

**DESCRIPTION** Starflam AFR450X1 is a Red Phosphorous Flame Retardant, Glass Fiber Reinforced Polyamide 66 Injection Molding Resin

PROPERTY (1)	UNIT	STANDARD	TYPICAL VALUE (1) Dry As Moulded
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### PHYSICAL

Density	g/cm <sup>3</sup>	ISO 1183	1.36
Moisture Absorption (23°C / 50% RH)	%	ISO 62	1.3
Mold Shrinkage on Tensile Bar, flow	%	E2P Method	0.3 - 0.5
Water Absorption, (23°C/sat)	%	ISO 62	6

### MECHANICAL

Flexural Modulus, 2 mm/min	MPa	ISO 178	7500
Flexural Stress, break, 2 mm/min	MPa	ISO 178	210
Hardness, Rockwell L		ISO 2039-2	108
Tensile Modulus, 1 mm/min	MPa	ISO 527	8000
Tensile Strain, break, 5 mm/min	%	ISO 527	3
Tensile Stress, break, 5 mm/min	MPa	ISO 527	150

### IMPACT

Charpy 23°C, Unnotch Edgew 80*10*4 sp=62mm	kJ/m <sup>2</sup>	ISO 179/1eU	65
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	kJ/m <sup>2</sup>	ISO 179/1eA	11
Charpy -30°C, Unnotch Edgew 80*10*4 sp=62mm	kJ/m <sup>2</sup>	ISO 179/1eU	55
Charpy -30°C, V-notch Edgew 80*10*4 sp=62mm	kJ/m <sup>2</sup>	ISO 179/1eA	8
Izod Impact, notched 80*10*4 +23°C	kJ/m <sup>2</sup>	ISO 180/1A	12
Izod Impact, notched 80*10*4 -20°C	kJ/m <sup>2</sup>	ISO 180/1A	9
Izod Impact, notched 80*10*4 -40°C	kJ/m <sup>2</sup>	ISO 180/1A	8

Source RJF, last update 01-07-2010

(1) Typical values for natural color unless specified otherwise. Do not constitute a specification. Significant variations are possible for colors

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### THERMAL

Ball Pressure Test, 125°C +/- 2°C		IEC 60695-10-2	PASSES
CTE, 23°C to 60°C, flow	1/°C	ISO 11359-2	2.50E-05
CTE, 23°C to 60°C, xflow	1/°C	ISO 11359-2	9.00E-05
HDT/Ae, 1.8 MPa Edgew 120*10*4 sp=100mm	°C	ISO 75/Ae	230
HDT/Be, 0.45MPa Edgew 120*10*4 sp=100mm	°C	ISO 75/Be	250
Relative Temp Index, Elec	°C	UL 746B	110
Relative Temp Index, Mech w/impact	°C	UL 746B	110
Relative Temp Index, Mech w/o impact	°C	UL 746B	115
Vicat Softening Temp, Rate B/120	°C	ISO 306	240
Vicat Softening Temp, Rate B/50	°C	ISO 306	240

### FLAME CHARACTERISTICS

Glow Wire Flammability Index 960°C, passes at	mm	IEC 60695-2-12	2
Oxygen Index (LOI)	%	ISO 4589	28
UL Recognized, 94V-0 Flame Class Rating	mm	UL 94	0.75

### ELECTRICAL

Comparative Tracking Index	V	IEC 60112	550
Comparative Tracking Index, M	V	IEC 60112	400
Dielectric Strength, in oil, 3.2 mm	kV/mm	IEC 60243-1	16
Dissipation Factor, 1 MHz		IEC 60250	0.012

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### ELECTRICAL

Dissipation Factor, 50/60 Hz		IEC 60250	0.0049
Relative Permittivity, 1 MHz		IEC 60250	2.6
Relative Permittivity, 50/60 Hz		IEC 60250	2.9
Surface Resistivity, ROA	Ohm	IEC 60093	>1.E+15
Volume Resistivity	Ohm-cm	IEC 60093	>1.E+15

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PARAMETER	SETTING	UNIT
Drying Temperature	75 - 85	°C
Drying Time	4 - 6	hrs
Maximum Moisture Content	0.1	%
Mold Temperature	70-90	°C
Rear - Zone 1 Temperature	275 - 285	°C
Middle - Zone 2 Temperature	275 - 285	°C
Front - Zone 3 Temperature	275 - 285	°C
Melt Temperature	275- 285	°C

**PROCESSING PARAMETERS** : see above typical molding conditions.

**SAFETY** : Specific safety precautions must be taken when handling and processing this material. Please consult product MSDS or contact our technical service for details.

**PREDRYING** : This material is supplied in sealed bags. However further typical drying is required.

**BARRELS, SCREWS, MOULDS** : use wear resisting steel or alloy such as bimetallic cylinders, nitrided screws.

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