



STYRON™ 685D

Americas Styrenics LLC - General Purpose Polystyrene

Tuesday, November 5, 2019

General Information

General

| | | | |
|-------------------|---|--|-------------------------|
| Material Status | • Commercial: Active | | |
| Availability | • Latin America | • North America | |
| Features | • Food Contact Acceptable • Good Melt Strength | • High Heat Resistance • High Stiffness | • High Tensile Strength |
| Uses | • Foam | • Medical/Healthcare Applications | • Sheet |
| Agency Ratings | • FDA 21 CFR 177.1640 | • USP Class VI | |
| UL File Number | • E326906 | | |
| Appearance | • Clear - Blue Tint | | |
| Forms | • Pellets | | |
| Processing Method | • Extrusion | • Injection Molding | |

ASTM & ISO Properties ¹

| Physical | Nominal Value | Unit | Test Method |
|--|------------------|----------|-------------|
| Density / Specific Gravity | 1.04 | | ASTM D792 |
| Melt Mass-Flow Rate (200°C/5.0 kg) | 1.5 | g/10 min | ASTM D1238 |
| Molding Shrinkage - Flow | 4.0E-3 to 8.0E-3 | in/in | ASTM D955 |
| Mechanical | Nominal Value | Unit | Test Method |
| Tensile Modulus (Injection Molded) | 460000 | psi | ASTM D638 |
| Tensile Strength (Yield, Injection Molded) | 7540 | psi | ASTM D638 |
| Tensile Strength (Break, Injection Molded) | 7540 | psi | ASTM D638 |
| Tensile Elongation (Break, Injection Molded) | 3.0 | % | ASTM D638 |
| Flexural Modulus (Injection Molded) | 470000 | psi | ASTM D790 |
| Flexural Strength (Injection Molded) | 13100 | psi | ASTM D790 |
| Impact | Nominal Value | Unit | Test Method |
| Notched Izod Impact (73°F, Injection Molded) | 0.40 | ft-lb/in | ASTM D256 |
| Hardness | Nominal Value | Unit | Test Method |
| Rockwell Hardness (L-Scale) | 107 | | ASTM D785 |
| Thermal | Nominal Value | Unit | Test Method |
| Deflection Temperature Under Load (66 psi, Unannealed) | 208 | °F | ASTM D648 |
| Deflection Temperature Under Load 264 psi, Unannealed | 192 | °F | ASTM D648 |
| Vicat Softening Temperature | 226 | °F | ASTM D1525 |
| CLTE - Flow | 5.0E-5 | in/in/°F | ASTM D696 |
| Flammability | Nominal Value | Unit | Test Method |
| Flame Rating | HB | | UL 94 |

Processing Information

| Injection | Nominal Value | Unit |
|--------------------|---------------|------|
| Rear Temperature | 424 to 480 | °F |
| Middle Temperature | 424 to 480 | °F |
| Front Temperature | 390 to 415 | °F |
| Nozzle Temperature | 415 to 469 | °F |

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| Injection | Nominal Value | Unit |
|-----------------------|---------------|------|
| Mold Temperature | 60 to 150 | °F |
| Injection Rate | Fast | |
| Back Pressure | 29.0 to 174 | psi |
| Cushion | 0.250 | in |
| Extrusion | Nominal Value | Unit |
| Cylinder Zone 1 Temp. | 351 to 379 | °F |
| Cylinder Zone 2 Temp. | 360 to 399 | °F |
| Cylinder Zone 3 Temp. | 370 to 410 | °F |
| Cylinder Zone 4 Temp. | 390 to 421 | °F |
| Cylinder Zone 5 Temp. | 399 to 430 | °F |
| Adapter Temperature | 379 to 450 | °F |
| Melt Temperature | 379 to 450 | °F |
| Die Temperature | 390 to 450 | °F |

Extrusion Notes

Zone 6 Temperature: 204 to 221°C
Melt Pump, Pipes, Screen Changer Temperature: 193 to 232°C
Polish Rolls Temperature: 66 to 104°C
Head Pressure: 10 to 21 MPa

Notes

¹ Typical properties: these are not to be construed as specifications.