

Graphene Ink with
High Conductivity

Fast Drying, Eco-
Friendly and
Chemically Stable

Good for Printed,
Flexible
Electronics

Water and Solvent
Based Inks

Large Quantities
Available

NANOTECH GRAPHENE INK

High Quality Graphene Inks for a Variety of Applications

Nanotech Energy provides a highly conductive, cost-effective and environmentally friendly custom-made graphene inks.

NANOTECH ENERGY

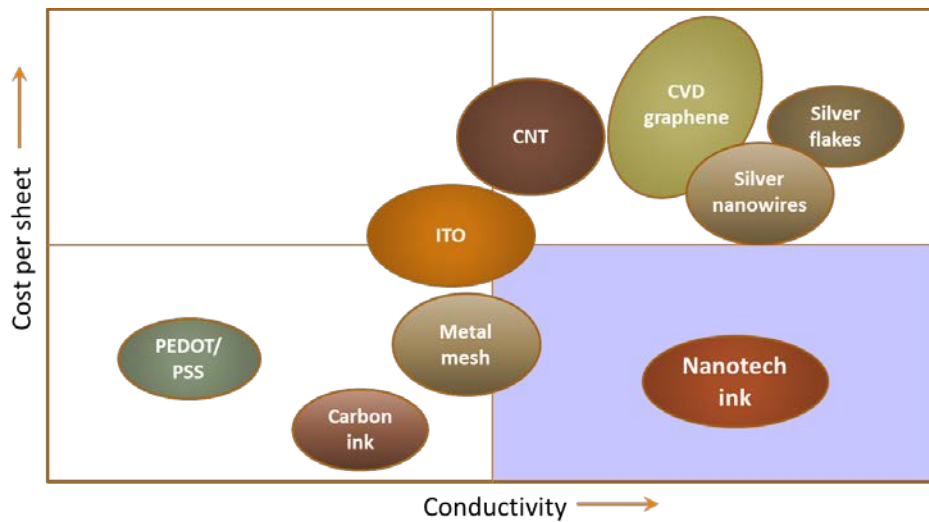
12100 Wilshire Blvd
Suite 800, Los Angeles
CA 90025

(310) 806-9202

www.nanotechenergy.com

info@nanotechenergy.com





Product data

Data	Measurent	Unit
Visual	Black	NA
Appearance	Thick liquid	NA
Viscosity	2300-2400	mPa.s (cps)
Density	1.01 @20°C	g/cm ³
Solid content	5.5	(w/w)%

Electrical Properties of Coated Films

Data	Measurent	Notes
Sheet resistance	<32 ohm/sq/mil*	Measured with 2 point probe at dry coating thickness of 14.4 um
Mechanical properties	Compression (concave) bending	By creasing at 180 degrees (2 mm bend radius) and straightning the film back to the original flat state,only -0.1 % change in resistance was observed.
	Tension (Convex) bending	Crease at 180 degrees (1.75 mm bend radius) causes +0.74 % increase in resistance
Stability	-1.3 % change in resistance after 1000 bending cycles	Measured by bending the films (compression) back and forth at 10 mm radius for 1000 cycles
Curing conditions	temperature of 80 degree celcius	Takes 3-5 minutes

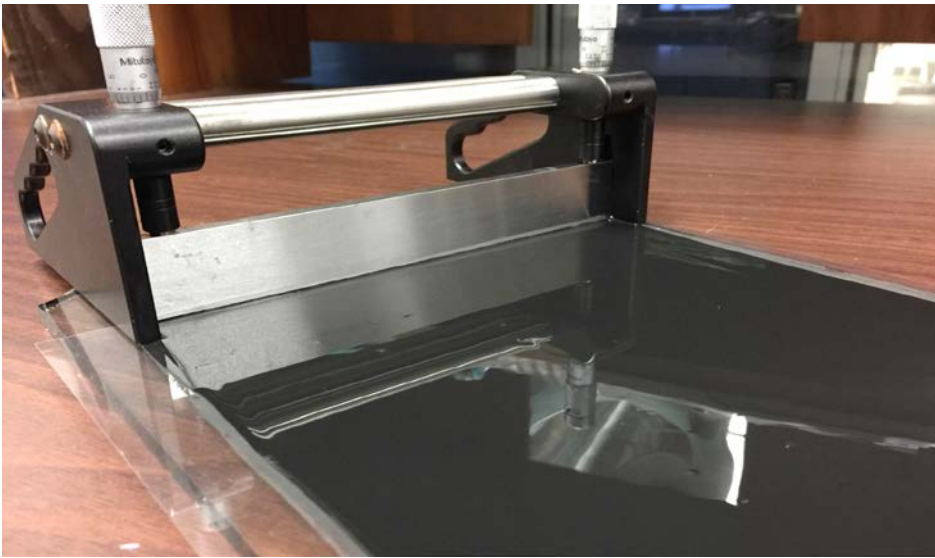
* 1 mil = 25 microns

Nanotech Offers Powerful Solution for Cost-Effective Conductive Coatings

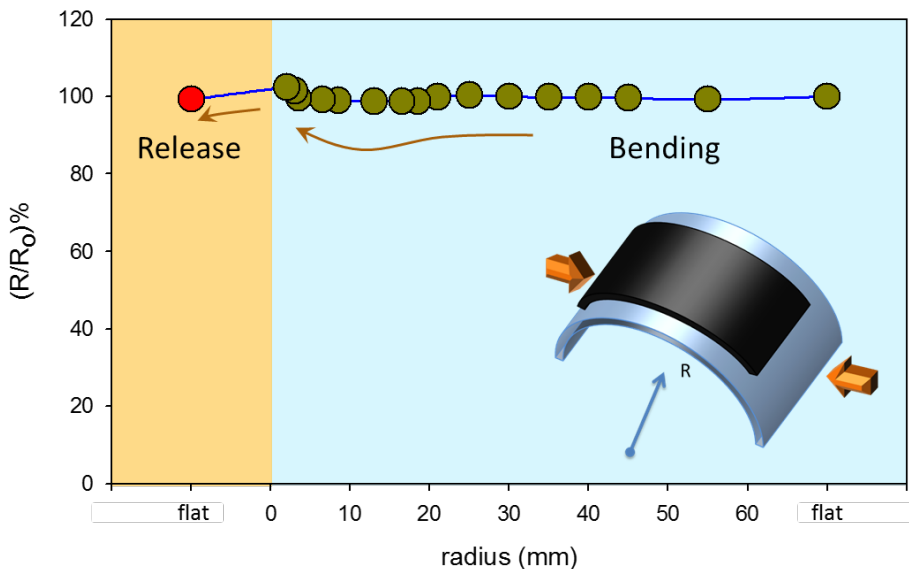
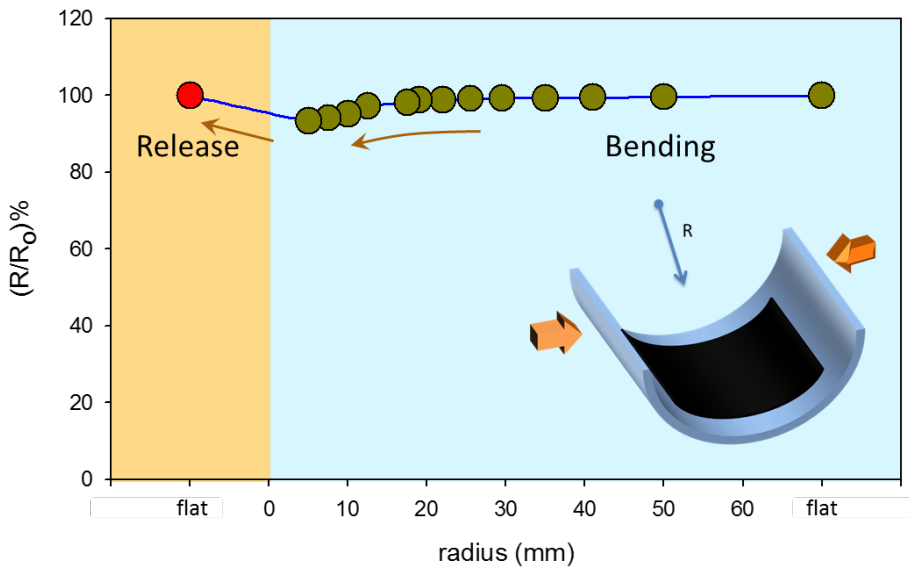
Good for Wide Range of Applications

Inkjet Printing
Screen Printing
Printed Circuit Boards
RFID
Smart Fabrics
Conductive Coatings
Gravure Printing
Flexographic Printing
Battery & Supercapacitors
Electrodes
EMI Shielding
Printed Transistors, Memory, Sensors and Large Area Heaters





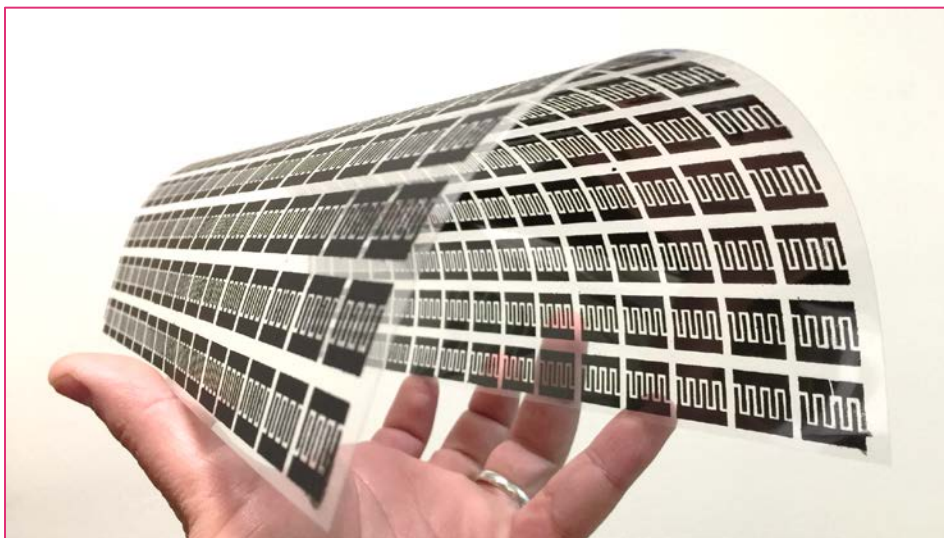
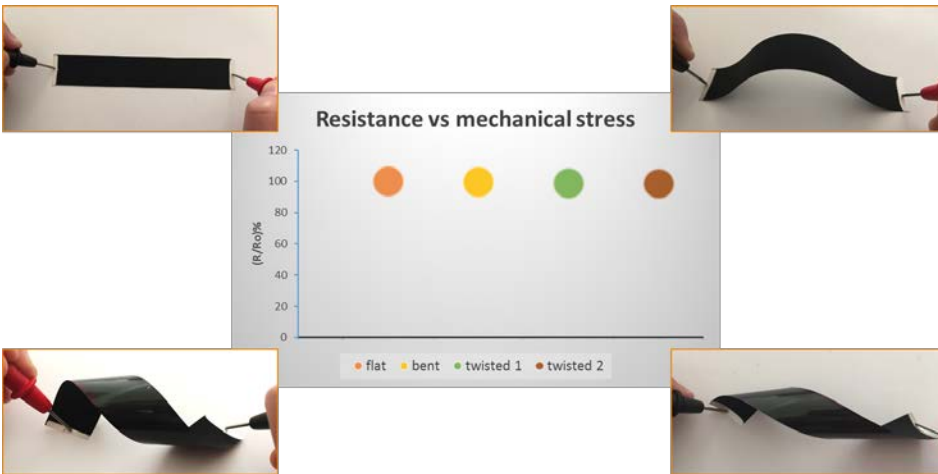
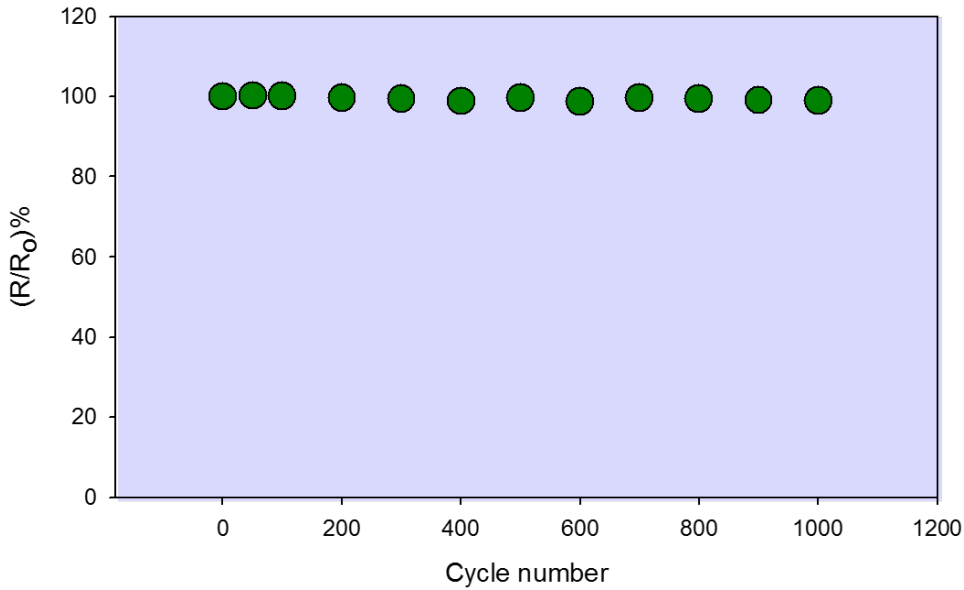
Ink Can Be Processed Into Large Area Films on Rigid and Flexible Substrates Using Doctor Blade Technique



While there is a slight change in resistance under extreme bending (radius of curvature = 1.75 mm), the change is completely reversible when the sheet is returned to the flat state.

Films Demonstrate Excellent Electrical Properties

... And Mechanical Properties



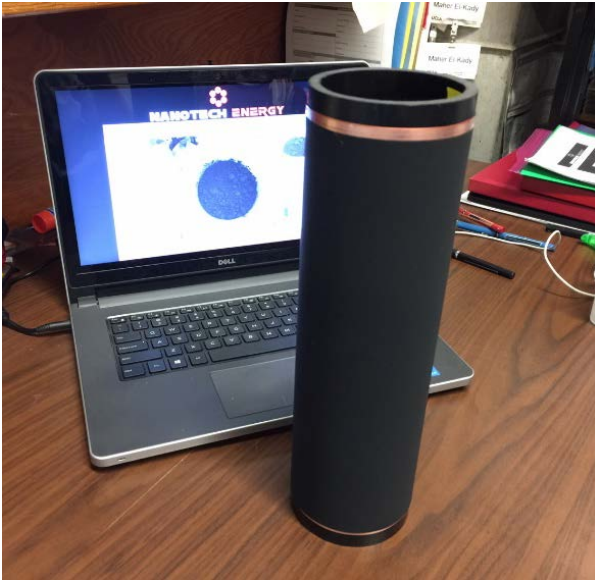
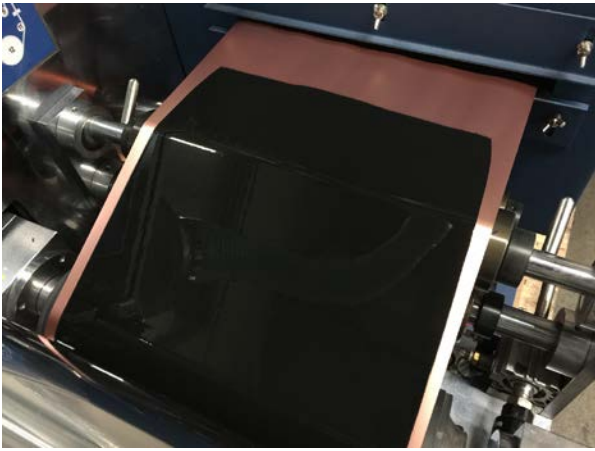
The electrodes are flexible, foldable and twistable and can be used directly as supercapacitors electrodes. Another interesting application for these electrodes is in lithium ion batteries where they can be utilized as the battery anodes or current collectors.



Excellent
Mechanical
Stability for over
1000 Bending
Cycles

Very Stable Sheet
Resistance
Against Bending
and Twisting

Screen Printing of
Supercapacitor
and Battery
Electrodes



Roll-to-Roll
Coating of
Graphene Ink

Different
Substrates Can
Be Utilized

	Metal flakes	Metal nanowires	Conductive polymer	CNT	Nanotech ink
Ink type					
Conductivity					
Mechanical properties					
Environmental effects					
Cost					
Examples	Ag, Au and Ni	Ag and Cu	PEDOT/PSS and polyaniline	SWCNT and MWCNT	Graphene-based ink



Nanotech Ink Product Line

100 mL

500 mL

1000 mL

Large Volumes
Available Upon
Request