

## NEMpreg.FR5051

### FIRE RETARDANT PREPREG BASED ON EPOXY RESIN

#### DESCRIPTION

NEMpreg.FR5051 is an advanced fire retardant prepreg based on epoxy resin system and complies with HL3 according to EN45545-2 (R1, R6, R7, R24) requirements. Dedicated to the production of fireproof components for public transportation and construction.

#### TYPICAL USE

Highly fire resistant elements:  
public transport, automotive and industrial



#### FEATURES

- outstanding fire resistance: HL3 acc. to EN45545-2
- long out life: up to 12 months
- high tack
- high drapability

#### DEDICATED TECHNOLOGY

autoclave, vacuum bagging, hot press molding

#### OUT LIFE (20°C)

12 months

#### SHELF LIFE (-18°C)

not required

#### T<sub>g</sub>

140°C

#### REINFORCEMENT

glass from 200gsm to 500gsm

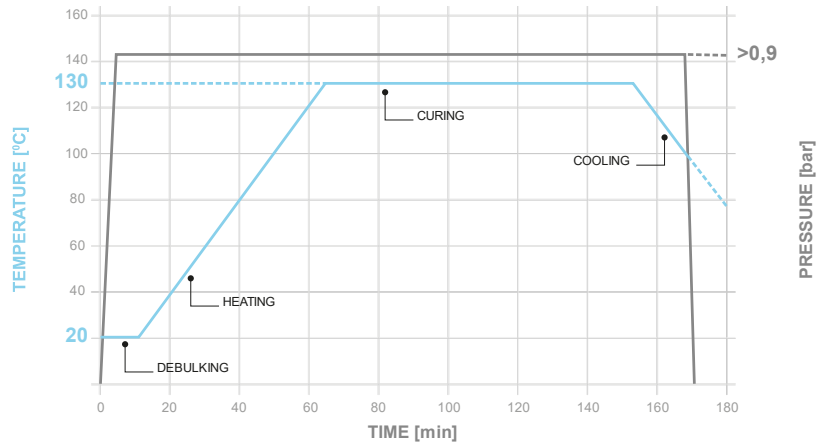
#### NEAT RESIN PROPERTIES

Resin system cured at 130°C for 120 min.

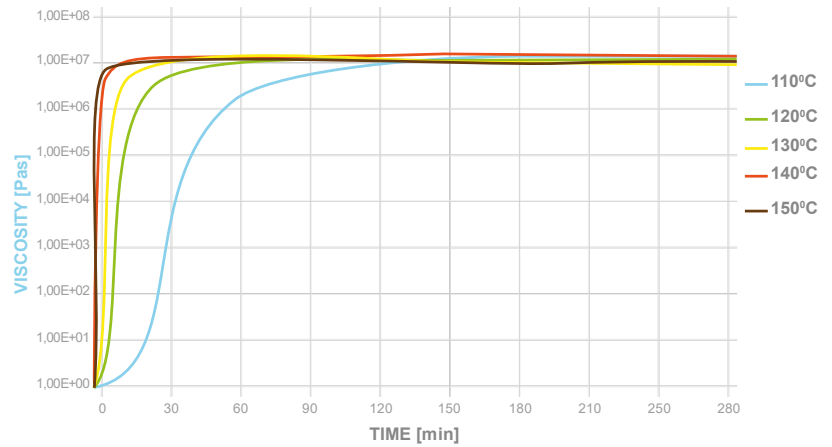
PROPERTY	UNIT	VALUE	TEST STANDARD
Tensile strength	MPa	22	ISO 527-4
Tensile modulus	GPa	4.8	ISO 527-4
Flexural strength	MPa	45	ISO 178
Flexural modulus	GPa	6.8	ISO 178
T <sub>g</sub> (DMA)	°C	140	ISO 6721-1

## RECOMMENDED CURING CYCLE

1. Apply min. 0.9 bar of vacuum
2. Hold 15-30 minutes for debulking
3. Apply 2-6 bar of pressure
4. Heat at 2-3°C/min up to 130°C
5. Hold at 130°C for 90 minutes
6. Cool down to 60°C or below

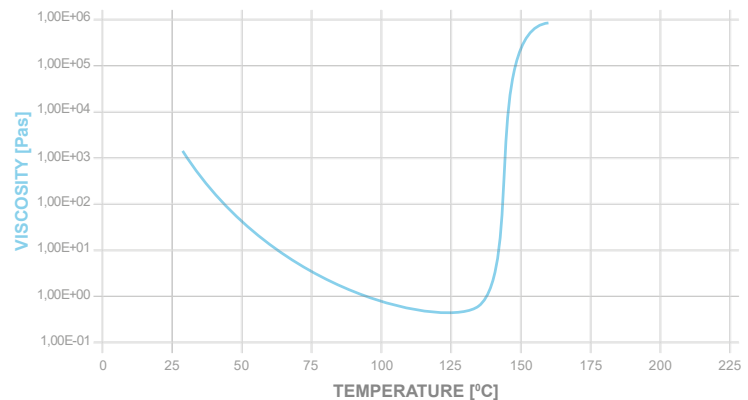


## ISOTHERMAL CURING



## DYNAMIC CURING

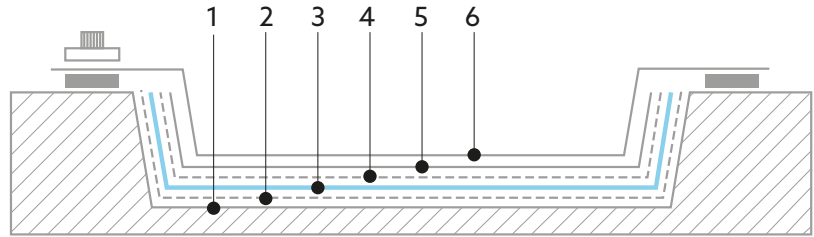
Resin viscosity profile conducted at 10°C/min.



## LAY-UP PROCEDURE

## FOR AUTOCLAVE PROCESS

1. The mold surface must be covered with the release agent.
2. To prepare the surface for the bonding process, a layer of peel ply can be used for the lay-up (nylon peel ply is recommended).
3. Apply the MEMpregs.
4. The lay-up must be covered with release foil.
5. Put bleeders and feed strips of glass or peel ply on the top.
6. Finally, place a vacuum bag and seal it with butyl tape. Apply the vacuum to remove trapped air. Debulk the laminate for at least 15 to 30 minutes (depending on the thickness).



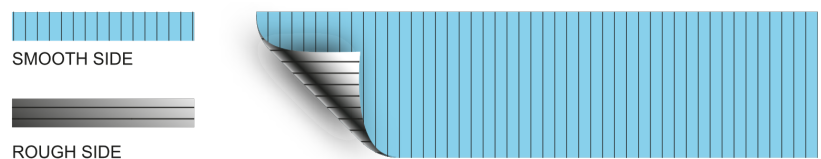
## MECHANICAL PROPERTIES

Laminates cured using a vacuum bag technique in the oven according to the cycles presented above.

PROPERTY	UNIT	DESCRIPTION		TEST STANDARD
Fiber type	N/A	glass	glass	N/A
Area weight	g/m <sup>2</sup>	300	350	N/A
Weave	N/A	satin 8H	twill 2/2	N/A
Resin content	%	40	40	N/A
Tensile strength	MPa	365	385	ISO 527-4
Tensile modulus	GPa	24	24	ISO 527-4
Flexural strength	MPa	410	530	ISO 14125
Flexural modulus	GPa	19	24	ISO 14125
Tg (DMA)	°C	140	140	ISO 6721-1

## APPLICATION

Be aware that the NEMpreg reveals two different sides: smooth and rough. It is recommended to apply the material on the smooth side to the mold surface.



## STORAGE CONDITIONS

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Keep the NEMpreg in the original bag at operating temperature before unpacking. NEMpreg can be stored for 12 months at 20°C. Freezing is not required. When not in use, NEMpreg must be stored covered by protective foil to prevent the inner structure from humidity. If the moisture level is too high, it can result in superficial and internal defects in the finished product.

## ATTENTION

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The above information concerning our products is based on our present-day knowledge, research results and experiences and are presented in good faith in accordance with the company's practices. The proposed procedures are considered to be commonly applied. However, any user should verify, if the delivered material is suitable for the intended application. This should take place according to current industrial standards and norms, including examinations of the final product. Neither the company nor its representatives shall be liable for any direct, indirect, punitive, incidental, special consequential damages, to property or life, whatsoever arising out of or connected with the use or misuse of the company's products.

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