Product Data Sheet, March 2023

Exolon® FR-C

Solid flame retardant polycarbonate sheet

I Line
Innovative

Your benefits:

- UL94-V0 fire rating
- high light transmission
- resistance to a wide range of temperatures
- extreme impact strength

Solid **Exolon® FR-C** sheets are flame retardant polycarbonate sheets. They are UL94-V0 rated and provide improved optical clarity and light transmission.

Exolon® FR-C offers extreme impact strength that exceeds the physical properties of other products of their class. Exolon® sheets resist temperatures of -100 to +120 °C. The material does not contain any bromine or phosphorous flame retardants.

Exolon® FR-C sheets are the perfect choice for a long service life because of their good material performance.

Applications:

Typical applications for **Exolon® FR-C** sheets include:

- electro technical components and guards which have to comply with UL94-V0 requirements
- any application where improved fire behaviour is needed for fire safe solutions

The sheets offer protection against involuntary breakage and willful destruction. **Exolon® FR-C** sheets can be thermoformed, cold-curved and machined with ease.

	Test Conditions	Typical Values[1]	Unit	Test Method
PHYSICAL				
Density		1200	kg/m^3	ISO 1183-1
Water absorption saturation	water at 23°C	0.3	%	ISO 62
Water absorption equilibrium	23°C, 50 % RH	0.12	%	ISO 62
Refractive Index	Procedure A	1,587	-	ISO 489
MECHANICAL				
Tensile modulus	1 mm/min	2400	MPa	ISO 527-1,-2
Yield stress	50 mm/min	>60	MPa	ISO 527-1,-2
Yield strain	50 mm/min	6	%	ISO 527-1,-2
Strain at break	50 mm/min	110	%	ISO 527-1,-2
Flexural modulus	2 mm/min	2350	MPa	ISO 178
Charpy impact strength	23°C, unnotched	non-break	kJ/m^2	ISO 179-1eU
Charpy impact strength	23°C, 3 mm, notched	55	kJ/m^2	ISO 179-1eU
THERMAL				
Vicat softening temperature	50 N; 50°C/h	145	°C	ISO 306
Thermal conductivity	23°C	0.2	W/(mK)	ISO 8302
Coefficient of thermal expension	23 to 55°C	0.70	10^{-4} K	ISO 11359-1,-2
Temperature of deflection under load	1.8 Mpa	126	°C	ISO 75-1,-2
	0.45 Mpa	139	°C	ISO 75-1,-2
ELECTRICAL				
Electrical strength	1 mm	17	kV/mm	IEC 60243-1
Volume resistivity		10^{15}	Ohm.m	IEC 60093
Surface resistivity		10^{15}	Ohm	IEC 60093
Relative permittivity	50 Hz	2.7	-	IEC 60250
Relative permittivity	1 MHz	2.7	-	IEC 60250
Dissipation factor	50 Hz	10^{-3}	-	IEC 60250
Dissipation factor	1 MHz	10^{-3}	-	IEC 60250
Comparative tracking index (CTI)		225	V	IEC60112

[1] These values are measured on injection molded samples, and are not intended for specification purposes.

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Ideas, innovative, intelligent, interesting... Exolon Group i-line represents the next generation of quality products. This seal guarantees innovative and intelligent first-class solutions at all times for a multitude of requirements.

Light Transmission: Test Method according to DIN 5036.
The stated thicknesses are not all available as standard. Please ask us for more information. The stated values are typical values only.

Sheet Thickness (mm)	3	4	5	6
Exolon® FR-C clear 097	88	87	86	85

Available dimensions:

Exolon® FR-C is available on request in **3, 4, 5 and 6 mm sheet thickness**
in the **format: 2,050 x 3.050 mm**

Other sizes, colors or sheet thicknesses on request.

Permanent Service Temperature: The permanent service temperature without load is approx. 120 °C.

Fire Rating [1] [2]:

Country	Standard	Rating	Thickness	Color
USA	UL94 UL 746C	V0 f1	≥ 3,0 mm ≥ 3,0 mm	all colors all colors

Glow wire flammability index: IEC 60695-2-12, 960 °C for 3 mm sheet thickness
Glow wire ignition temperature: IEC 60695-2-13, 800 °C for 3 mm sheet thickness

[1] Ratings based on the UL94 Yellow Card of the resin. We can issue a Certificate of Conformity to confirm that the sheets have been made based on that resin.
[2] Fire certificates are limited in time and scope, always check if the mentioned certificate is valid for the purchased polycarbonate sheet type at the date of delivery. Polycarbonate sheets may change their fire behavior due to ageing and weathering. The indicated fire rating was tested on new / unweathered product in accordance with the indicated fire classification standards.

Exolon Group NV
Wakkensesteenweg 47
8700 Tielt

Belgium

www.exolongroup.com
sales@exolongroup.com

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