Technical Data Sheet TX-E2

TX-E2 is a single-walled carbon nanotube (SWCNT) pre-dispersed concentrated material independently developed and produced by Shandong Carbon Search. It can be diluted and directly added to various resin systems for use.

This product uses fatty acid glycidyl ester as a carrier and is mainly used as a conductive and antistatic modifying additive for solvent-free epoxy coatings. At an appropriate dosage, it will not adversely affect the color or mechanical properties of the epoxy substrate, and can impart stable conductive/antistatic performance to the system while having little effect on the rheological properties of the matrix.

Product Specification Parameters

Index	Measured values
Appearance	Black paste
SWCNT Content(wt%)	10.0
Main Components	Reactive epoxy ester
Volume Resistivity(Ω· cm)	10^3
SWCNT Diameter(nm)	1.6±0.5
GD Ratio	>90
Dosage(wt%)	0.2-1.0
Moisture(wt%)	<1

Note: The above are typical laboratory test values, and reasonable process fluctuations may exist between different batches of the product.

Core physicochemical & electrical properties

- Conductive properties: Single-walled carbon nanotubes form a continuous conductive network, providing durable and stable conductivity unaffected by ambient humidity, unlike traditional ionic antistatic additives.
- Adjustable resistance range: By adjusting TX-E2 dosage, surface resistance can be tuned across a wide range of 10^4 ~ 10^{11} Ω/sq, covering conductive, static dissipative, and antistatic requirements.
- Rheology: Minimal change in epoxy resin viscosity and density, with good compatibility with existing production processes.
- Mechanics: Mechanical strength of the epoxy composite is maintained, with slight improvement in some formulations.
- Color: Enables light-colored and colored epoxy products, overcoming the limitation of carbon black conductive fillers to black products only.

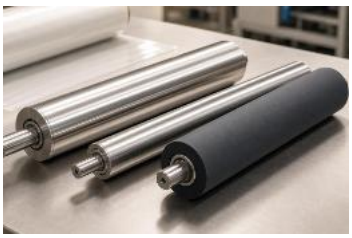
Key advantages

- Wide-range static control: Carbon nanotubes form a uniform conductive network for durable, stable antistatic and conductive performance.
- Mechanical-friendly: Maintains substrate mechanical properties, with possible gains in some formulations.
- Color-compatible: No blackening, enabling light-colored and colored epoxy products.
- Process-compatible: Pre-dispersed concentrate, no complex pretreatment, directly compatible with existing epoxy processes.
- Low-disruption: Minimal impact on resin viscosity and density, reducing formulation adjustments.

Typical applications



Antistatic epoxy flooring



Printing roller



Fiberglass-reinforced cable tray



Fiberglass-reinforced epoxy pipe



Flammable material storage tank



Antistatic polyester film coating