

NT-300 Modified Epoxy Prepreg

Description

The NT-300 Endureedge Max represents the next generation in prepreg resin technology. This novel prepreg product offers outstanding surface finish and laminate quality using vacuum bag only processing. Unlimited out-time (no refrigerated storage) with zero change in process parameters over time.

NT-300 allows the parts builder to efficiently build large parts with near zero voids without complicated debulking processes or elaborate cure cycles.

While NT-300 was designed for OOA processing, it is perfectly suitable for in-autoclave processes as well. NT-300 is suitable for high performance automotive and sporting goods, general purpose structures and a variety of composite parts.

Ideal Applications

- Automotive
- Transportation
- Sporting Goods
- General Composite Structures
- Applications that require cosmetic appearance
- Available in both Carbon Fiber and Fiberglass
- Available in clear and pigmented versions

Product Features

- Excellent Mechanical Properties - full mechanicals without post-cure
- No Freezer Storage; >12 months out-time at ambient storage conditions (70-80°F)
- Excellent Mechanical Properties with Vacuum Bag Only processing
- Unique engineered air release channels allows excellent OOA processing
- Very thick laminates can be produced without complicated debulking
- No changes in laminate processing conditions over time
- Optimized for high quality surface finish
- 300 Tg with post cure
- 260 Tg with standard cure

Neat Resin Properties

Density 1.17 g/cc

DRY Tg	WET Tg
(148°C) 300°F	(132°C) 270°F

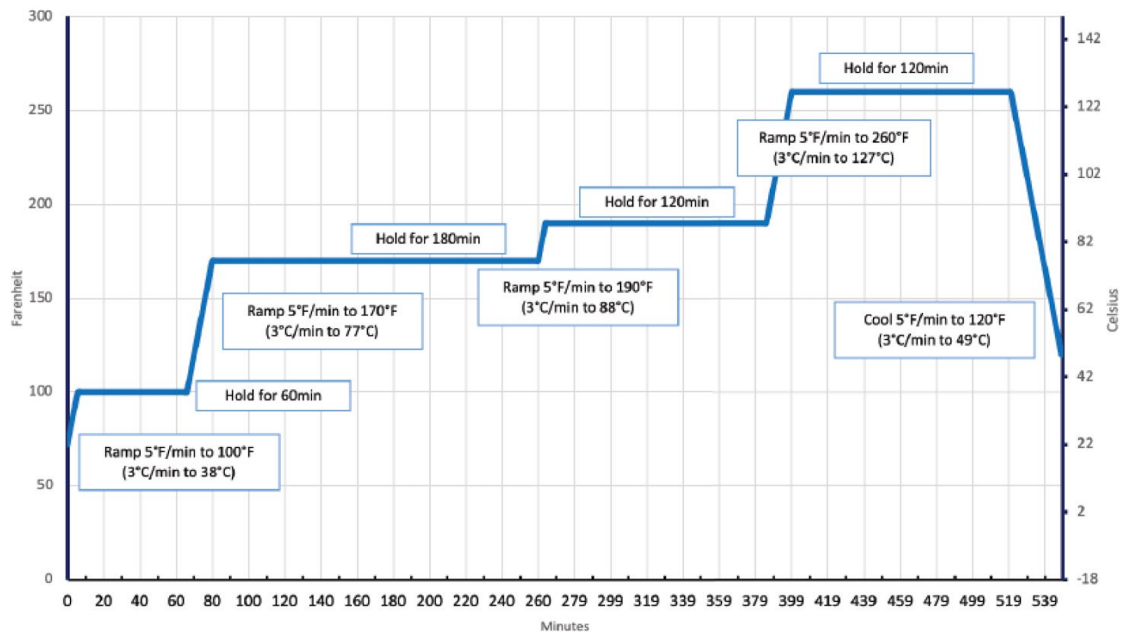
ALL DATA VACUUM BAG ONLY

Prepreg Mechanical Properties on Carbon

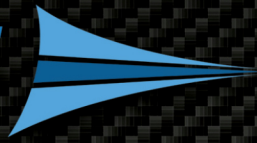
PROPERTY (0°)	METHOD	CARBON FIBER
Flexural Strength	ASTM D7264	965 MPa (140 ksi)
Flexural Modulus	ASTM D7264	62.7 GPa (9.1 Msi)
Short Beam Shear	ASTM D2344	65.5 MPa (9.5 ksi)

Data normalized to 60% fiber volume
3K Grafil TR30S 2x2 twill

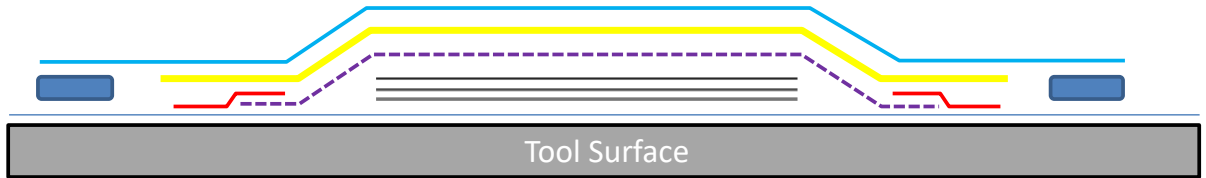
NT-300 Baseline Oven Cure



Ramp rates for cure may vary between 2-7 F (1-4 C)



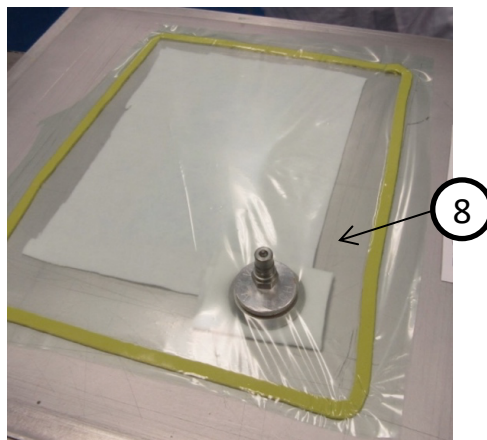
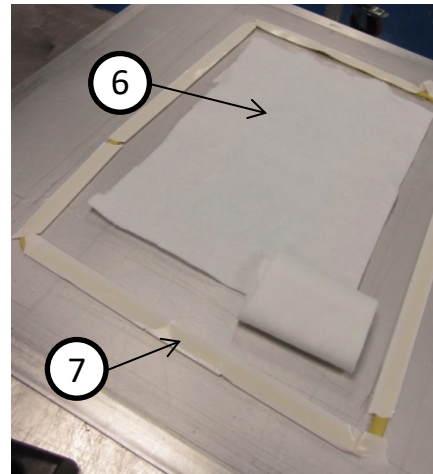
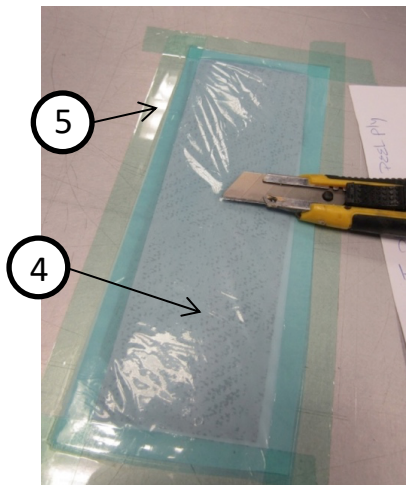
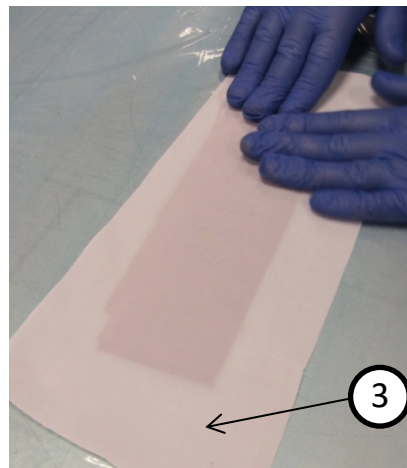
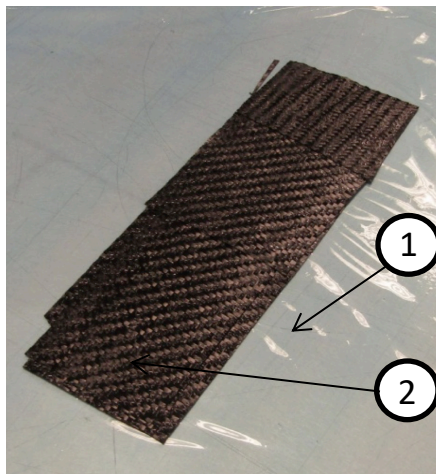
Layup option for minimal configuration



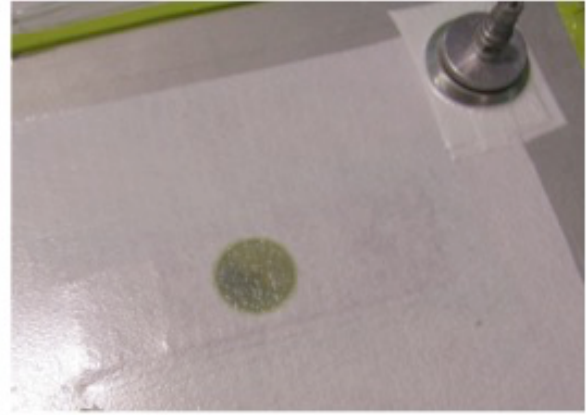
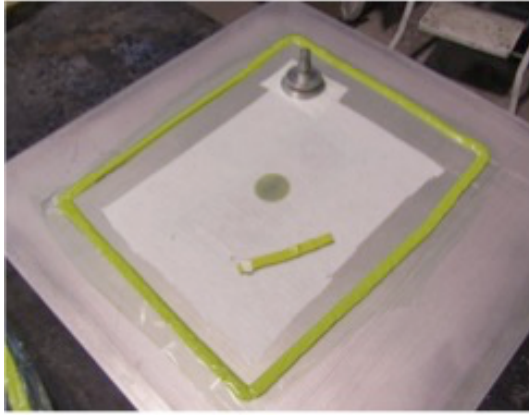
- ① ————— Release Agent (Marbocote 45Eco type)
- ② ===== NEXX Layup (up to 25 plies).
- ③ - - - - - Teflon film + small holes (pattern no less than 10x10cm)
- ④ ————— Sealant Tape (all around)
- ⑤ ————— Breather (the thinner the better)
- ⑥ ■■■■■ ■■■■■ Rubber sealant (all around)
- ⑦ ————— Vacuum Bag

Poor results unless vacuum is applied throughout full cure process including while in oven.

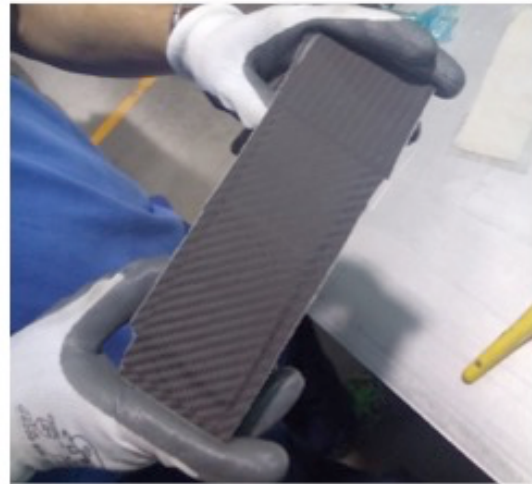
Layup process for improved bag side



Proper cure process will show a small leak through the tack hole on the Teflon film (4) creating a drop on the breather.



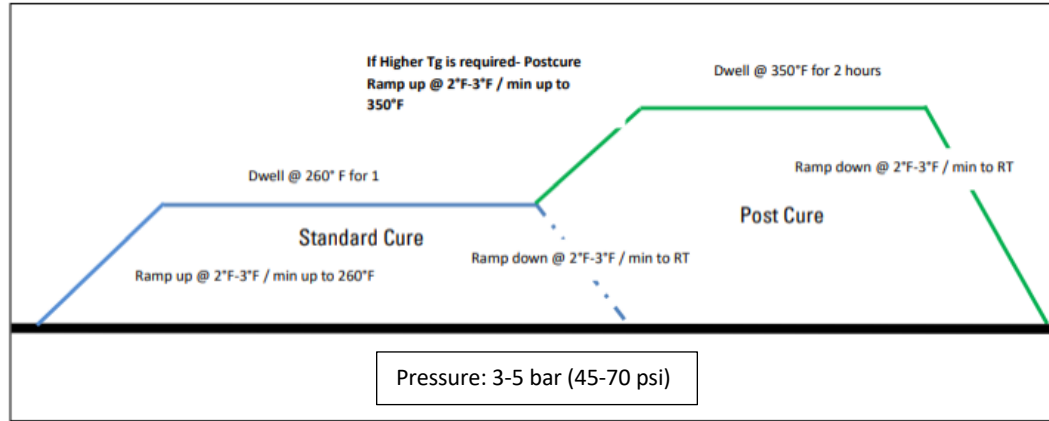
TOOL SIDE



BAG SIDE

Poor results unless vacuum is applied throughout full cure process including while in oven.

Autoclave Cure Process



EPOXY PREPREG, ADHESIVE, AND RESIN GUIDELINES AND HANDLING PROCEDURES

The following guidelines are provided to our customers to assure that best practices are used to attain the best results from NEXX Technology's epoxy products. Keep in mind that these procedures represent best practices for all composite prepreg and adhesive materials.

FREEZER STORAGE

Freezer storage is not required. It will not damage the product but is completely unnecessary. The product is designed to be kept on the shop floor at temperatures below 100°F (37°C) for over a year with no changes in properties, rheology or processing conditions.

MOISTURE ABSORPTION AND SENSITIVITY

While very resistant to moisture absorption after cure, epoxies can be adversely affected by moisture uptake prior to cure. Other materials may experience moisture buildup when they are removed from frozen storage. Fortunately, the Enduredge prepreg does not require freezer storage. It will always be ready for immediate use.

HANDLING MATERIALS

When handling any prepreg materials, always wear clean, powder-free latex gloves. This assures that no hand oils are transferred to the prepreg and/or composite during processing. The presence of oils in the part could lead to problems in both mechanical and electrical performance of the part. This also guards against dermatitis that may occur with some users.

USE OF HONEYCOMB AND FOAM CORE MATERIALS

When using nonmetallic honeycomb and foam core materials for sandwich structures, the materials should always be dried in an oven prior to lay-up to drive off any moisture that may be in the core. The core should be cooled in the presence of a desiccant to avoid moisture uptake. Following drying, it is always best to use the material as soon as possible. Recommended core dry time/temp: 121°C (250°F) for 3-4 hours.

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