GXT-INK

PRODUCT DESCRIPTION

GXT-INK is a highly concentrated suspension of graphene in water. The suspended graphene is produced by chemical exfoliation of graphite using a proprietary exfoliating agent.
The high-quality graphene is produced using a very low amount of exfoliation agent, below 1% wt., yielding graphene flakes with lateral dimensions below 1 micron.
No oxidation processes are involved in the production of **GXT-INK**, giving to this product the excellent electronic and mechanical properties of graphene.
With **GXT-INK** is possible to print conductive circuits with various technologies on wide range of substrate: polymer, paper, metals , glass, etc..
A volume resistivity below 4 ohm/sq/mil can be reach depending on the substrate, printed technology and amount of printed material.

APPLICATION

Printing of conductive pattern or coating, ESD/EMI coating, chemical and mechanical sensors, electrodes, smart coating, protective coating, resistive circuit, system to monitoring structure stress or failure, antenna, resistance, short conductive trace, substrate for biomolecule.

TECHNICAL SPECIFICATION

- Appearance: liquid
- Colour: black
- Odour: typical
- Density, at 25°C: 980 kg/m^3 [ASTM D-1298]
- Graphene concentration [% p/p]: 1%
- pH: 7±0,5
- Average flake size: 80 nm (~65% monolayer)
- Max flake size: 3 µm
- Maximum working temperature: 300°C

APPLICATION INSTRUCTIONS

Deposition

The GXT-INK suspension should be used as water dispersion; it can be applied with all technique suitable for extremely low viscosity solution. Dip coating, spray coating, brush, roll to roll technique are suitable as long as they do not exceed the amount of material deposited, we do suggest to remain below 12 micron of wet suspension deposited.
Printing technologies are suitable only for large nozzle diameter, the printing capability depend on the type of head print and as to be tested in advance in order to prevent clogging and printing problem.

Drying

Drying step can be performed with hot air, IR, and any other technique suitable to remove the water. We do suggest fast drying in order to improve the quality of the deposition.

Fixation

A fixation is suggested in most of the substrate, it can be done with most of the commercial solvent: acetone, ethanol, methanol, isopropyl alcohol, ethyl acetate, etc.. Please choose the solvent based on the substrate compatibility. The solvent should be removed from the surface before its evaporation; this will guarantee the removal of suspending agent used to maintain the graphene in dispersion. In case of lines, stripes or area without graphene use higher purity solvent or improve the solvent removal process after washing step.

Cleaning

A cleaning step can be optionally done in order to remove the excess of suspending agent from the graphene surface. Cleaning can be done with paper, cotton, fabrics, napkins, etc.. While graphene is already attached, the conductivity is masked by the residual of suspending agent not completely removed by solvent, which remain in the surface; a cleaning step will allow to remove the residual suspending agent and enhance the graphene electrical conductivity.

Please refer to our YouTube channel for usage example: https://www.youtube.com/c/Graphenext

STORAGE

Store at room temperature preferably not above 25°C to avoid graphene separation. In case of graphene separation, proceed with 1h stirring or sonication in order to form a stable suspension.
Do not add any chemicals to the suspension and use clean container to handle the solution otherwise a irreversible separation will occur.
Shake vigorously for at least 10 min before using.

PACKAGING

Plastic container of 100 ml or 1 Lt.

Via D'Azeglio 15
40123 Bologna
Italy
VAT n:03583971209

SAFETY

Please carefully read the MSDS before use **GXT-INK**. Graphene-XT ink product it is not dangerous, corrosive or toxic, it is anyway a suspension containing a relatively new nanomaterials and should be used with a good industrial practice for nanomaterials handling.
We strongly recommend to avoid breathing aerosol generated from the **GXT-INK** solution and to prevent powder formation by drying **GXT-INK**. It is highly recommended to follow the EU indication for the risks from the manufacturing and use of nanomaterials:**https://ec.europa.eu/environment/chemicals/nanotech/**

IMPORTANT NOTE

The data contained in this document are based on our current knowledge and experience. The reported data are typical values obtained in the laboratory and are not to be considered as a guarantee, in consideration of the numerous factors that can affect the process and application of our product. These data do not relieve users from carrying out their own preventive tests; Graphene-XT cannot be responsible for the results obtained with our products and for any damage or accident that may arise from their use. The quality of the product is given exclusively by the declarations contained in the product specifications.