

## 1. CHARACTERISTICS

Polyester resin **NORESTER® 056/113** is a white resin, filled, pre-accelerated or not pre-accelerated, thixotropic, low viscosity. It is chlorine and nitrogen free.

Laminates produced using the resin **NORESTER® 056/113** can meet the following fire testing standards with gel coat **GC 199**:

- **M2: Certificate n° 007/71/102A dated on 16 May 2017 with the gel coat GC 199 (following the norms NFF 16-101, NF P 92-501).**
- **F2: Certificate n° 007/71/102A dated on 16 May 2017 with the gel coat GC 199 (following the norms NFF 16-101, NF X 70-100 and NF X 10-702).**

Laminates produced using the resin **NORESTER® 056/113** can meet the following fire testing standards with gel coat **GC 186**:

- **M2: Certificate n° RE 1M 007/41/057A dated on 16<sup>th</sup> April 2012 with the gel coat GC 186 (following the norms NFF 16-101, NF P 92-501).**
- **F2: Certificate n° CE F 007/41/057A dated on 16<sup>th</sup> April 2012 with the gel coat GC 186 (following the norms NFF 16-101, NF X 70-100 and NF X 10-702).**

Laminates produced using the resin **NORESTER® 056/113** can meet the following fire testing standards with gel coat **GC 199**:

- **DS3D2 following the building norm NF EN 13501-1: 2007 + A1:2009. Tests realised following the norms EN ISO 11925-2: 2010 and EN 13823: 2010.**

Certificates 2014-Efectis –R000894, 000895, 000896, n° 2014428 dated November 2014.

Laminates produced using the resin **NORESTER® 056/113** can meet the following fire testing standards with gel coat **GC 885**:

- **CS3D0 following the building norm NF EN 13501-1: 2007 + A1:2009. Tests realised following the norms EN ISO 11925-2: 2010 and EN 13823: 2010.**

Certificates 2014-Efectis –R000846, 000847, 000848, n° 2014328 dated November 2014.

Laminates produced using the resin **NORESTER® 056/113** can meet the following fire testing standards:

- **V0: Certificate n° 7/19/125A dated on 26/05/04 (according to the norm NF EN 60695-11-10 or UL94).**
- **5VA: certificate n° 7/21/252 dated on 15/10/04 (according to the norm NF EN 60691-11-20 or UL94).**
- **Classed B2D3T2 with GC185 following the norms GOST 30402-96 and 12.1.044-89.**

## 2. PROPERTIES OF THE LIQUID RESIN

Aspect	White liquid
Brookfield viscosity (20°C – sp3 – ISO 2555)	50 rpm : 600 - 800 cP (PA and RTM version)
Specific gravity (ICON 012)	1,42 - 1,48 g/cm <sup>3</sup>
Geltime (ICON 002) (20°C – 2% MEKP on 100 g)	11 - 15 minutes (PA version)
Non volatile content (ICON 003)	69 - 71%

### IMPORTANT

*All of the results obtained according to trials in our laboratory. However, we don't be responsible of manufactured parts with the resin **NORESTER® 056/113**, if the application conditions specified are not respected.*

*It is imperative that the user must also ensure that his application and his process are appropriate for this product to be used. We hereby the conformity of our products with the above specifications. We cannot be responsible for any damage caused by misuse of this product or use of the product for an application not covered in the design.*

### 3. MECHANICAL PROPERTIES OF THE CURED RESIN

Flexural strength * (ISO 178)	235.1 MPa
Flexural modulus * (ISO 178)	8.30 GPa
Tensile strength * (ISO 527)	91.79 MPa
Elongation at break * (ISO 527)	6.64%
Temperature of deflection under load * (HDT) (ISO 75-3)	70°C
Barcol hardness * (ASTM 2583)	45 after 24 hours
Glass transition temperature* (NFT 51-223)	85.9°C

\*Mechanical tests realised on a laminate with 4 Mats 450 g/m<sup>2</sup>. Post cure: 3 hours at 80°C.

### 4. VERSIONS

Available in:

- Pre-accelerated version: **R056/113PA**.
- Non pre-accelerated version: **R056/113NPA** with a gel time of 12 - 16 minutes (20°C - 0.15% Co6% and 2% MEKP on 100 g).
- Long gel time version: **R056/113PA LGT** with a gel time of 30 - 40 minutes (20°C - 1.5% MEKP on 100 g).
- RTM version: **R056/113PARTM** with a gel time of 32 - 38 minutes (20°C - 2% Trigonox 44B on 100 g).
- Pre-accelerated, promoted and RTM version: **R056/113PAPRRTM** with a gel time of 16 - 20 minutes (20°C - 2% Trigonox 44B on 100 g).

### 5. RECOMMENDATIONS BEFORE USE

- During storage, a settling low of the charge may appear. Mix the product thoroughly before use so as to have a homogeneous mixture.
- Before use, check that the temperature of the product, the mould, and the room is between 18°C and 25°C.
- We recommend to add 2% of MEKP peroxide if the temperature conditions are optimal.
- **For NPA version, take care not to mix the accelerator and the peroxide together.**
- Never put less than 1% and more than 2,5% of MEKP.
- We draw your attention on the fact that the Norester® 056/113 is certified according to the certificates named above and tested on applications produced in our laboratory. It is the responsibility of the customer to assure that the parts he produces are well classified.

### 6. POST CURING

To obtain optimum resistance properties, the laminate with the **NORESTER® 056/113** must be post-curing. In order to accelerate the hardening, the laminate stays at ambient temperature (16 à 20 °C) during 24 hours followed a post-curing of 16 hours at 40°C. We advise to do a post-curing immediately after ripening period to obtain optimum results.

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## **7. PACKAGING**

Available in cans of 25 kg or in drums of 250 kg.

## **8. STORAGE CONDITIONS AND HANDLING**

Storage life : Resin **NORESTER® 056/113** (accelerated version) is stable for 3 months from date of production when stored in original closed packaging away from direct sunlight at a temperature between 15°C and 25°C.

It is the responsibility of the customer to assure that the product is used in good conditions overall before the date limitation mentioned on the keg.

This resin is subject to the Highly Flammable Liquids Regulation.

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