TRINSEO™

STYRON™ 686E
General Purpose Polystyrene Resin

Overview

STYRON™ 686E is a general purpose polystyrene resin designed for both moulding and extrusion applications.The balance between heat resistance, toughness and flow is exceptional.It also has good dimensional stability and excellent clarity.

Applications:

- Foamed PS sheets used for packaging, e.g. egg trays
- Thin-wall food packages
- Medium and heavy section applications in the injection moulding field

Complies with:

- Europe REGULATION (EC) 10/2011
- U.S. FDA 21 CFR 177.1640
- Consult regulations for details.

Physical	Nominal Value	(English)	Nominal Value	(SI)	Test Method
Density	1.05	g/cm³	1.05	g/cm³	ASTM D792 ISO 1183
Apparent (Bulk) Density	0.60	g/cm³	0.60	g/cm³	ASTM D1895 ISO 60
Melt Mass-Flow Rate (MFR) (200°C/5.0 kg)	2.5	g/10 min	2.5	g/10 min	ASTM D1238 ISO 1133
Mechanical	**Nominal Value**	**(English)**	**Nominal Value**	**(SI)**	**Test Method**
Tensile Strength [1] (Yield)	7980	psi	55.0	MPa	ASTM D638 ISO 527-2/5
Tensile Elongation					
Break [2, 1]	1.0 to 3.0	%	1.0 to 3.0	%	ASTM D638
Break	1.0 to 3.0	%	1.0 to 3.0	%	ISO 527-2/5
Flexural Modulus					
-- [3, 1]	522000	psi	3600	MPa	ASTM D790
--	522000	psi	3600	MPa	ISO 178
Flexural Stress	13100	psi	90.0	MPa	ISO 178
Hardness	**Nominal Value**	**(English)**	**Nominal Value**	**(SI)**	**Test Method**
Rockwell Hardness (R-Scale)	105		105		ISO 2039-2
Ball Indentation Hardness	21800	psi	150	MPa	ISO 2039-1
Thermal	**Nominal Value**	**(English)**	**Nominal Value**	**(SI)**	**Test Method**
Deflection Temperature Under Load					
66 psi (0.45 MPa), Annealed	212	°F	100	°C	ASTM D648 ISO 75-2/B
264 psi (1.8 MPa), Annealed	208	°F	98.0	°C	ASTM D648 ISO 75-2/A
Vicat Softening Temperature					
--	212	°F	100	°C	ASTM D1525 [4] ISO 306/B50 [4]
--	225	°F	107	°C	ASTM D1525 [5] ISO 306/A120 [5]
CLTE - Flow	4.4E-5	in/in/°F	8.0E-5	cm/cm/°C	DIN 53752
Thermal Conductivity	1.2	Btu·in/hr/ft²/°F	0.17	W/m/K	DIN 52612

Electrical	Nominal Value	(English)	Nominal Value	(SI)	Test Method
Dielectric Strength	3400	V/mil	140	kV/mm	DIN 53481
Dielectric Constant (1 MHz)	2.50		2.50		ASTM D150
Dissipation Factor (1 MHz)	6.0E-5		6.0E-5		ASTM D150
Flammability	**Nominal Value**	**(English)**	**Nominal Value**	**(SI)**	**Test Method**
Flame Rating [6] (0.06 in (1.6 mm))	HB		HB		UL 94
Additional Information					
Compression moulded specimens.					

Notes

These are typical properties only and are not to be construed as specifications. Users should confirm results by their own tests.

[1] Injection moulded specimens.

[2] 0.20 in/min (5.0 mm/min)

[3] Method I (3 point load)

[4] Rate A (50°C/h), Loading 2 (50 N)

[5] Rate B (120°C/h), Loading 1 (10 N)

[6] This rating not intended to reflect hazards presented by this or any other material under actual fire conditions.

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