NEMpreg.SMART5150

AESTHETIC PREPREG BASED ON EPOXY RESIN

DESCRIPTION

NEMpreg.SMART5150 is an advanced single-sided prepreg based on epoxy resin system. It can be used in autoclave. It is designed for aesthetic elements, e.g.: car parts, as well as yachts production or other industrial elements. Suitable for any kind of technical fabrics within the range of weights from 25gsm to 900gsm and various weaves or stitches.

TYPICAL USE

Highly aesthetic elements:
automotive parts, yacht components, industrial

FEATURES

- out life up to 12 months at 20^{0}C
- single-sided prepreg: easy debulking
- optimal tack: user-friendly
- high drapeability
- high transparency after curing (even for thick structures)

DEDICATED TECHNOLOGY	autoclave
OUT LIFE (20^{0}C)	12 months
SHELF LIFE (-18^{0}C)	not required
Tg	125^{0}C
REINFORCEMENT	glass, carbon from 25gsm to 900gsm

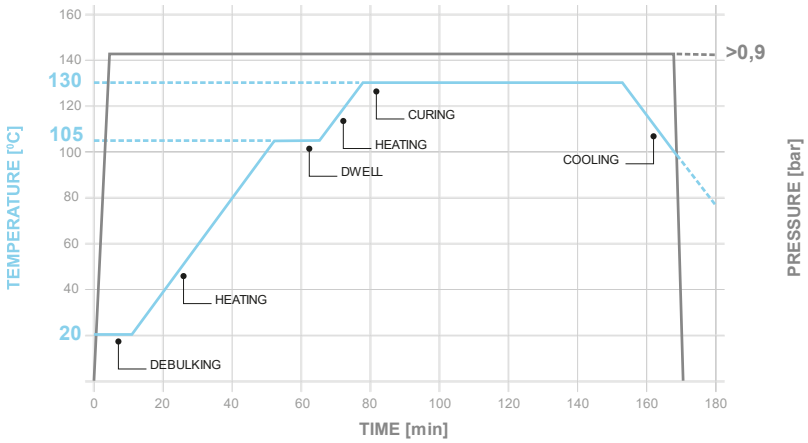
NEAT RESIN PROPERTIES

Resin system cured at 130^{0}C for 90 min.

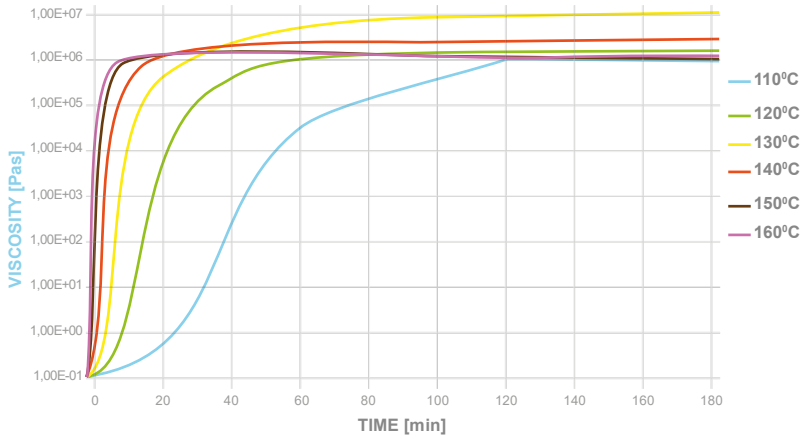
PROPERTY	UNIT	VALUE	TEST STANDARD
Tensile strength	MPa	60	ISO 527-4
Tensile modulus	GPa	2.9	ISO 527-4
Flexural strength	MPa	125	ISO 178
Flexural modulus	GPa	3.3	ISO 178
Tg (DMA)	^{0}C	125	ISO 6721-1

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^{0}C/min up to 105^{0}C
5. Hold at 105^{0}C for 15 minutes
6. Heat at 2-3^{0}C/min up to 130^{0}C
7. Hold at 130^{0}C for 90 minutes
8. Cool down to 60^{0}C or below

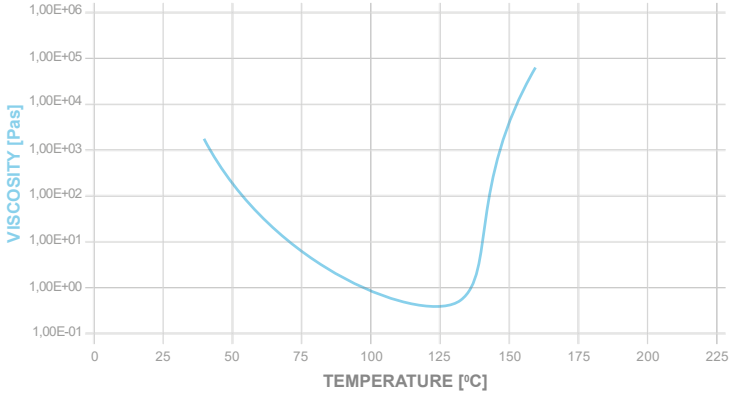


ISOTHERMAL CURING



DYNAMIC CURING

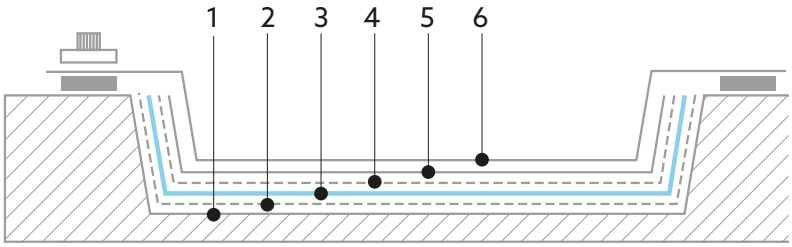
Resin viscosity profile conducted at 10^{0}C/min.



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).



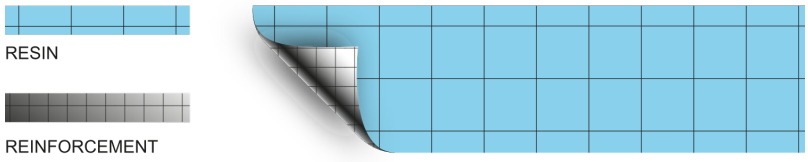
MECHANICAL PROPERTIES

Laminates cured using an autoclave according to the cycle presented above.

PROPERTY	UNIT	NEMpreg DESCRIPTION						TEST STANDARD
Fiber type	N/A	carbon	carbon	carbon	glass	glass	glass	N/A
Area weight	g/m^2	200	280	400	200	350	390	N/A
Weave	N/A	twill 2/2	twill 2/2	BX± 45	twill 2/2	twill 2/2	twill 2/2	N/A
Resin content	%	40	40	40	40	40	40	N/A
Tensile strength	MPa	635	672	902	470	440	410	ISO 527-4
Tensile modulus	GPa	49	57	67	16	14	18	ISO 527-4
Flexural strength	MPa	965	841	850	530	650	550	ISO 14125
Flexural modulus	GPa	56	56	62	19	20	19	ISO 14125
Tg (DMA)	^{0}C	125	125	125	125	125	125	ISO 6721-1

APPLICATION

Be aware that resin system is applied only on one side of reinforcement. It means that on one side the NEMpreg is tacky, while on other side is dry.



STORAGE CONDITIONS

Keep the NEMpreg in the original bag at operating temperature before unpacking. NEMpreg can be stored for 12 months at 20^0C. Freezing is not required. When not in use, NEMpreg must be 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. Please be aware that storage above 20^0C can result in partial infiltration progress, thus the NEMpreg handling can be more difficult, especially in case of drapability.

ATTENTION

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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