



STYRON™ 685D

General Purpose Polystyrene Resin

Overview STYRON 685D is a high heat resistance, high tensile strength and high stiffness, general purpose polystyrene. It is recommended for applications where tensile and melt strength as well as heat resistance properties are important.

Characteristics

- High heat

Applications

- Media enclosures
- Refrigerator accessories
- Oriented polystyrene sheets

Complies with

- U.S. FDA 21 CFR 177.1640
- CAN. HPB NO OBJECTION (WITH LIMITATIONS)
- CSA (Canada Standards Association)
- Consult Regulations for details.

Physical	Nominal Value (English)	Nominal Value (SI)	Test Method
Density	1.04 g/cm ³	1.04 g/cm ³	ASTM D792
Melt Index (200°C/5.0 kg)	1.5 g/10 min	1.5 g/10 min	ASTM D1238
Molding Shrinkage - Flow	0.0040 to 0.0070 in/in	0.40 to 0.70 %	ASTM D955
Mechanical	Nominal Value (English)	Nominal Value (SI)	Test Method
Tensile Strength			ASTM D638
Yield, Compression Molded	6400 psi	44.1 MPa	
Yield, Injection Molded	8000 psi	55.2 MPa	
Break, Compression Molded	6400 psi	44.1 MPa	
Break, Injection Molded	8000 psi	55.2 MPa	
Tensile Elongation			ASTM D638
Break, Compression Molded	2.0 %	2.0 %	
Break, Injection Molded	4.0 %	4.0 %	
Flexural Modulus			ASTM D790
Compression Molded	450000 psi	3100 MPa	
Injection Molded	470000 psi	3240 MPa	
Flexural Strength			ASTM D790
Compression Molded	11600 psi	80.0 MPa	
Injection Molded	15900 psi	110 MPa	
Impact	Nominal Value (English)	Nominal Value (SI)	Test Method
Notched Izod Impact			ASTM D256
Compression Molded	2.00 ft-lb/in	107 J/m	
73°F (23°C)	0.600 ft-lb/in	32.0 J/m	
Thermal	Nominal Value (English)	Nominal Value (SI)	Test Method
Deflection Temperature Under Load			ASTM D648
66 psi (0.45 MPa), Unannealed, 1.82 in (46.2 mm)	217 °F	103 °C	
264 psi (1.8 MPa), Unannealed, 1.82 in (46.2 mm)	181 °F	82.8 °C	
Vicat Softening Temperature	226 °F	108 °C	ASTM D1525
CLTE - Flow (-40 to 180°F (-40 to 82°C))	0.000042 in/in/°F	0.000076 cm/cm/°C	ASTM D696
Flammability	Nominal Value (English)	Nominal Value (SI)	Test Method
Flame Rating - UL (0.0580 in (1.47 mm), ALL)	HB	HB	UL 94 ¹

Notes

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

¹ This numerical flammability rating is not intended to reflect hazards presented by this or any other material under actual fire conditions.

Product Stewardship

The Dow Chemical Company and its subsidiaries ("Dow") has a fundamental concern for all who make, distribute, and use its products, and for the environment in which we live. This concern is the basis for our Product Stewardship philosophy by which we assess the safety, health, and environmental information on our products and then take appropriate steps to protect employee and public health and our environment. The success of our Product Stewardship program rests with each and every individual involved with Dow products — from the initial concept and research, to manufacture, use, sale, disposal, and recycle of each product.

Customer Notice

Dow strongly encourages its customers to review both their manufacturing processes and their applications of Dow products from the standpoint of human health and environmental quality to ensure that Dow products are not used in ways for which they are not intended or tested. Dow personnel are available to answer your questions and to provide reasonable technical support. Dow product literature, including safety data sheets, should be consulted prior to use of Dow products. Current safety data sheets are available from Dow.

Medical Applications Policy

NOTICE REGARDING MEDICAL APPLICATION RESTRICTIONS: Dow will not knowingly sell or sample any product or service ("Product") into any commercial or developmental application that is intended for:

- long-term or permanent contact with internal bodily fluids or tissues. "Long-term" is contact which exceeds 72 continuous hours;
- use in cardiac prosthetic devices regardless of the length of time involved ("cardiac prosthetic devices" include, but are not limited to, pacemaker leads and devices, artificial hearts, heart valves, intra-aortic balloons and control systems, and ventricular bypass-assisted devices);
- use as a critical component in medical devices that support or sustain human life; or
- use specifically by pregnant women or in applications designed specifically to promote or interfere with human reproduction.

Dow requests that customers considering use of Dow products in medical applications notify Dow so that appropriate assessments may be conducted. Dow does not endorse or claim suitability of its products for specific medical applications. It is the responsibility of the medical device or pharmaceutical manufacturer to determine that the Dow product is safe, lawful, and technically suitable for the intended use. **DOW MAKES NO WARRANTIES, EXPRESS OR IMPLIED, CONCERNING THE SUITABILITY OF ANY DOW PRODUCT FOR USE IN MEDICAL APPLICATIONS.**

Disclaimer

NOTICE: No freedom from infringement of any patent owned by Dow or others is to be inferred. Because use conditions and applicable laws may differ from one location to another and may change with time, the Customer is responsible for determining whether products and the information in this document are appropriate for the Customer's use and for ensuring that the Customer's workplace and disposal practices are in compliance with applicable laws and other governmental enactments. Dow assumes no obligation or liability for the information in this document. **NO WARRANTIES ARE GIVEN; ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY EXCLUDED.**

NOTICE: If products are described as "experimental" or "developmental": (1) product specifications may not be fully determined; (2) analysis of hazards and caution in handling and use are required; (3) there is greater potential for Dow to change specifications and/or discontinue production; and (4) although Dow may from time to time provide samples of such products, Dow is not obligated to supply or otherwise commercialize such products for any use or application whatsoever.

Additional Information

North America		Europe/Middle East	+800-3694-6367
U.S. & Canada:	1-800-441-4369		+32-3-450-2240
	1-989-832-1426	Italy:	+800-783-825
Mexico:	+1-800-441-4369		
Latin America		South Africa	+800-99-5078
Argentina:	+54-11-4319-0100		
Brazil:	+55-11-5188-9000		
Colombia:	+57-1-219-6000	Asia Pacific	+800-7776-7776
Mexico:	+52-55-5201-4700		+603-7965-5392

www.dowplastics.com

This document is intended for use within Asia Pacific

Published: 1995-11-01

© 2009 The Dow Chemical Company

