

EPOCYL™

CNT epoxy resin concentrates

EPOCYL™ 128-06

Epoxy resin – carbon nanotubes concentrates

General Information

Description

EPOCYL™ 128-06 is a masterbatch based on liquid Bisphenol-A (Bis-A) epoxy resin containing high concentration of Carbon Nanotubes (CNT) produced by Nanocyl. It is specifically developed to enhance the mechanical properties (especially delamination resistance) of final fiber reinforced composite materials. Feature easy integration and great flexibility in design of new multifunctional materials.

Key Applications

- Automotive (bumpers and other structural parts)
- Marine, especially sailing boats (structural outer shell in carbon fiber composite, masts and other generic structural parts)
- Industrial parts (rollers, doctor-blades and wind-mill blades)
- Sporting equipment (bike frames, hockey sticks, tennis rackets, skis and golf shafts)

Benefits

- **Main direct advantages (demonstrated in specific final formulation)**
 - Improved fracture toughness initiation (G1C)
 - No reduction of the Tg
- **Additional advantages in general**
 - Better thermal dissipation: avoids hot-spots during curing, more homogenous temperature
 - Better surface finishing: avoids surface defects
 - Better thermal cycle resistance

Typical properties of EPOCYL™ 128-06

Aspect@25°C:	Paste, black (Master Batch)
Viscosity @ 25°C:	1000 ± 100 Pa.s
Epoxy Value:	4.34 – 4.5 eq/kg
Epoxy Equivalent:	234 – 240 g/eq
Density at 25°C:	1.1 g/ml
Storage temperature:	5 – 40 °C

Curing agents

EPOCYL™ 128-06 can be cured or cross-linked with different types of curing agents depending on the properties desired in the final composite.

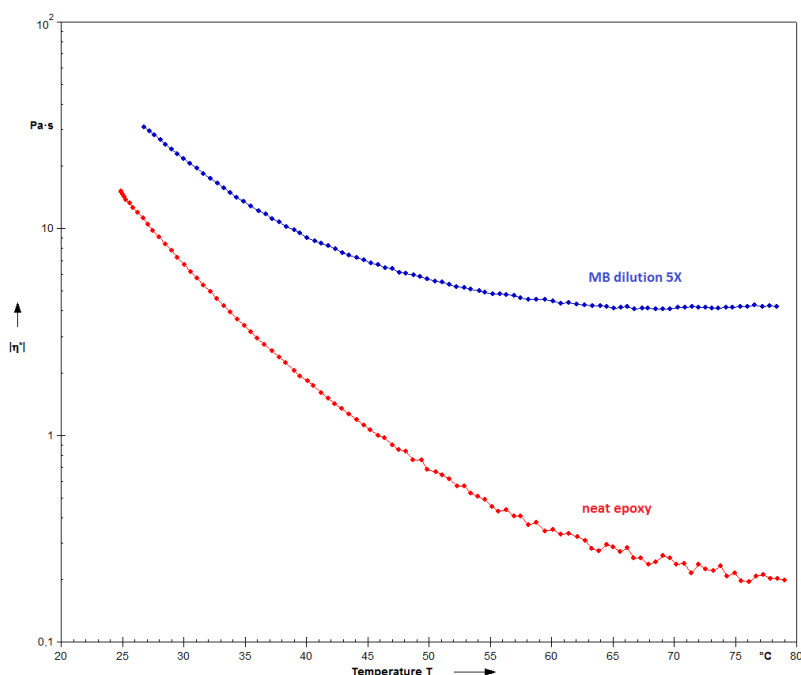
Any curing agents based on dicyandiamide are the preferred ones to be used in combination with EPOCYL™ 128-06.

Processing conditions in pure hot-melt conditions (solvent free)

Dilution of EPOCYL™ 128-06

Firstly, the resin EPOCYL™ 128-06 needs to be heated up to a temperature between 60 and 80 °C to decrease its viscosity. To achieve high mechanical performances, Nanocyl advises to dilute EPOCYL™ 128-06 six times with neat resin. Time, temperature and speed of the mixing may need to be adapted to reach a final homogenous mix.

A viscosity profile of EPOCYL™ 128-06 (after diluting six times with neat liquid Bis-A resin versus neat liquid Bis-A) is shown below:



Mixing condition with hardener

Hardener must be added accordingly to your conventional processing conditions.

The amount of hardener required will depend on the final epoxy equivalent weight (EEW) of the formulation

The mixing could be done at elevated temperature between 60-80°C in order to homogenize the mixture during stirring. Time, temperature and speed of the mixing may need to be adapted to reach a final homogenous mix.

All common mixers equipment available in any pre-preg and composite facilities are good to achieve a good and homogeneous mixture.

Further processing (coating, fiber impregnation...) must be made according to your conventional processing conditions taking in account viscosity profile and curing temperature. Curing conditions must be adapted to final formulation.

IMPORTANT: EPOCYL™ 128-06 IS DESIGNED TO BE USED EITHER WITHOUT SOLVENT OR WITH MEK SOLVENT.

Commercial/Safety Information

Packaging

EPOCYL™ 128-06 concentrate is available in metallic drum.

Minimum Order of Quantity

Nanocyl's minimum order of quantity for EPOCYL™ 128-06 is 25 kg.

Health and Safety

A Material Safety Data Sheets (MSDS) is available to provide both workers and emergency personnel with the proper procedures for handling or working with the EPOCYL™ 128-06. This MSDS includes information such as physical data (form and color, melting point, etc.), handling and storage recommendations, first aid measures and ecological information. The Safety Data Sheet is provided with any order and should be observed.

Disclaimer

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