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Haydale Graphene Industries PLC
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Haydale Graphene Industries plc

("Haydale", the "Company" or the "Group")

Haydale Launches Graphene Heat-Transfer Fluid - Expanding Its Commercial Platform Into Advanced Cooling Applications

Launch of Second Key Pillar in Haydale's Commercialisation Strategy

Haydale Graphene Industries plc (AIM: HAYD), the advanced-materials group, today announces the launch of a graphene-enhanced heat-transfer fluid - the second key pillar in the Company's long-term, disciplined commercialisation strategy.

The patented graphene-enhanced fluid extends Haydale's HDPlas® plasma-functionalisation technology into the multi-billion-pound global cooling and thermal-management market, directly addressing one of the most critical physical constraints on modern computing and digital-infrastructure growth: heat dissipation.

Highlights

- **Second key commercial pillar:** Expands HDPlas® graphene technology from heating into the global cooling and thermal-management market, targeting the rapidly growing data-centre and high-performance-computing (HPC) sectors where efficient heat control is now mission-critical.
- **Patent protection secured:** Notice of Intention to Grant received from the UK Intellectual Property Office for GB 2625980, covering the use of surface-functionalised graphene particles in heat-transfer and thermal-management fluids for heating and cooling systems.
- **Strategic commercialisation agreement:** Partnership with Liquitherm Technologies Group (trading as Hydratech), the UK's leading formulator and supplier of specialist heat-transfer fluids with over 25 years' experience, to jointly commercialise the patented fluid across domestic, industrial and data-centre applications, including direct-to-chip liquid-cooling circuits.
- **Engagement with global manufacturer:** Non-binding Letter of Intent received from a leading US-based global manufacturer of electric vehicles and energy systems to evaluate the patented fluid for next-generation power-device cooling.
- **Growing UK ecosystem:** Two new Memoranda of Understanding signed with UK data-centre design specialists to trial the patented fluid within data-centre cooling systems in South Wales and other UK locations.
- **Transformational timing:** Positions Haydale among the few listed companies developing solutions to address the energy-efficiency challenge created by rising global computing power resource demand, with data-centre electricity consumption expected to triple by 2030.

Background

The development of Haydale's graphene-enhanced heat-transfer fluid was part-funded by the Welsh Government under the SMARTCymru initiative, supporting final laboratory validation and corrosion-testing stages undertaken in collaboration with Liquitherm Technologies Group (trading as Hydratech).

Haydale has received a Notice of Intention to Grant from the UK Intellectual Property Office for patent GB 2625980, covering the use of surface-functionalised graphene particles in heat-transfer and thermal-management fluids (the ***Haydale Technology***). The patent defines a new class of graphene-enabled coolants capable of improving energy efficiency across industrial, domestic and digital-infrastructure systems where power densities are increasing sharply.

To accelerate commercial deployment, Haydale has signed an agreement with Liquitherm Technologies Group Ltd, the UK's leading formulator and supplier of specialist heat-transfer fluids, to jointly commercialise the Haydale Technology across domestic, commercial and data-centre applications, including direct-to-chip liquid-cooling circuits.

Liquitherm brings over 25 years' experience in mission-critical cooling infrastructure, providing manufacturing capability and access to established HVAC and data-centre customers across the UK and Europe. Through its Thermal Energy Optimisation Programme, Liquitherm manages coolant specification, installation and performance for leading data-centre, renewable-energy and industrial customers, with a proven reputation for technical rigour and reliability.

In parallel, Haydale has received a non-binding Letter of Intent from a leading US-based global manufacturer of electric vehicles and energy systems to evaluate the Haydale Technology for advanced thermal-management systems used in next-generation power-device cooling. This engagement underscores rising interest from Tier-1 global manufacturers in Haydale's patented graphene materials platform.

Haydale has also signed two Memoranda of Understanding with UK-based designers of modular and high-performance, energy-efficient data-centre infrastructure to test and validate the Haydale Technology within data-centre cooling systems in South Wales and other UK locations.

South Wales is rapidly emerging as the UK's centre for data-centre and digital-infrastructure investment, with major projects across the Vale of Glamorgan, Cardiff and Bridgend. Within 50 km of Haydale's Ammanford facilities, a new ecosystem - the "Thermal Valley" - is forming, linking compute infrastructure, advanced materials and government-backed decarbonisation initiatives.

The Thermal Enabler of the Next Industrial Revolution

The industrial cooling sector is one of the largest yet least-recognised levers for global energy efficiency and decarbonisation. Soaring computing-power demand is driving an unprecedented rise in data-centre energy use - with cooling already accounting for up to 40 per cent of total facility power consumption and overall electricity demand forecast to triple by 2030.

The combination of AI expansion, high-performance computing, and growing pressure on electricity grids is creating urgent demand for advanced cooling solutions that can deliver higher efficiency without costly infrastructure upgrades - a challenge directly addressed by Haydale's graphene-enhanced heat-transfer fluid. Infused with plasma-functionalised graphene nanoparticles, the fluid delivers substantially higher thermal-transfer efficiency than conventional coolants, directly reducing energy consumption and carbon emissions.

Simon Turek, CEO of Haydale, commented:

"From graphene to gigawatts, South Wales is quietly building the materials engine of the modern digital economy, and Haydale is proud to be contributing at its centre.

Throughout 2025, we've been developing graphene-enabled solutions that improve the movement and management of heat - first through JustHeat™ and now through advanced cooling.

Just as silicon enabled computing, graphene will enable the next generation of high-performance systems. Our technology closes the thermal gap that silicon opened."

Outlook

With JustHeat and now its graphene-enhanced heat-transfer fluid, Haydale has established the two core pillars of its commercial platform - heating and cooling - each built on its scalable HDPlas® technology. As compute loads surge and energy efficiency becomes a global priority, Haydale's fluid enters the market at a time when demand for energy-efficient cooling is increasing.

While these agreements are not expected to generate immediate commercial revenues, they represent the next phase in the disciplined commercialisation of the Haydale Technology - moving from successful laboratory validation into controlled field trials with commercial partners. These programmes are designed to demonstrate real-world performance and scalability, but there can be no assurance of success or of future revenues arising from them.

This launch therefore marks another measured step in Haydale's long-term strategy to build a scalable, graphene-enabled technology platform delivering practical decarbonisation solutions and foundational materials for the global energy-efficiency transition.

For further information

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