

EPOCYL™

CNT epoxy resin concentrates

EPOCYL™ 128-05

Epoxy resin – carbon nanotubes concentrates

General Information

Description

EPOCYL™ 128-05 is a Master Batch based on liquid Bisphenol-A (Bis-A) epoxy resin containing high concentration of Carbon Nanotubes (CNT) produced by Nanocyl. It is specifically developed for solvent based formulations to enhance the electrical conductivity of final epoxy formulations. Special features include easy integration and great flexibility in processing. Dilution factor has to be calculated accordingly to the desired level of conductivity.

Key applications

- Electrostatic discharge (ESD) coatings, linings (tanks, rollers, ...) and composites
- Conductive primers
- Resistive inks
- Adhesives for dissimilar materials in electronics

Benefits

- Limited impact on base resin mechanical and thermo-mechanical properties
- Ease of formulation
- Lead-free alternative

Typical properties of EPOCYL™ 128-05

PROPERTIES	UNITS	VALUE
Aspect	-	Paste, black
Viscosity at 25°C	Pa.s	Can be poured at room temp.
Epoxy value	eq/kg	4.97-5.18
Epoxy equivalent	g/eq	193-201
Density at 25°C	g/ml	1.15-1.20
Storage temperature	°C	5-40

Electrical percolation

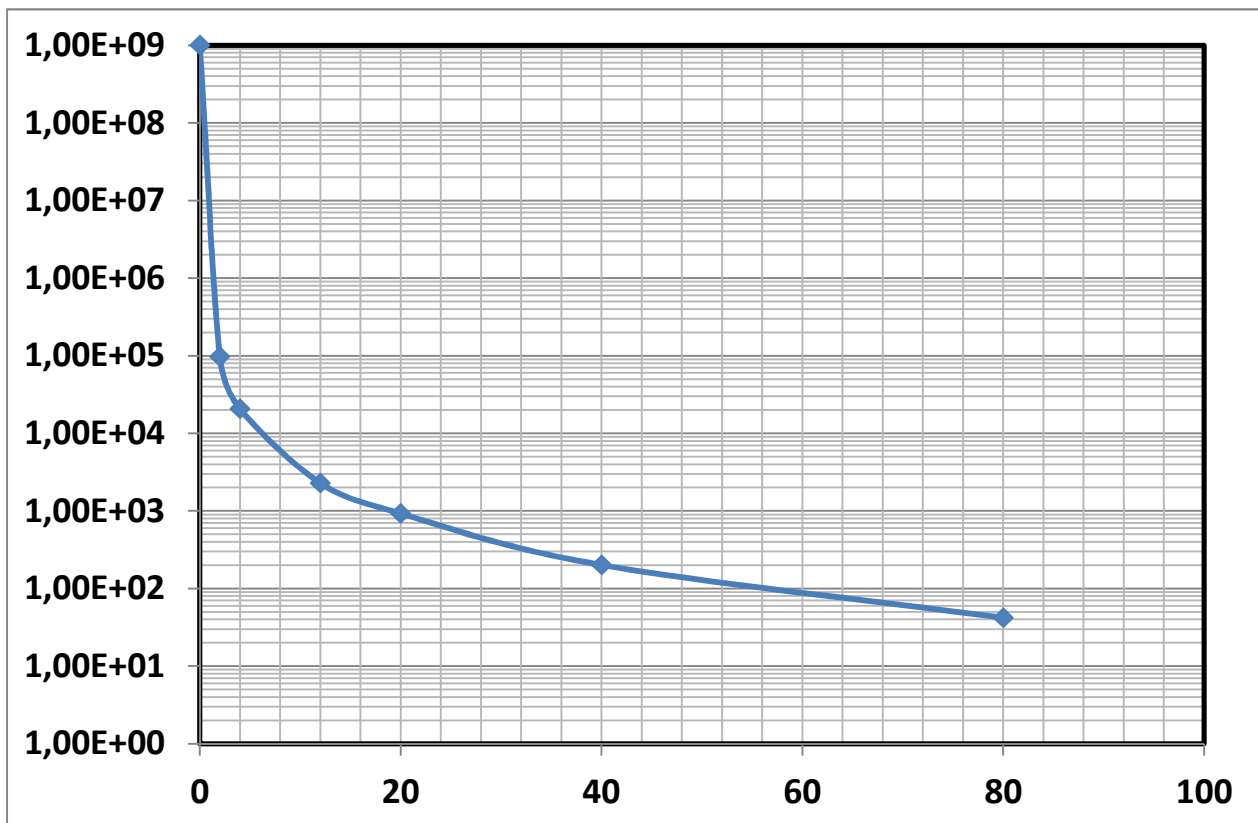


Figure 1. Resistivity (ohm.cm) Vs. Parts of 128-05 in the final compound (100 parts in total). Properties measured on cast films.

Curing agents

EPOCYL™ 128-05 based formulations can be cured or cross-linked with different types of curing agents which could be decided accordingly to the desired processing conditions and the properties of the final composite like any conventional Bis-A based formulations.

General processing guidelines

Guide to processing and to create a formulation based on EPOCYL™ 128-05

To achieve the required level of conductivity, it is recommended to observe the ratios described in fig.1. Number of parts of masterbatch is in these curves expressed in function of the final resin formulation (resin & hardener).

For example: [EPOCYL™ 128-05 (17 parts)] + [Neat resin + hardener + other additives (83 parts)].

Mixing conditions

The Master Batch EPOCYL™ 128-05 is recommended to pre-mix (eventually increasing the temperature between 45 and 60°C to reduce its viscosity) before start introducing it into any formulation.

First, prepare a good premix of your neat resin with additives and the required amount of solvent. Then, add the required amount of the Master Batch EPOCYL™ 128-05 with a continuous mixing. After this step, if needed, you can further adjust the viscosity by adding more solvent in the mixture with a continuous mixing process. Time, temperature and speed of the mixing may need to be adapted to obtain a final homogenous mixture. All common equipments available in any resin formulation, pre-preg and composite facilities are good to achieve a good and homogeneous mixture.

Hardener must be added accordingly to your conventional processing conditions. The amount of hardener required will depend on the final epoxy equivalent weight (EEQ) of the formulation.

Commercial/Safety Information

Packaging

EPOCYL™ 128-05 concentrate is available in metallic drum.

Minimum Order Quantity

Nanocyl's minimum order quantity for EPOCYL™ 128-05 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™ 128-05. 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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