



**STYRON 666D      General Purpose Polystyrene Resin**

STYRON™ 666D is a medium heat resistance, medium flow, general purpose polystyrene resins. It is recommended in applications where a specific balance of flow and tensile properties are important. Its unique additive package makes it a good candidate for some medical and pharmaceutical applications.

- Main Characteristics
- Medium heat resistance
  - Medium flow
  - FDA Compliant <sup>(1)</sup>
- Applications
- Medical
  - Packaging/disposables
  - Injection molding
  - Extrusion

Properties <sup>(2)</sup>	Test Method		S.I.		English		Metric	
	ISO	ASTM	Value	Unit	Value	Unit	Value	Unit
<b>Physical</b>								
Melt flow rate (200°C / 5 kg)	1133 /8	D 1238	8.0	g/10 min	8.0	g/10 min	8.0	g/10 min
Specific Gravity	1183	D 792	1.04		1.04		1.04	
Linear Thermal Expansion (10 <sup>-5</sup> )	1135 9	D 696	9.0	cm/cm /°C	5.0	in/in/ °F	9.0	cm/cm/ °C
Mold Shrinkage		D 955	0.003 to 0.007	cm/cm	0.003 to 0.007	in/in	0.003 to 0.007	cm/cm
<b>Optical</b>								
Transmittance		D 1003	90	%	90	%	90	%
Haze		D 1003	1.0	%	1.0	%	1.0	%
Refractive Index		D 542	1.59		1.59		1.59	
<b>Thermal</b>								
Vicat Softening Temperature (120°C/hr, 1 kg)	306A	D 1525- B	99	°C	211	°F	99	°C
Deflection Temperature Under Load (Injection molded)	75A	D 648	85	°C	186	°F	85	°C
@ 0.45 MPa (66 psi), Unannealed			77	°C	171	°F	77	°C
@ 1.8 MPa (264 psi), Unannealed								
<b>Injection Molded Mechanical Properties</b>								
<b>Impact Strength:</b>								
Notched Izod 12.7x3.2 mm (0.5x.125 in) specimen	180/ 4A	D 256	16.0	J/m	0.3	ft-lb/in	1.6	kg- cm/cm
@ 23°C (73°F)								
Gardner Impact @ 23°C (73°F)		D 3029	0.113	J	1.0	in-lb	1.15	cm-kg
<b>Tensile Properties</b> 12.7x3.2 mm (0.5x0.125 in) specimen:								
Yield Tensile Strength	5	527	D 638	45	MPa	6500	psi	440
mm/min (0.2 in/min) rate								kg/cm <sup>2</sup>
Ultimate Tensile Strength	5	527	D 638	45	MPa	6500	psi	440
mm/min (0.2 in/min) rate								kg/cm <sup>2</sup>
Ultimate Elongation	5	527	D 638	1.6	%	1.6	%	1.6
mm/min (0.2 in/min) rate								%
Tensile Modulus	5	527	D 638	2916	MPa	423,000	psi	29160
mm/min (0.2 in/min) rate								kg/cm <sup>2</sup>



<b>Flexural Properties</b>		1.3 mm/min (0.05 in/min) rate						
Flexural Strength (3-point)	178	D 790	90	MPa	13000	psi	900	kg/cm <sup>2</sup>
Flexural Modulus (3-point)	178	D 790	3150	MPa	457,000	psi	31500	kg/cm <sup>2</sup>
<b>Flammability Properties</b> <sup>(3)</sup>								
UL 94 Classification:								
@1.47 mm (0.058 in) thickness		HB		HB		HB		

- (1) When used unmodified for the manufacture of food contact articles, STYRON 666D will comply with Food Additive Regulations 21 CFR 177.1640 under the U.S. Food, Drug and Cosmetic Act. Such uses are subject to good manufacturing practices and any other limitations which are part of the statute or regulations. These should be consulted for complete details.
- (2) Typical properties, not to be considered as specification limits.
- (3) This numerical flame-spread rating is not intended to reflect hazards presented by material under actual fire conditions.

## Product Stewardship

Americas Styrenics 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 Americas Styrenics products – from the initial concept and research, to manufacture, use, sale, disposal, and recycle of each product.

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- b. 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);
- c. use as a critical component in medical devices that support or sustain human life; or
- d. use specifically by pregnant women or in applications designed specifically to promote or interfere with human reproduction.

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## Additional Information

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