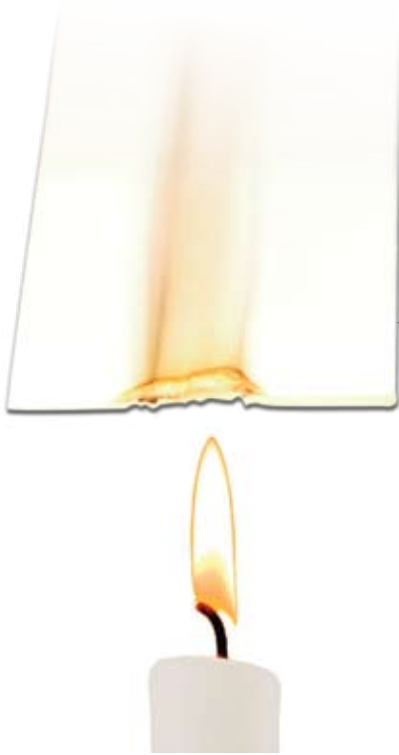


DuraForm® FR 100 Plastic



3DSYSTEMS™

PRELIMINARY



This Halogen-free Flame Retardant plastic is suitable for Rapid Manufacturing of Aerospace and consumer products where flame retardancy and reduced smoke toxicity is required.

In addition to meeting the flame retardancy necessary for many potential aerospace applications, DuraForm® FR100 has been formulated to reduce production of smoke and related toxic byproducts of combustion and achieve UL94 V-0 rating to meet the needs of today's human environmental safety for many other consumer applications.

Applications

- Aerospace and aircraft cabin, compartment & cargo
- Computers
- Business equipment
- Electrical appliances
- Telecommunications equipment
- Building and structural components
- Transportation
- Complex, thin-walled ductwork
- Unmanned air vehicles (UAV's)
- Housings and enclosures
- Connectors
- Consumer goods and sporting products
- Vehicle dashboards and grilles
- Bumpers
- Rapid manufacturing

Features

- Flame retardant
- Halogen and Antimony free
- FAR 25.853 (non-drip) compliant
- UL94 V-0 compliant
- Low smoke density and toxicity
- Excellent toughness and with good impact resistance
- Easy to process
- No emission of corrosive gases
- Meets aerospace smoke density and toxicity requirements

Benefits

- Offers toughness of injection molded plastics
- Build prototypes that withstand functional testing
- Produce durable end-use parts without tooling
- Create accurate and repeatable custom parts
- Increase market opportunities through flame retardancy



Computer Mouse



Duct connect made from DuraForm® FR100 Plastic

DuraForm® FR 100 Plastic



DuraForm FR 100 Regular SLS Plastic

DuraForm FR 100 (left) and non-flame retardant SLS plastic (right).

Technical Data

General Properties

Measurement	Condition	Metric	U.S.
Density (Sintered Part)		1.03 g/cm ³	1.03 g/cm ³
Bulk Density (Powder)		0.51 g/cm ³	0.51 g/cm ³
Tap Density (Powder)		0.66 g/cm ³	0.66 g/cm ³
Specific Gravity	ASTM D792	1.07	1.07

Mechanical Properties

Measurement	Condition	Metric	U.S.
Tensile Strength, Ultimate	ASTM D638	32 MPa	4,600 psi
Tensile Strength, Yield	ASTM D638	27 MPa	3,900 psi
Tensile Modulus	ASTM D638	1880 MPa	273,000 psi
Elongation at Yield	ASTM D638	3.0 %	3.0 %
Elongation at Break	ASTM D638	20 %	20 %
Flexural Strength, Yield	ASTM D790	41 MPa	5,900 psi
Flexural Strength, Ultimate	ASTM D790	46 MPa	6,700 psi
Flexural Modulus	ASTM D790	1462 MPa	212,000 psi
Hardness, Shore D	ASTM D2240	73	73
Impact Strength (notched Izod, 23 °C) @ 0.125"	ASTM D256	49 J/m	0.92 ft-lb/in
Impact Strength (unnotched Izod, 23 °C) @ 0.125"	ASTM D256	371 J/m	6.9 ft-lb/in

Thermal Properties

Measurement	Condition	Metric	U.S.
Heat Deflection Temperature (HDT)	ASTM D648 @ 0.45 MPa (66 psi) @ 1.82 MPa (264 psi)	194 °C 70 °C	381 °F 158 °F

Flammability Properties

Measurement	Standards	Value	Comments
Flammability, 1.5 mm thickness	FAR 25.853 Part I(b)(4), 12 Sec. Vertical ABD 0031/AITM 2.0002B BSS 7230 F2	Pass	Average afterflame time of 1.9 secs, average burn length of 26 mm, no drip and no afterglow
Smoke Density, 1.6 mm thickness (Flaming & non-flaming modes)	FAR 25.853 Part V ABD 0031/AITM 2.0007 BSS 7238	Pass	Average smoke density of 74 Dm in Flaming Mode and 52 Dm in Non-Flaming Mode
Toxic Gas Generation, 1.6 mm thickness (Flaming & non-flaming modes)	ABD 0031/AITM 3.0005 BSS 7365	Pass	Suitable for aircraft interior material
1.65 mm thickness, 20 mm vertical burn test	UL94, V-0	Pass	Suitable for parts in devices and appliances



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