Polystyrene

High impact, easy flow polystyrene with good elasticity at low temperatures.

Suitable for injection moulding of large or complex parts with low thickness and high impact strength.

Designation: Thermoplastics ISO 2897-PS-I,M,083-12-07-18

Applications

Toys, housewares, technical items.

Typical processing data

Injection moulding:
- predrying normally not required
- melt temperature 200-250°C
- mould temperature 20-60°C

General information

SR 550 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).

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Properties	Test conditions	Test methods	Units	Values
General				
Density		ISO 1183	g/cm³	1.04
Bulk density		ISO 60	g/cm³	0.65
Water absorption	24 h - 23°C	ISO 62	%	<0.1
Rheological				
Melt flow rate	200°C - 5 kg	ISO 1133	g/10 min	11
Mechanical				
Tensile stress at yield	50 mm/min	ISO 527	MPa	18
Tensile stress at break	50 mm/min	ISO 527	MPa	17
Tensile strain at break	50 mm/min	ISO 527	%	55
Tensile modulus	1 mm/min	ISO 527	MPa	1700
Flexural strength	2 mm/min	ISO 178	MPa	32
Izod impact strength, notched	+23°C - thickness 3.2 mm	ISO 180/4A	J/m	110
	+23°C - thickness 4 mm	ISO 180/1A	kJ/m²	9
	-30°C - thickness 4 mm	ISO 180/1A	kJ/m²	6.5
Rockwell hardness	L/M scale	ISO 2039/2	-	L60
Thermal				
Vicat softening temperature	10 N - 50°C/h	ISO 306/A	°C	90
	50 N - 50°C/h	ISO 306/B	°C	82
Deflection temperature under load (annealed)	1.8 MPa - 120°C/h	ASTM D 648	°C	81
Coefficient of linear thermal expansion		ASTM D 696	10^{-5}/°C	9
Thermal conductivity		ISO 8302	W/(K· m)	0.17
Moulding shrinkage		Internal method	%	0.4 - 0.7
Flammability				
Flame behaviour	thickness 1.5 mm	UL 94	class	HB
Glow wire test (GWT)	thickness 1.6 mm	IEC 60695-2-1	°C	650
Electrical				
Surface resistivity		IEC 60093	10^{15} ohm	>1.5
Volume resistivity		IEC 60093	10^{15} 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

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Please consult the relevant safety data sheet for more detailed information.

FOOD GRADE STATEMENT

EDISTIR R 321 P, SR 550, SRL 640, R 850E, R 540E, RT 461 F, RT 441 M, nat 10100.

EDISTIR ICE R 830D nat 10100.

EDISTIR RC 600, RCL 600, nat 10100.

Our mentioned products, as supplied in original packaging, comply by composition with the regulations currently in force for plastic materials intended to come into contact with foodstuffs in the following Countries:

- **Italy:** Decreto Ministeriale 21.03.73 "Disciplina igienica degli imballaggi, recipienti, utensili destinati a venire a contatto con le sostanze alimentari e le sostanze d'uso personale" and following amendments.
- **Germany:** Bedarfsgegenständeverordnung von 24.06.2013 and following amendments.
- **Austria:** Kunststoffverordnung 2003, BGBl. teil II 476/2003 and following amendments.
- **France:** Applicable regulations published in the Brochure N°1227. Arrêté du 02.01.2003 "Matériaux et objets en matière plastique mis ou destinés à être mis au contact des denrées, produits et boissons alimentaires" and following amendments.
- **The Netherlands:** Verpakkingen en Gebruikaartikelen Besluit (Warenwet) 21/08/1991 and following amendments.
- **Belgium:** Arrêté Royal 11 Mai 1992 "Materiaux et object destines a entrer en contact avec les denrées alimentaires" and following amendments. Arrêté Royal 3 juillet 2005 and following amendments.
- **United Kingdom:** Statutory Instrument 2002, No. 2364 "The Plastic Materials and Articles in Contact with Food, Regulations 2002" and following amendments. Statutory Instrument 2012, No. 2619 (England).
- **Spain:** Real Decreto 118/2003 of 31.01.2003 and following amendments. Real Decreto 103/2009 of 06.02.2009.
- **Switzerland**: RS 817.023.21 "Ordinanza del Dipartimento Federale dell'Interno sui materiali e oggetti in materia plastica" dated 23.11.2005.
- **USA:** Code of Federal Regulations, 2012 - Food and Drug Administration (FDA) Title 21 §177.1640 (Styrene polymers).
- **European Union:** Commission Regulation (EU) No 10/2011 "Plastic materials and articles intended to come into contact with food" and following amendments.

The styrene monomer (pm/ref 24610) has no migration limit. Residual butadiene monomer (pm/ref 13630) is contained in the finished product at levels below the Qm limit (1mg/kg).

The products contain additives with migration restriction in the EU regulation:

- triethyleneglycol bis[3-(3-tert-butyl-4-hydroxy-5-methylphenyl) propionate] pm/ref 94400, SML=9mg/kg (max. use concentration 550ppm).
- zinc stearate, pm/ref 24550 (stearic acid), SML 25mg/kg as zinc (max use concentration 800 ppm).

Migration testing has to be performed by the end-user on the final item, according to the expected use conditions, to verify the compliance with the applicable regulatory limits.

The products do not contain substances authorized as flavourings, nor as direct food additives with restrictions in the Regulation (EC) 1333/2008 (Dual Additives).

We confirm that our mentioned products are manufactured using the good manufacturing practices (GMP) recommended by Regulation (EC) 2023/2006 and that our quality management system ensure the traceability required by the Regulation (EC) No 1935/2004.

We point out that it is a responsibility of the end users to ensure that materials and articles, manufactured with good manufacturing practice (Regulation (EC) 2023/2006), under the normal or foreseeable conditions of use, do not transfer their constituents to foodstuffs in quantities which could endanger human health and/or bring unacceptable changes in the composition of the foodstuffs or a deterioration in the organoleptic properties (Regulation (EC) No 1935/2004).

Revision March 20th, 2014
This statement is valid three years and replaces those issued earlier.

Re: Regulation (EC) 1907/2006 (REACH) - Substances of Very High Concern (SVHC).

As per your request, we can confirm that in the production of our following materials:

- Riblene, Clearflex, Flexirene, Eraclene, Greenflex
- Edistir, Sinkral, Kostil, Koblend
- Extir (not flame-retarded grades)
- Dutral, Intol, Intene
- Europrene SBR Latices and Intex SBR Latices

we do not use the substances listed by the European Chemical Agency (ECHA) in the "Candidate List of Substances of Very High Concern" (SVHC) for Authorisation", lastly updated on December 16th, 2013 and in Annex XIV of Regulation (EC) 1907/2006 (List of substances subject to authorisation).

From the foregoing we can confirm that there is no reason that said substances may be found in the a.m. materials as supplied in original packaging.

We also confirm that our mentioned products comply with the restrictions set by the REACH Regulation 1907/2006/CE, annex XVII "Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles" and following amendments.

Yours sincerely.