



# TUBALL™

# LATEX

Code 18HO16

## TECHNICAL DATA SHEET

### SUSPENSION FOR LATEX APPLICATIONS

TUBALL™ LATEX H<sub>2</sub>O is a suspension based on TUBALL™ graphene nanotubes produced by OCSiAl. TUBALL™ graphene nanotubes are a unique additive that provides electrical conductivity at low dosages (as low as 0.05%) not achievable with any standard conductive additive.

TUBALL™ graphene nanotubes provide an anti-static effect to latex gloves that allows smooth operation of touchscreens without the gloves having to be removed, which ensures worker and product protection.

TUBALL™ LATEX H<sub>2</sub>O makes it possible to achieve permanent, humidity-independent conductivity in full compliance with the new standard EN 16350:2014.

Water-based suspension with high-quality dispersions of graphene nanotubes and latex-friendly chemicals allow these gloves to use standard liners without conductive yarns and to keep the same dipping process and formulation.

The suspension can be added during the latex compounding stage and does not affect the manufacturing process.

Please pay close attention to the processing guidelines for TUBALL™ LATEX H<sub>2</sub>O for production of anti-static natural/synthetic latex compounds and ensure that the suspension is stirred vigorously before use.

### SUSPENSION COMPOSITION

TUBALL™ graphene nanotubes	0.5 %
Water	97 %
Sodium salt of polynaphthalene sulphonic acid	2.5 %

### TYPICAL PROPERTIES

Appearance	Black colored liquid
pH	8.3 –11
Optical absorption*, 500 nm	≥ 0.45
Density	~1 g/cm <sup>3</sup>

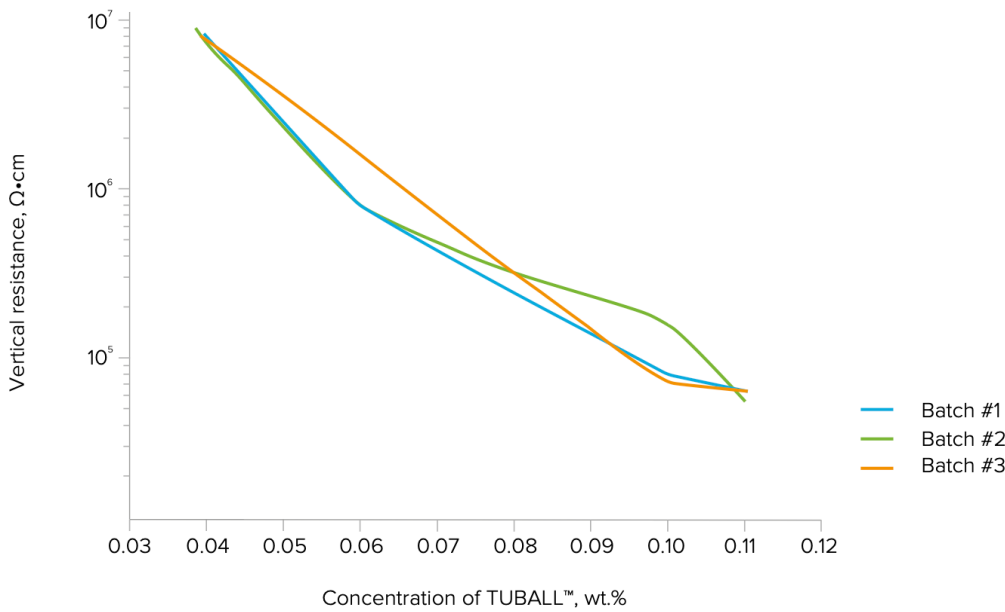
\* Measurements at a concentration of 0.001 wt.% and an optical length of 10 mm.

### Typical dosage level

The concentration of TUBALL™ LATEX H<sub>2</sub>O that is required in the final compound should be determined according to the desired level of resistivity, as shown in Figure 1.

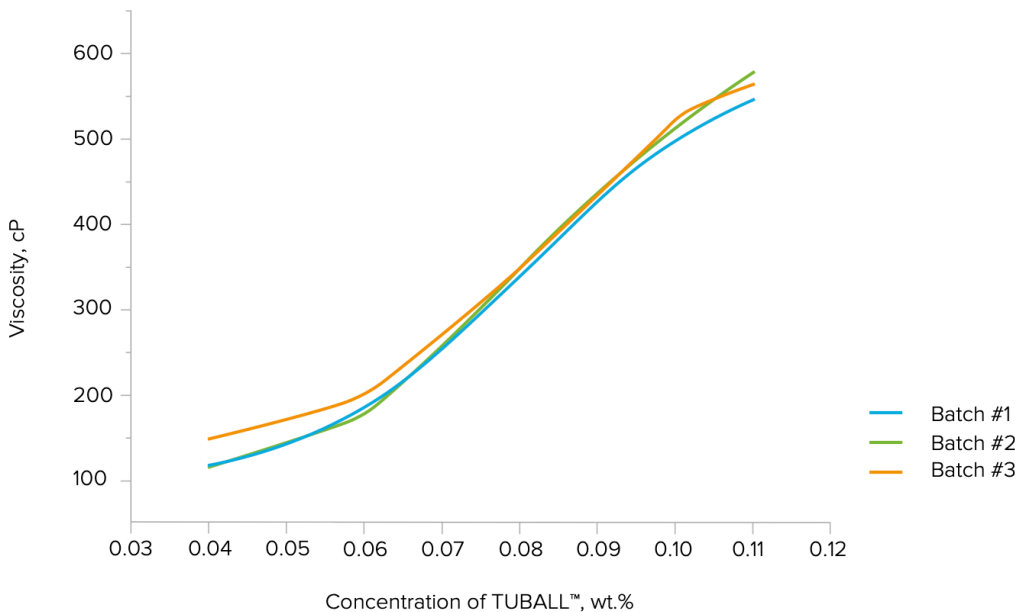
To determine the optimal dosage of TUBALL™ LATEX H<sub>2</sub>O in a latex compound, it is recommended to test with TUBALL™ content in the range of 0.04–0.07 wt.% to latex solid content.

**Figure 1.** Dependence of resistance\* on the concentration of TUBALL™ (3 batches of TUBALL™ LATEX H<sub>2</sub>O tested).



\* Measurement of electrical resistivity according to EN 16350:2014 carried out on teraohmmeter: TO-3 cable; Electrode type – TE 50 for textile measurement (DIN 54345-1, DIN EN 1149-1 and DIN EN 1149-2).

**Figure 2.** Dependence of latex compound viscosity on the concentration of TUBALL™ (3 batches of TUBALL™ LATEX H<sub>2</sub>O tested).



## PACKAGING

Plastic containers/barrels (1, 5, 10, 20, 200 liters). OCSiAl provides TUBALL™ LATEX H<sub>2</sub>O test samples in plastic containers (1 liter), on the condition that the recipient agrees to disclose test results to OCSiAl.

## STORAGE AND TRANSPORTATION

The product is stable in its unopened original packaging when stored at a temperature condition + 5 to + 50 °C. The recommended storage life is up to 18 months when stored as directed.

Once opened container should be tightly closed until the product used. The recommended storage time of opened containers is 72 hours.

## 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™ LATEX H<sub>2</sub>O 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.

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.

## PLACE OF PRODUCTION

China, Malaysia, Sri Lanka

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