TUBALL™ MATRIX 208

CONCENTRATE FOR EPOXY AND POLYURETHANE RESINS

TUBALL™ MATRIX 208 is a concentrate based on TUBALL™ single wall carbon nanotubes specifically designed to provide superior electrical conductivity to **solvent-based epoxy** and **solvent-based polyurethane systems** while retaining mechanical properties and minimally impacting the host matrix. TUBALL™ MATRIX 208 is available in flakes with a pasty texture form.

TUBALL™ is a unique single wall carbon 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

- Conductive primers;
- Electrostatic dissipative coatings;
- 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 colours;
- 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

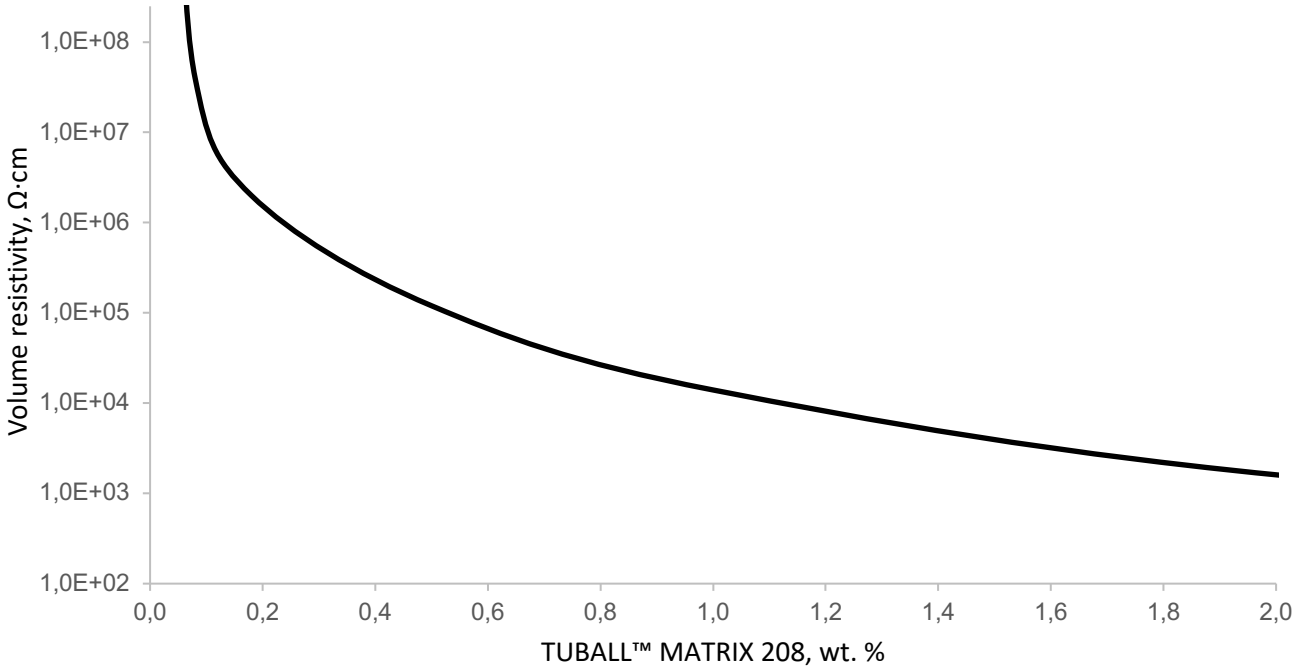
Concentrate carrier	Blend of alkyl glycidyl ether and ammonium salt of polyolefin-based derivatives	
Property	Test method	Value
Epoxide equivalent weight	ASTM D1652	357-370 g/mol
Density at 25°C	ASTM D4052	1.06 g/ml

TUBALL™ MATRIX 208 may contain metal 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 208 for anti-static or dissipative applications can be as low as 0.1–4.0 wt.% calculated based on non-volatile matter. 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 208 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. This plot is for a solvent-free system, but it can be used for solvent-based systems, for which it is necessary to recalculate the TUBALL™ MATRIX 208 concentration based on non-volatile matter.



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 208 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 Material Safety Data Sheet outlining the hazards and handling methods for TUBALL™ MATRIX 208 is available.

Warranties and disclaimer

The Products correspond to the chemical composition indicated in the Technical Data Sheet and the Material 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.

OCSiAl gives no further warranty and makes no further representation regarding the Products and/or the accuracy of Information and/or suggestions for any particular use of the Products or Information, or that suggested use will not infringe any patent. The Products and Information are supplied on an "as is" basis. These express provisions are in place for all warranties, representations, conditions, terms, undertakings and obligations implied by statute, common law, custom, trade usage, course of dealing or otherwise (including implied undertakings of satisfactory quality, conformity with description, fitness for purpose and reasonable skill and care), all of which are hereby excluded to the maximum extent permitted by applicable law.

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