	0.35
Thermal Conductivity Coefficient (K Value)		W m m ⁻² °C	0.189
Heat Transfer Coefficient (U Value)			
- 3 mm single pane		W m ⁻² °C	5.2
- 5 mm single pane		W m ⁻² °C	4.9
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			0.38
Sound Insulation Properties			
Sound Reduction Index			
- 3 mm single pane		db	18
- 6 mm single pane		db	22
- 2 x 3 mm panes (20 mm air gap)		db	25
- 2 x 6 mm panes (20 mm air gap)		db	31
Electrical Properties			
Surface Resistivity	IEC 93	Ω.m ⁻²	> 10 ¹⁴
Electrical Strength	IEC 243	kV.mm ⁻¹	15
Arc Resistance	ASTM D495		No tracking
Dielectric Constant	ASTM D150		
- 60 cycles			4
- 103 cycles			3
- 106 cycles			3
Power Factor	ASTM D150		
- 60 cycles			0.06
- 103 cycles			0.04
- 106 cycles			0.02

Perspex® Forte

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