

Exoblend® FR

PC/ABS blend sheet



Features:

- excellent fire behaviour
- good impact strength
- good thermoforming properties
- halogen free



Exoblend® FR is a flame retardant PC-ABS blend sheet, which meets stringent regulations for fire behaviour, electrical safety, and resistance to chemicals, hydrolysis and heat. It is halogen-free to DIN/VDE 0472, Part 815 (0.1 % F, 0.2 % Cl, Br, I). **Exoblend® FR** sheet has good impact strength in a wide temperature range (-30°C). The sheet has excellent thermoforming properties and is easy to machine. **Exoblend® FR** sheet is made to customer needs in several colours and with several textures.

Applications:

Exoblend® FR is specially developed and suited to thermoform parts for:

- seats, wall claddings, ceilings and other interior parts in buses, trains and metros
- medical systems
- electro industry

	Test Conditions	Typical Values ⁽¹⁾	Unit	Test Method
PHYSICAL Density Water absorption saturation Water absorption equilibrium	water at 23°C 23°C, 50 % relative humidity	1190 0.5 0.2	kg/m ³ % %	ISO 1183-1 ISO 62 ISO 62
MECHANICAL Tensile modulus Yield stress Yield strain Nominal strain at break Izod impact strength Izod impact strength Izod impact strength	1 mm/min 50 mm/min 50 mm/min 50 mm/min 23°C, unnotched 23°C, notched -30°C, notched	2650 69 5 > 50 no break 40 10	MPa MPa % % kJ/m ² kJ/m ² kJ/m ²	ISO 527-1,-2 ISO 527-1,-2 ISO 527-1,-2 ISO 527-1,-2 ISO 180-U ISO 180-U ISO 180-A
THERMAL Vicat softening temperature Coefficient of linear thermal expansion Temperature of deflection under load Temperature of deflection under load	50 N, 50°C/h 23 to 55°C 1.80 Mpa 0.45 Mpa	113 0.68 98 106	°C 10 ⁻⁴ /K °C °C	ISO 306 ISO 11359-1,-2 ISO 75-1,-2 ISO 75-1,-2
ELECTRICAL Electrical strength Volume resistivity Surface resistivity Relative permittivity Relative permittivity Dissipation factor Dissipation factor	1 mm 100 Hz 1 MHz 100 Hz 1 MHz	35 1E15 1E17 3.2 3.1 37 75	kV/mm Ohm.cm Ohm - - 10 ⁻⁴ 10 ⁻⁴	IEC 60243-1 IEC 60093 IEC 60093 IEC 60250 IEC 60250 IEC 60250 IEC 60250

⁽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.

Fire rating (*)

Application domain	Standard	Country	Rating
Rail coaches (**)	DIN 5510-2 NF P 92-501,-503,-504, -505 NFF 16-101,-102	Germany France France	S3-S4/SR2/ST2 M1 F2
E&E	UL 94 UL 94-5V UL 94-5V DIN/VDE 0471 part 815	US US US Germany	V-0 (1.5 mm) 5VB (2.0 mm) 5VA (3.0 mm) 0.1 % F, 0.2 % Cl, Br, I

(*) fire certificates are limited in time, always check if the mentioned certificate is still valid
 (**) These certificates expired. Because of EN45545 they will only be renewed on customer request.

Availability

Exoblend® FR is available with different surface patterns. Colour samples can be provided on request. All grades can be produced with UV protection for outdoor use or with a PVDF top layer to protect against graffiti and cleaning agents.

Maximum production widths

Surface structure	max. extrusion width	thickness
T & G	1.650 mm	2 – 6 mm
Smooth both sides	1.650 mm	2 – 6 mm

Machining

Exoblend® FR sheet is easy to machine with everyday tools. Sawing, drilling, routing, shearing and punching can all be done. Always use sharp tools suited for machining plastics.

Thermoforming

Thorough pre-drying of **Exoblend® FR** sheet is essential for all thermoforming techniques where the sheet temperature will rise above 160°C. The recommended procedure is to use an air circulating oven set at 110°C for 4 to 24 hours, depending on sheet thickness. **Exoblend® FR** sheet can be vacuum-formed at temperatures of 185 - 195°C. Use temperature controlled (120°C) aluminium or steel moulds. A good release from the mould can be obtained by providing a draft angle of 4 to 6°.

Assembling

Parts made of **Exoblend® FR** can be assembled with other plastics, metals and other materials by means of glueing, welding and several mechanical fastening techniques.

Painting and printing

Exoblend® FR sheets can be painted or printed using various standard techniques. No preliminary surface treatment is necessary except for cleaning. To avoid compromising the impact strength of **Exoblend® FR** sheets, paints must be suitable for use on polycarbonate. Products can be obtained from several manufactures of inks and paints. Their instructions must be carefully followed.

Chemical resistance

Exoblend® FR sheets have good resistance to highly concentrated mineral acids, many organic acids, oxidising and reducing agents, mineral and animal greases and oil, neutral and acid salt solutions, saturated aliphatic and cycloaliphatic hydrocarbons and alcohols (except methyl alcohol). They are partially soluble in aromatic hydrocarbons and soluble in many halogenated hydrocarbons (methylene chloride and ethylene dichloride are good solvents). Strong alkaline substances such as ammonia and amines decompose it. **Exoblend® FR** sheets will resist most detergent-based household cleaners.