

GNext XT Ink Technical data sheet

Highly concentrated quality graphene in aqueous solution.

Description:

GNext XT Ink is a highly concentrated suspension of graphene in water with a concentration around 20 mg/ml. The suspended graphene is produced by chemical exfoliation of graphite using a proprietary exfoliating agent.



GNext XT Ink.

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 GNext XTInk, giving to this product the excellent electronic and mechanical properties of graphene.

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With GNext XTInk you can print complex and personalized conductive circuits with various technologies on wide range of substrate: polymer sheets, paper, metals and even bioplastic.

A volume resistivity below 4 ohm/sq/mil can be reach depending on the substrate and printed technology.

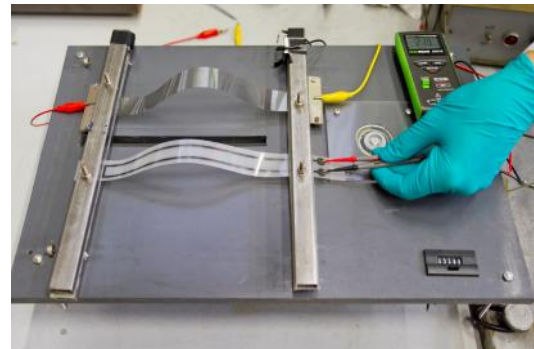
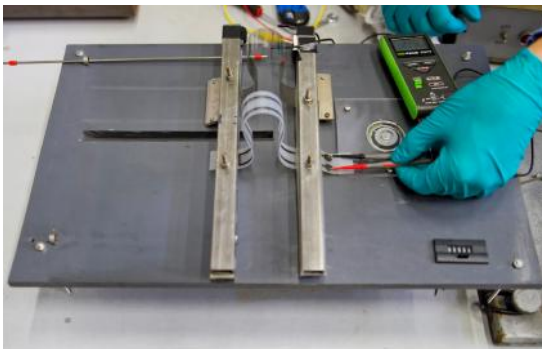


Inkjet and rotogravure printing of GNext XTInk on PET.

Sensors for smart coating or protection, e.g. system to monitoring structure stress or failure, can be printed on various substrate. Printed material can be coupled with wide range of polymer film without any effects on electrical performance.

We can easily print antenna on flexible transparent film based on your need.

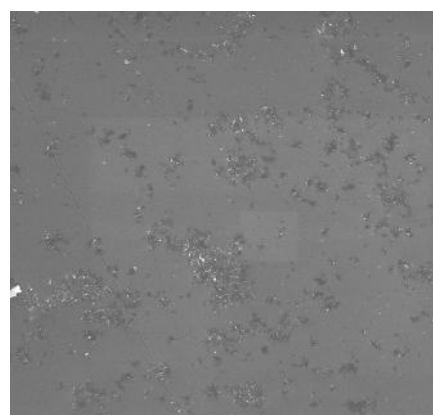
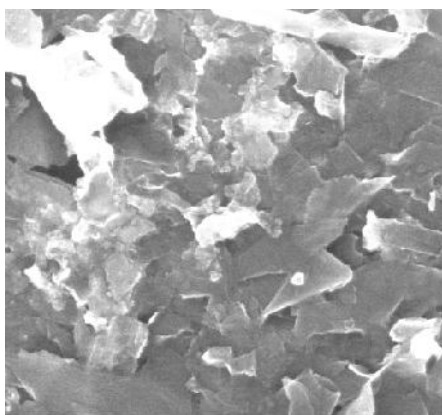
Our printed material remain stable for extremely long time, a proprietary fatigue bending test last for more than 50.000 cycle without any performance variation.



Fatigue test on printed sensor on PET, sheet resistance measure before (left) and after (right) more than 50.000 cycles.

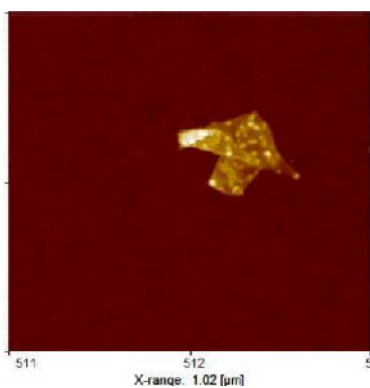
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Technical features:

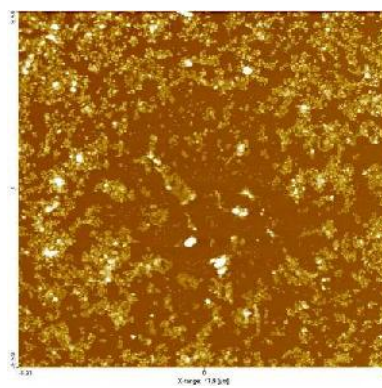


SEM image of spin coated GNext XTInk on silicon.

AFM images of GNext XTInk spin coated on silicon oxide substrate.



1 x 1 Micron

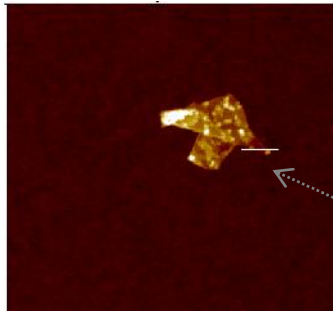


18 x 18 Micron

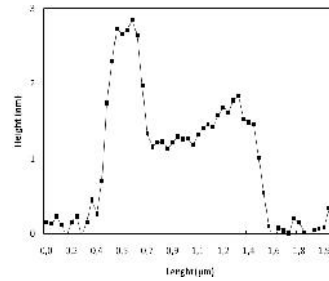
The monolayer thickness measured by AFM is between 1-3 nm as function of the sample preparation methodology.

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AFM images and profile of GNext XTInk spin coated on silicon oxide substrate

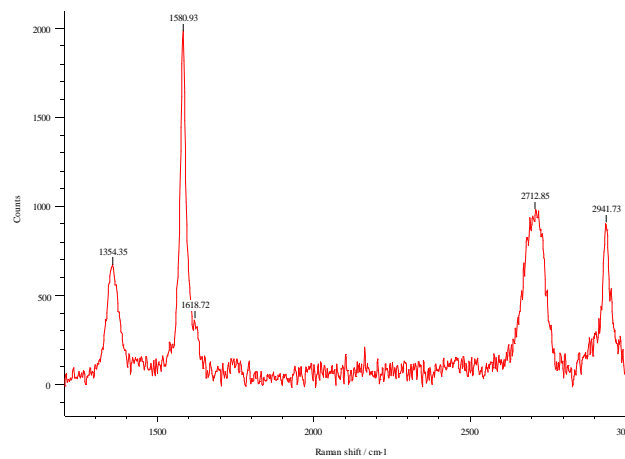


1 x 1 Micron



1.2 nm flake thickness height profile

Raman at 514 nm laser (green).



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	Value	Method	Note
Monolayers	~65%	AFM	
Bi-layers	~20%	AFM	
Few-layers	~10%	AFM	
Thick flakes	≤5%	AFM	Thickness >20 nm
Average flake lateral dimension	80 nm	AFM	
Volume resistivity	~4 ohm/sq/mil		Calculated from 100 nm thickness.
pH	Neutral		
Exfoliation agent	<1% wt.		

This data sheet briefly describes and gives typical data for some of the basic properties of GNext XTInk. It is emphasized that all data in this publication have been obtained from laboratory tests on representative samples. Thus, although the values are typical, they are for very general guidance and must not be used as a basis for specifications.

Sample should be stored dry and away from direct sources of heat. More detailed information and advice on individual products may be obtained from the Sales Contacts.

Information contained in this publication, and otherwise supplied to users, are based on our general experience and are given in good faith, but we are unable to accept responsibility in respect of factors which are outside our knowledge or control.

Is the responsibility of the customer to ensure that the use complies with all relevant regulations. GNext grades should be use for research purpose.