

The client and market

Our client is an established **manufacturer of small electrical devices**. The company is continually investing in NPD (new product development) and is currently focused on reducing the cost and environmental impact of their products. The electronics industry is investigating the **use of conductive and/or resistive inks and materials to replace metallic materials typically used in printed electronics, sensors, heating elements and RFID/smart packaging**, etc. However, many current conductive inks contain silver, which is not acceptable from an environmental standpoint to the client. They therefore wish to identify alternative materials which can still maintain the technical performance required by the end-products.

The search

In the first instance, the client wishes to use conductive inks in a **printed, resistive heater application**, utilising paper / card / board as a substrate, enabling easy disposal after use. They are therefore interested in **identifying potential materials and/or application technologies** including (but not limited to): -

- Printable conductive / resistive inks (e.g., non-metallic, graphene-based, carbon or aluminium) for paper / card substrates
- Additive processes enabling use of conductive / resistive materials – e.g., ink-jet printing, vapour deposition, etc.
- Printable resistive heater solutions
- Technologies to create layers of printable graphene inks that are 10s of microns thick, with high reproducibility

Technologies should enable the following printed product: -

- Thickness of printed layer < 50 μm (*ideally* < 10 μm)
- Small printed area (e.g., 1 cm^2)
- Sheet resistance < 40.0 Ω (*eventually* < 5.0 Ω)
- Applicable to paper / card / board substrates
- Enable high temperature (i.e. > 100 $^{\circ}\text{C}$)
- Potential for high-volume, high speed and cost-effective production in next 5 years

NB The following materials are out of scope – silver / copper based inks and aluminium foil-paper laminates

Applicable technologies could come from companies or research organisations developing printed and flexible electronics used in medical, consumer, automotive, fashion, retail and packaging.

What the client can offer

The client is actively searching for potential suppliers and technology companies that could support their product development efforts. They have an established customer base and global operations that provide routes to market for both new and established companies. The client is interested in potential collaboration with groups looking to commercialise relevant technologies and companies who will consider a variety of collaborations, ranging from trading partnerships, licensing through to joint venture and supply. Please send preliminary information on any proposed opportunity to Diane Kolonko via diane@strategicallies.co.uk