



TUBALL™

MATRIX

201

TECHNICAL DATA SHEET

CONCENTRATE FOR EPOXY RESINS

TUBALL™ MATRIX 201 is a concentrate based on TUBALL™ graphene nanotubes specifically designed to provide superior electrical conductivity to solvent-free epoxy systems while retaining mechanical properties and minimally impacting the host matrix. TUBALL™ MATRIX 201 is available in flakes with a pasty texture form.

TUBALL™ is a unique graphene nanotube additive from OCSiAl that provides electrical conductivity at ultra-low dosage with minimal impact on the rheological and mechanical properties of the host matrix.

APPLICATIONS

- Anti-static flooring;
- Composite anti-static pipes;
- Electrostatic dissipative composite materials;
- Other applications where electrical conductivity is required.

BENEFITS

- TUBALL™ MATRIX only requires an ultra-low dosage starting from just 0.1 wt.%;
- Allows production of conductive parts that retain bright colors;
- Maintains or even increases mechanical strength;
- Ensures permanent and uniform electrical conductivity without “hot spots”;
- Without a significant increase in viscosity or density of the host material.

PROPERTIES

CONCENTRATE CARRIER		ETHOXYLATED ALCOHOL
PROPERTY	TEST METHOD	VALUE
Epoxide equivalent weight	ASTM D1652	261–271 g/mol
Density*	—	1.054 g/cm ³

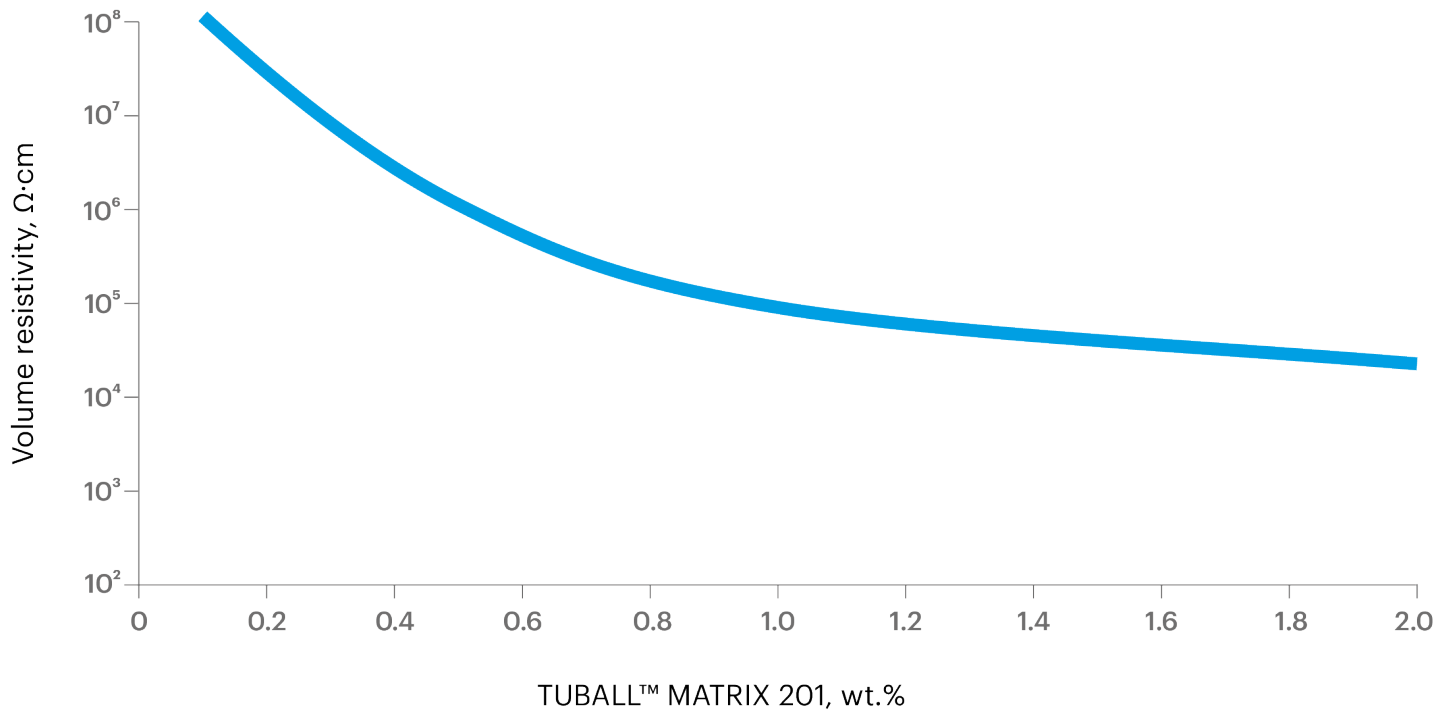
*calculated values based on measurements of individual components

TUBALL™ MATRIX 201 may contain particles up to 500 µm in size; the mass concentration of such inclusions does not exceed 0.04%.

TYPICAL ADDITION RATE

Depending on the characteristics of the dilution polymer and the processing conditions, the loading range of TUBALL™ MATRIX 201 for anti-static or dissipative applications can be as low as 0.1–4.0 wt.%. The exact loading level depends on the required performance, resin characteristics, processing conditions and presence of other ingredients.

An example of a percolation curve, obtained by compounding TUBALL™ MATRIX 201 in D.E.R. 351 epoxy resin, is shown in the figure below. The dilution of the concentrate in neat D.E.R. 351 was performed using a mechanical overhead stirrer.



DILUTION

In order to obtain a high-quality TUBALL™ MATRIX dispersion, OCSiAl recommends that close attention be paid to the dilution procedure. Refer to the Processing Guidelines for detailed information.

PACKAGING

OCSiAl provides TUBALL™ MATRIX 201 samples in plastic containers (50 g concentrate). Industrial volumes are available in different packaging up to 50 kg.

STORAGE AND TRANSPORTATION

The product is stable in unopened original packaging when stored at temperatures between 5°C and 50°C. The recommended storage life is up to 24 months when stored as directed.

SAFETY

To ensure safe handling, the appropriate safety regulations should be observed. OCSiAl recommends that every user should be able to apply the safe handling procedures necessary for the user's applications before any handling or manufacturing takes place. A Safety Data Sheet outlining the hazards and handling methods for TUBALL™ MATRIX 201 is available.

WARRANTIES AND DISCLAIMER

The Products correspond to the chemical composition indicated in the Technical Data Sheet and the Safety Data Sheet supplied with the Product. The information contained in this document (Information) is based on trials carried out by OCSiAl and may contain inaccuracies or errors that could cause injury, loss or damage.

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