

## Data Sheet

# FSP-211

## Flame Retardant Polypropylene

FSP-211 is a highly loaded ready-to-use polypropylene compound designed primarily for injection molding applications which are required to meet the UL-94 standard of V-0 and the UL-746B long-term performance standard of 105°C at 0.058 inches in all colors.

Similar in flame-retardant characteristics to FSP-201, FSP-211 offers an alternative in physical properties; with higher impact strength and greater flexibility. In addition, it offers both good molding characteristics and long-term performance.

### Typical Properties\*

Properties	Test method ASTM	Unit	English Value
<b>Mechanical properties</b>			
Tensile Strength at Yield	ASTM D-638	psi	2450
Tensile Elongation	ASTM D-638	%	15
Flexural Modulus	ASTM D-790	psi	280,000
Flexural Strength	ASTM D-790	psi	4,750
Izod Notched Impact Strength	ASTM D-256	ft-lbs/in	0.8
<b>Thermal properties</b>			
Vicat Softening Temperature	ASTM D-1525	°F	286
Heat Distortion Temperature, 264 psi	ASTM D-648	°F	130
<b>Processing</b>			
Nominal Melt Flow Rate	ASTM D-1238 'L'	g/10 min	4
<b>Flammability</b>			
UL 94 0.058 in.	UL 94	class	V-0
<b>Miscellaneous properties</b>			
Density	ASTM D-792	g/cm <sup>3</sup>	1.37
Mold Shrinkage	ASTM D 955	ln/in	0.01
Hardness	ASTM D-2240		77
Oxygen index, %O <sub>2</sub> @ 0.125 in	ASTM-D-2863		28

### Flame Retardant and Electrical Data for FSP-211

Properties	Test Method	Test	Value	
			@ 0.058 in.	@ 0.125 in.
High-Current Arc Resistance	UL-746	Arcs to Ignite		
		On Surface	No Ignition	No Ignition
		1/16 in. above surface	No Ignition	No Ignition
		1/4 in. above surface	No Ignition	No Ignition
Hot Wire Ignition	UL-746	Seconds to ignite	No Ignition	No Ignition
Arc Resistance	ASTM-D-495	Seconds to track	--	76
Arc Tracking Ratio	UL-746	Inches per minute	0	0
High-Voltage Arc Resistance	UL-746	Seconds to track	No track	No track
		Seconds to ignite	No ignition	No ignition
Dielectric Strength, volts/mil	ASTM-D-149	Normal/Moist	>823 / 814	--
Volume Resistivity, Megohm-cm	ASTM-D-257	Normal/moist	1.79/26.4 E10	--
Continuous Track Index, Volts			--	>500
Dielectric Constant @ 1 MHz	ASTM-D-150		--	2.64
Dissipation Factor @ 1 MHz	ASTM-D-150		--	0.00265
Continuous Operating Temperature, °C	UL-746B		105	--

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### Handling and Use

FSPP-211 is a flame-retardant polypropylene compound that is to be used as received. No special precautions or conditions are required. It is recommended, however, that FSPP-211 not be held for long periods of time in the molten state as decomposition could occur. Machines should be purged prior to shutdown.

PPC flame retardant compounds and concentrates are considered to be non-hazardous under normal conditions. Material Safety Data Sheets are available on all these products, and you are encouraged to read and understand these documents before using the product. Since these products are used at elevated temperatures, fumes may be generated under some use conditions. Ventilation is necessary to minimize employee exposure to these fumes.

### Packaging and Samples

Standard packaging for concentrates is in 1,000-lb boxes, lined and on pallets. Optional are 250-lb fiber drums and 50-lb bags. To meet particular needs, boxes up to 1,400 lb can be supplied. Samples are available on request.