

# Creating Material Change



## Bio-Sensor Fact Sheet



*Innovation underpins everything we do*  
[www.haydale.com](http://www.haydale.com)     HaydaleGraphene

# Bio-Sensor Graphene Ink

Haydale is a world leader in plasma treatment and functionalisation, specialising in providing bespoke solutions for smart technology printing applications.

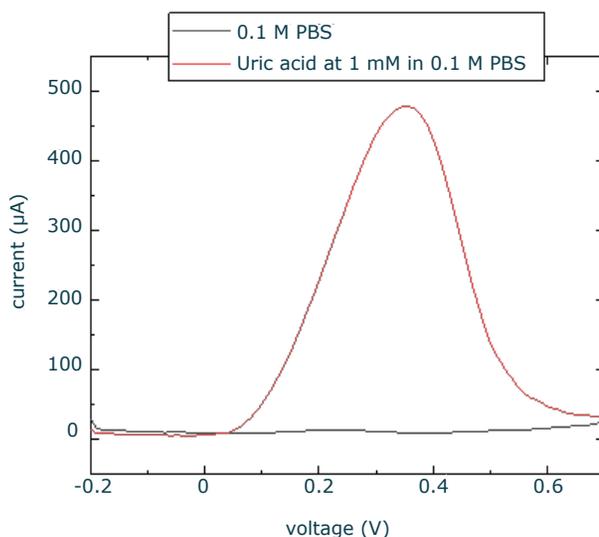
Haydale biomedical ink is gaining significant market attention due to the quality, stability, adhesive properties, and consistency compared to the widely used graphite and other carbon materials available today. This is enabled due to the correct ink formulation and our Environmentally Friendly, scalable surface modification process. This allows Haydale to incorporate advanced materials into the inks formulation such as graphene and therefore replace the need for precious metals and eliminate the need for manufacturing additives.

A crucial metric used by the specialist printers to measure the repeatability and accuracy of sensor readings delivered by the inks is its coefficient of variation or C/V ratio, where a low percentage indicates a high consistent, repeatability factor. Haydale's Biomedical ink has shown low C/V ratios during extensive production quantity in-line tests.

## Key Benefits and Characteristics:

- Screen printable inks system
- Low viscosity for improved printability in scaled production
- Flexible and robust print product
- Tuneable surface roughness
- Can be bent up to 180° without cracking
- High chemical stability and hydrophilicity
- Enhanced electrical conductivity through HDPlas® process
- Can be used for making screen printed ion selective electrodes, glucose sensors, uric acid sensors etc.
- The ink promotes faster charge transport and higher sensitivity due to its enhanced electrical conductivity. Anodic peak potential is between 0.2 – 0.4mV
- Compatibility to designated analytes within the Bio sensor sector

## Example of Ink Sensitivity (Uric Acid Sample)



Uric Acid Detection Limit  $\geq$  1mM (in phosphate buffer)  
Differential Pulse Voltammetry (Peak Voltage): 0.3 – 0.4 mV

**The content supplied in this sheet ("Information") supersedes all previous versions supplied. Version 2, February 2021**

The Information should be used solely as guidance for the safe handling, storage, processing and/or use of the Product and is only typical of the methods described. The Haydale Group (Haydale Group means Haydale Limited, as a subsidiary of Haydale Graphene Industries plc., and any subsidiary or holding company from time to time and any subsidiary from time to time of any holding company of Haydale Limited) gives no express or implied warranty or guarantee or representation as to the behaviour of the Product described herein during any handling or storage or processing or use of the Product. To the extent permissible by law the Haydale Group shall under no circumstances whatever be liable whether in contract, tort (including negligence), breach of statutory duty, or otherwise, for any damage, including loss of profit, or any indirect or consequential loss arising under or in connection with any handling or storage or processing or use of the Product.



Contact us: T: +44(0)1269 842946 E: [info@haydale.com](mailto:info@haydale.com)