

# RILSAN®

## MB 3000 NAT

PA11, MHLF, 12-020, MD

**Rilsan® MB 3000 NAT resin** is a polyamide 11 produced from a renewable source. This natural grade is designed for injection molding and is classified as Halogen Free Flame Retardant (HFFR).

The percentage of renewable carbon according to ASTM D 6866 (calculated) is **>90%**.

### MAIN CHARACTERISTICS

PROPERTIES	DRY / COND	UNIT	TEST STANDARD
<b>RHEOLOGICAL PROPERTIES</b>			
<b>Melt Volume-Flow Rate</b>	95 / *	cm <sup>3</sup> /10min	ISO 1133
<b>Temperature</b>	235 / *	°C	-
<b>Load</b>	2.16 / *	kg	-
<b>Melt Flow Rate</b>	≤103	g/10min	ASTM D1238
<b>Molding Shrinkage, parallel</b>	0.9 / *	%	ISO 294-4, 2577
<b>Molding Shrinkage, normal</b>	0.9 / *	%	ISO 294-4, 2577
<b>MECHANICAL PROPERTIES</b>			
<b>Tensile Modulus</b>	- / 1830	MPa	ISO 527-1/-2
<b>Yield stress</b>	45 / 45	MPa	ISO 527-1/-2
<b>Yield strain</b>	5 / 5	%	ISO 527-1/-2
<b>Nominal Strain at Break</b>	> 50 / >50	%	ISO 527-1/-2
<b>Shore D Hardness</b>	69 / *	-	ISO 868
<b>Flexural Modulus, 23°C</b>	- / 1140	MPa	ISO 178
<b>Charpy Impact Strength, +23°C</b>	- / 83	kJ/m <sup>2</sup>	ISO 179/1eU
<b>Charpy Impact Strength, -30°C</b>	- / 38	kJ/m <sup>2</sup>	ISO 179/1eU
<b>Charpy Notched Impact Strength, +23°C</b>	- / 4	kJ/m <sup>2</sup>	ISO 179/1eA
<b>Charpy Notched Impact Strength, -30°C</b>	- / 3	kJ/m <sup>2</sup>	ISO 179/1eA
<b>THERMAL PROPERTIES</b>			
<b>Melting Temperature, 10°C/min</b>	189 / *	°C	ISO 11357-1/-3
<b>Coeff. of Linear Thermal Expansion, parallel</b>	102 / *	E-6/K	ISO 11359-1/-2
<b>Burning Beh. at 1.5 mm Nominal Thickness</b>	V-0 / *	class	IEC 60695-11-10
<b>Thickness Tested</b>	1.6 / *	mm	-
<b>Yellow Card available</b>	yes / *	-	-
<b>Burning Beh. at Thickness h</b>	V-0 / *	class	IEC 60695-11-10
<b>Thickness Tested</b>	0.8 / *	mm	-
<b>Yellow Card available</b>	yes / *	-	-
<b>Oxygen Index</b>	33 / *	%	ISO 4589-1/-2

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### ELECTRICAL PROPERTIES

Relative Permittivity, 100Hz	3 / -	-	IEC 60250
Relative Permittivity, 1MHz	3 / -	-	IEC 60250
Dissipation Factor, 100Hz	221 / -	E-4	IEC 60250
Dissipation Factor, 1MHz	180 / -	E-4	IEC 60250
Volume Resistivity	> 1E13 / > 1E13	Ohm*m	IEC 60093
Surface Resistivity	* / > 1E15	Ohm	IEC 60093
Dielectric (Electric) Strength	28 / 28	kV/mm	IEC 60243-1
Comparative Tracking Index	* / 600	-	IEC 60112

### OTHER PROPERTIES

Water Absorption	2 / *	%	Sim. to ISO 62
Humidity Absorption	0.6 / *	%	Sim. to ISO 62
Density	1090 / 1090	kg/m <sup>3</sup>	ISO 1183
%Bio-Based	90	-	ASTM D6866

### MAIN APPLICATIONS:

- Wire and cable sheathing
- Elevator doors rollers

### PACKAGING:

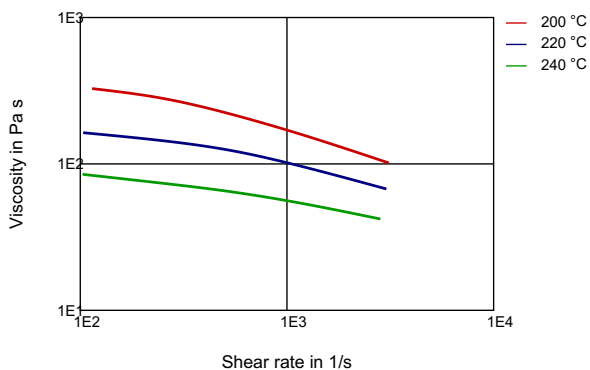
This grade is delivered dried in sealed packaging (25 kg bags) ready to be processed.

### SHELF LIFE:

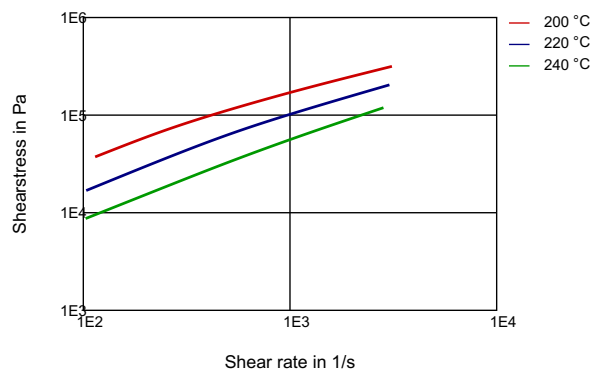
Two years from the delivery. For any use above this limit, please refer to our technical services.

### DIAGRAMS

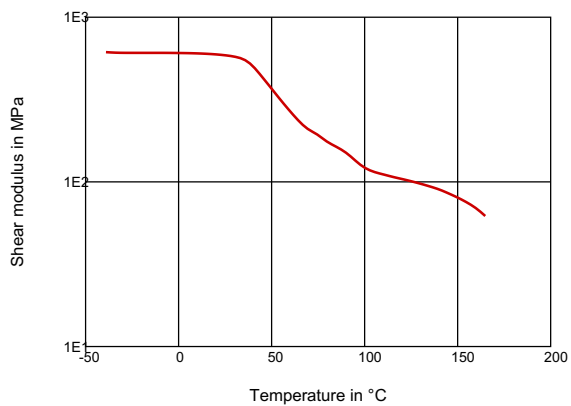
#### VISCOSITY-SHEAR RATE



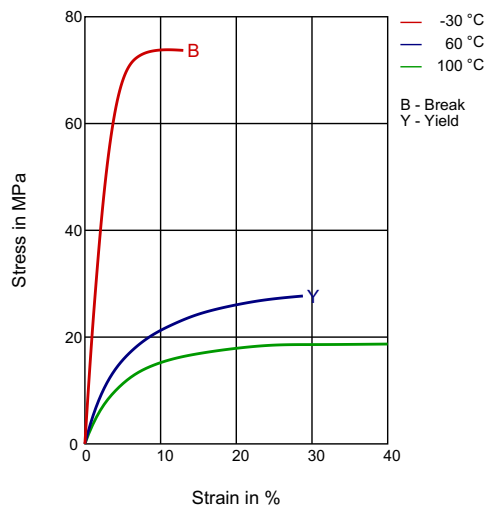
#### SHEARSTRESS-SHEAR RATE



#### DYNAMIC SHEAR MODULUS-TEMPERATURE



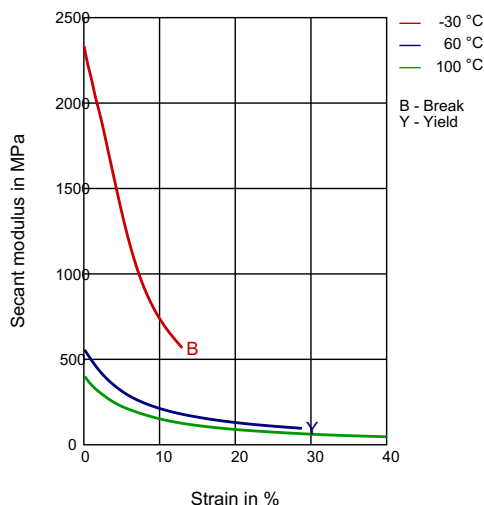
#### STRESS-STRAIN



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### SECANT MODULUS-STRAIN



Processing conditions:

- Typical melt temperature (Min / Recommended / Max) : 210°C / 220°C / 230°C.
- Mold temperature : 20 - 60°C

- Drying time and temperature (only necessary for bags opened for more than two hours) : 4-6 hours at 80-90°C.

### PROCESSING

Injection Molding

### DELIVERY FORM

Pellets

### ADDITIVES

Lubricants

### SPECIAL CHARACTERISTICS

Bio-Based, Heat Stabilized, Light Stabilized

### REGIONAL AVAILABILITY

North America, Europe, Asia Pacific, South and Central America, Near East/Africa

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