



versalis

Technical Data Sheet

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**EDISTIR<sup>®</sup>**

Polystyrene

**ICE R 830D**

Environmental stress cracking resistant (ESCR) HIPS.

ICE R 830D combines high impact strength with an improved chemical resistance to oils, fats and chemical agents, such as detergents for both industrial and domestic use. Developed in particular for the fridge sector where hydrocarbons or freons are used as blowing agents for PU insulating foams.

Designation: Thermoplastics ISO 2897-PS-I,G,088-03-07-12

### Applications

This grade is suitable for extrusion/thermoforming and injection moulding. Typical applications are inner liners and frames for refrigerators and packaging containers for fatty foods. ICE R 830D significantly improves the wall thickness distribution in thermoforming and allows to optimize the thickness of the original extruded sheet.

### Typical processing data

- Extrusion: • melt temperature 210-240°C
- Injection moulding: • predrying normally not required  
• melt temperature 210-260°C  
• mould temperature 20-60°C

### General information

ICE R 830D is certified UL94 HB "all colors" at 1.5 mm (UL file E83071).

This grade in its natural version complies by composition with the requirements set by the main Regulations for plastic materials intended for food contact (including Commission Regulation (EU) No 10/2011 and subsequent amendments).

ICE R 830D is supplied in cylindrical pellets.

Properties	Test conditions	Test methods	Units	Values
<b>General</b>				
Density		ISO 1183	g/cm <sup>3</sup>	1.04
Bulk density		ISO 60	g/cm <sup>3</sup>	0.65
Water absorption	24 h - 23°C	ISO 62	%	<0.1
<b>Rheological</b>				
Melt flow rate	200°C - 5 kg	ISO 1133	g/10 min	3
<b>Mechanical</b>				
Tensile stress at yield	50 mm/min	ISO 527	MPa	16
Tensile stress at break	50 mm/min	ISO 527	MPa	23.5
Tensile strain at break	50 mm/min	ISO 527	%	70
Tensile modulus	1 mm/min	ISO 527	MPa	1450
Flexural strength	2 mm/min	ISO 178	MPa	35
Izod impact strength, notched	+23°C - thickness 3.2 mm	ISO 180/4A	J/m	130
	+23°C - thickness 4 mm	ISO 180/1A	kJ/m <sup>2</sup>	10
	-30°C - thickness 4 mm	ISO 180/1A	kJ/m <sup>2</sup>	8
Rockwell hardness	L/M scale	ISO 2039/2	-	L51
<b>Thermal</b>				
Vicat softening temperature	10 N - 50°C/h	ISO 306/A	°C	96
	50 N - 50°C/h	ISO 306/B	°C	88
Deflection temperature under load (annealed)	1.8 MPa - 120°C/h	ASTM D 648	°C	82
Coefficient of linear thermal expansion		ASTM D 696	10 <sup>-5</sup> /°C	9
Thermal conductivity		ISO 8302	W/(K·m)	0.17
Moulding shrinkage		internal method	%	0.4 - 0.7
<b>Flammability</b>				
Flame behaviour	thickness 1.5 mm	UL 94	class	HB
Glow wire test (GWT)	thickness 1.6 mm	IEC 60695-2-1	°C	650
<b>Electrical</b>				
Surface resistivity		IEC 60093	10 <sup>15</sup> ohm	>1.5
Volume resistivity		IEC 60093	10 <sup>15</sup> ohm·cm	>7
Comparative tracking index (CTI)	solution A	IEC 60112	-	500
Dielectric strength		IEC 60243	kV/mm	65
Dielectric constant (relative permittivity)	50 Hz	IEC 60250	-	2.5
Dissipation factor	50 Hz	IEC 60250	-	0,0003