

# Conductive Biosensor Ink



## IGSB04191 Technical Data Sheet



Creating Material Change  
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# Screen Printable Biosensor Graphene Ink

<b>Product name:</b>	IGSB04191
<b>Synonyms:</b>	Biosensor Ink, Graphene Ink
<b>Chemical family:</b>	Functional Graphene Ink
<b>Properties:</b>	Electrically Conductive, Flexible, Stable, Inert, Environmentally Friendly, No Metals, Robust, Ease of Printing
<b>Typical uses:</b>	Uric Acid Biosensors, Printed Electrodes, Plastic Electronics, Sensors

## Key Features

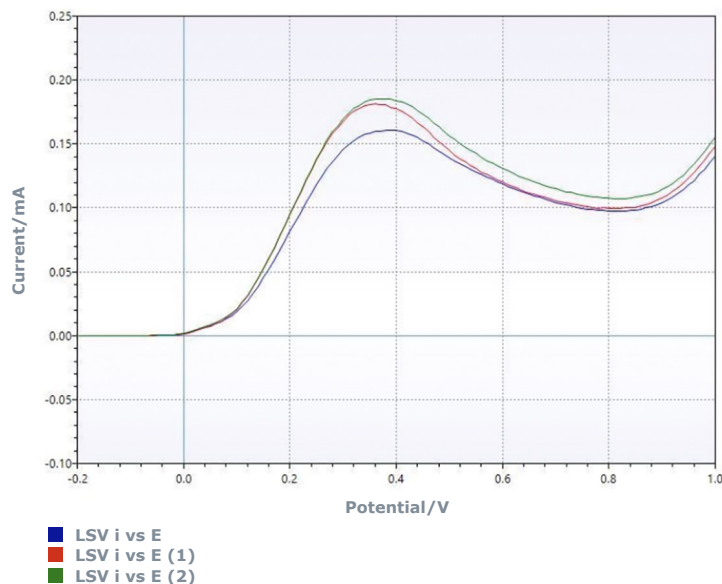
- Optimised for uric acid sensitivity
- Contains functionalised HDPlas® materials
- Designed for large volume screen printing
- Electrically conductive, boosted by specific functional groups
- Carbon, organic solvent-based ink (no metal)
- Curable at low temperatures
- Can be applied to a variety of surfaces
- Flexible on appropriate substrate
- Customisable
- Good shelf-life

## Handling Guidelines

- Printing equipment: screen printer; semi-automatic, manual, fully-automatic and reel to reel
- $<20 \Omega/\text{sq}$  normalised to 25 microns ( $\mu\text{m}$ ), screen printed on stainless steel screen, mesh size 230, angle 45, thickness 30 microns, emulsion E04, tension 28N, raw mesh 77
- Substrates including but not limited to PET and TPU
- Drying conditions: can be dried at  $120^\circ\text{C}$  for 5 minutes; infrared drying can be used in conjunction with conventional heated dryers
- Clean-up solvent IMC00001 on press wash and mesh opener. Warning, do not use other screen cleaners as this may result in the ink gelling and the mesh blocking prematurely
- Storage: when not in use, the product should be kept sealed in its container and stored at controlled temperatures between  $7\text{-}20^\circ\text{C}$
- Warning, do not allow to freeze
- Shelf-life: ink in an unopened container has a recommended shelf-life of 6 months from date of delivery. Stir well before use

Test	Specification
Viscosity - Malvern Rheometer $-25^\circ\text{C}$ at Shear Rate $300 \text{ s}^{-1}$	$<5 \text{ Pa}\cdot\text{s}$
Thickness - Micrometer	Typical 13 micron wet emulsion; 7 micron dried
Solids Content - Loss on Drying	36 - 40%
Fineness of Grind - Hegman Gauge	First Streak $< 20 \mu\text{m}$
Sheet Resistivity - 4-Point Probe	$<20 \Omega/\text{sq}$ normalised to $25 \mu\text{m}$
Linear Sweep Voltammetry - EmStat Potentiometer	350 – 400 mV Peak
Coverage	$735\text{cm}^2/\text{g}$ single pass
Adhesion	ASTM rating 5B when printed on PET and TPU
Pencil Hardness	Typical 3H when printed on PET and TPU

## Linear Sweep Voltammetry



**IGSB04191** – Linear sweep voltammogram  $0.5 \text{ mM}$  uric acid in basic aqueous solution.

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