**RELEASE REF:** Xaar 2024.032 Swansea Research Publication

**HIGH VISCOSITY AQUEOUS INKS TO TRANSFORM INKJET PRINTING**

**Cambridge, 11th December 2024** – [Xaar](https://www.xaar.com/), a global leader in industrial inkjet technology, is highlighting the recent publication of groundbreaking research into the use of Nazdar’s high-viscosity water-based inks in corrugated printing, and the role played by its Aquinox printhead and [Ultra High Viscosity Technology](https://www.xaar.com/technologies/ultra-high-viscosity-technology/). The peer reviewed study, published in the *Journal of Coatings Technology and Research,* was conducted by the Welsh Centre for Printing and Coating at Swansea University, proving the transformative benefits of high-viscosity inks for printing, including increased colour density and reduced ink usage.

The independent study, led by Dr Chris Phillips and Professor Davide Deganello, evaluated the performance of high-viscosity aqueous inks manufactured by Nazdar, compared with conventional ink formulations using Xaar’s Aquinox printheads. Key findings included enhanced colour impact, improved efficiencies, and a reduction of drying energy when printing onto a variety of corrugated boards.

Colour density increased by up to 13% on uncoated and 67% on coated white corrugated substrates, delivering richer, more vibrant print outcomes. The high-viscosity fluids used required less ink to achieve the same colour intensity as conventional inks, translating to lower energy usage and faster drying times. In addition, the increased viscosity of the fluids minimised absorption into substrates, enabling greater colour impact without additional pigment or energy-intensive processes.

The research also demonstrated significant gains on uncoated substrates, with Xaar’s Ultra High Viscosity Technology enabling higher pigment loads to achieve remarkable print results even without primers, simplifying production and reducing environmental impact.

The findings were shared with the industry during a presentation by Xaar’s Group R&D Director, Karl Forbes, and Business Development Manager – Inks, Neil Cook, at the FuturePrint Tech Conference in November. Their presentation outlined how Xaar’s Ultra High Viscosity Technology is reshaping the possibilities of digital printing with significant progress in more sustainable corrugate, textile and advanced manufacturing applications.

Speaking at the event, Karl Forbes said, “The publication of this research validates the incredible opportunities high-viscosity inks and Xaar’s printheads and technologies bring to industrial printing. With improved print quality, sustainability, and productivity, this breakthrough represents a step change in how inkjet printing can compete and excel in a diverse range of applications.”

The full results of Swansea University’s research can be downloaded [here](https://link.springer.com/article/10.1007/s11998-024-01001-7) and, since the groundbreaking findings of this work, Nazdar and Xaar have further developed the High Viscosity concept into multiple sets of commercially available inks, suitable for markets such as textile and corrugate printing.

**Ends**

**About Xaar**
Xaar is an inkjet innovator, providing printheads and technologies for OEM and UDI customers worldwide.

By helping customers lay down precise volumes of inks and fluids with absolute pin-point accuracy, time after time, Xaar’s inkjet printheads and technologies meet the needs of numerous markets. Covering graphics, labelling, direct-to-shape, packaging, textiles, coatings, product decoration, ceramic tile and glass decoration, décor, and outer case coding applications – as well as printing with specialist functional fluids for 3D and advanced manufacturing techniques.

Collaboration is at the very core of its business. Xaar works as a trusted partner from sites in Europe and China, providing expert insights and technical support every step of the way.

With over 30 years’ experience, around 200 patents registered or pending, and major ongoing R&D investment, Xaar’s digital printhead and precision jetting technologies create infinite opportunities for today’s sustainable manufacturing innovation.

**Contacts:**

**Xaar**: Charlotte Baile T: +44 1223 802151 E: charlotte.baile@xaar.com

**Media Global ex China:** Nielsen McAllister, Simon Wildash / Hannah Woods T: +44 1332 293939 E: xaar@nmpr.co.uk

**Media China:** Melody Chen T: +86 181 29930254 E: melody.chen@xaar.com