

## Polypropylene

## Fibremod™ FF311SF

## Halogen Free Flame Retardant Compound

## Description

Fibremod™ FF311SF is a high flow, 30 % chemically coupled glass fiber reinforced polypropylene compound intended for injection molding. This product is stabilized with a halogen-free flame retardant system. It has excellent resistance against chemicals and water. It also provides high level of insulation.

## Applications

Fibremod™ FF311SF is intended for following applications:

Covers	Products with complicated geometry
Engine covers	Small appliances
Lids	Structural parts
Other automotive parts	Under the bonnet components

Fibremod™ FF311SF has been designed for E&E and automotive applications, such as Lithium-ion battery enclosures, cell carriers, modules or insulation plates

## Physical properties

Property	Typical value *	Unit	Test method
Density	1300	kg/m³	ISO 1183-1
Melt flow rate ( 230 °C/2.16 kg)	16	g/10min	ISO 1133-1
Flexural modulus ( 2 mm/min)	7900	MPa	ISO 178
Tensile modulus ( 1 mm/min)	8550	MPa	ISO 527-2
Tensile strength ( 50 mm/min)	85	MPa	ISO 527-2
Tensile strain at yield ( 50 mm/min)	2.6	%	ISO 527-2
Heat deflection temperature A ( 1.80 MPa)	150	°C	ISO 75-2
Heat deflection temperature B ( 0.45 MPa)	160	°C	ISO 75-2
Charpy impact strength, notched ( 23 °C)	9	kJ/m²	ISO 179-1/1eA
Charpy impact strength, unnotched ( -20 °C)	40	kJ/m²	ISO 179-1/1eU
Charpy impact strength, unnotched ( -30°C)	40	kJ/m²	ISO 179-1/1eU
Mould average shrinkage <sup>1</sup>	0,2	%	Borealis Test Method
Mould average shrinkage <sup>2</sup>	0.7	%	Borealis Test Method

<sup>1</sup> Shrinkage in flow on Sector 300mm x 20° / 400bar / 96 hours / 2.8mm thickness

<sup>2</sup> Shrinkage perpendicular to flow on Sector 300mm x 20° / 400bar / 96 hours / 2.8mm thickness

\* Data should not be used for specification work

## Electrical properties

Property	Typical value *	Unit	Test method
DC Volume resistivity	0.01	PΩcm	IEC 60093
DC Surface Resistivity	1.6	PΩ	IEC 60093
Dielectric strength	37	kV/mm	IEC 60243
Comparative Tracking Index	600	V	IEC 60112

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### Other properties

Property	Typical value *	Unit	Test method
Flame test <sup>3</sup>	V-0	-	UL 94
Glow Wire Flammability Index	960	°C	IEC 60695-2-12

<sup>3</sup> Flammability at thickness 1,5mm

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### Processing techniques

#### Injection Molding

This product is easy to process with standard injection molding machines. To avoid residual humidity from transport or storage, the material should be pre-dried approximately 2 hours at 80°C.

Following parameters should be used as guideline:

Processing setting	Typical value/range
Feeding temperature	40 - 80 °C
Mass temperature	200 - 230 °C
Back pressure	Low to medium
Holding pressure	30 - 60 MPa
Mould temperature	30 - 50 °C
Screw speed	Low to medium
Flow front speed	100 - 200 mm/s

The actual conditions will depend on the type of equipment used.

### Packaging and storage

Fibremod™ FF311SF should be stored in dry conditions at temperatures below 50°C and protected from UV-light. Improper storage can initiate degradation, which can result in odour generation and colour changes and can have negative effects on the physical properties of this product.

### Product compliance documents

Latest versions of product safety information sheets (PSIS), product safety data sheets (SDS) and other product liability documents are available in our website [www.borealisgroup.com](http://www.borealisgroup.com).

### Sustainability aspects

Borealis is ever mindful of the impact of our products on the planet. We promote Design for Circularity (DfC) and Design for Recycling (DfR) to conserve natural resources and to reduce the environmental impact of products over their entire lifetime (including production, use phase and after phase). DfR helps ensure that material can be effectively recycled while maximizing the material performance efficiency.

Further information on sustainability and Design for Recycling (DfR) can be found from our websites [www.borealisgroup.com](http://www.borealisgroup.com) and [www.borealiseverminds.com](http://www.borealiseverminds.com).

### Regional Availability

#### Europe

For information on regional availability please contact Borealis Sales Representative.

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### Disclaimer

The product(s) mentioned herein are not intended to be used for medical, pharmaceutical or healthcare applications and we do not support their use for such applications.

To the best of our knowledge, the information contained herein is accurate and reliable as of the date of publication; however we do not assume any liability whatsoever for the accuracy and completeness of such information.

Borealis makes no warranties which extend beyond the description contained herein. Nothing herein shall constitute any warranty of merchantability or fitness for a particular purpose.

It is the customer's responsibility to inspect and test our products in order to satisfy itself as to the suitability of the products for the customer's particular purpose. The customer is responsible for the appropriate, safe and legal use, processing and handling of our products.

No liability can be accepted in respect of the use of any Borealis product in conjunction with any other products and/or materials. The information contained herein relates exclusively to our products when not used in conjunction with any other material unless as specifically provided for in the test methods stated above.