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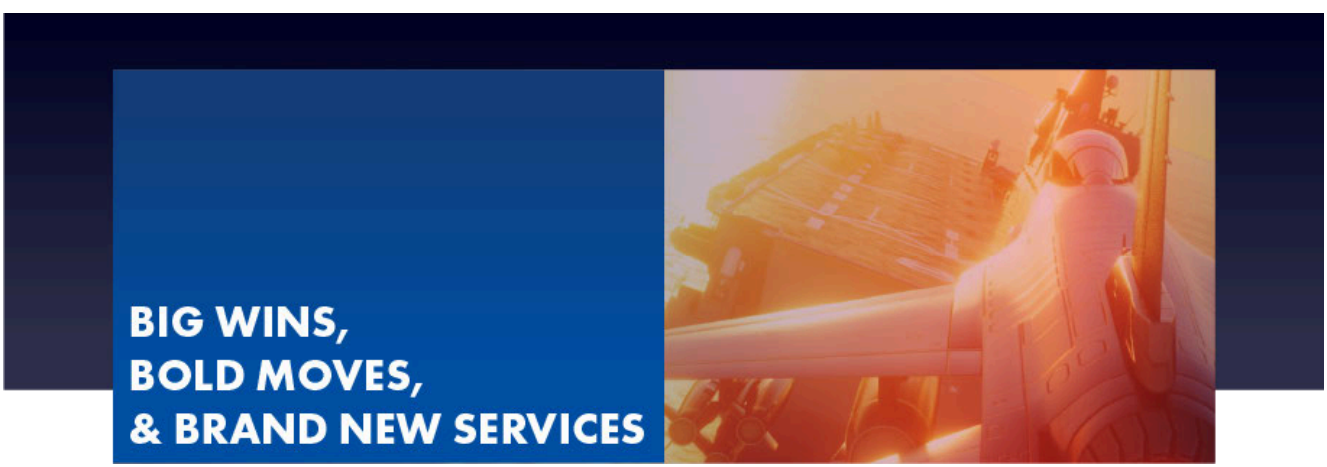
Wrapping Up 2025

What a year! 2025 has been nothing short of busy - and brilliant. In this final newsletter of 2025, we're rounding up the highlights, sharing our news, and giving a sneak peek at where you can find us in 2026. Enjoy!



Lucideon to open dedicated US Biocompatibility laboratory to enhance safety in medical devices

Lucideon is soon to open a new dedicated biocompatibility testing and analysis laboratory in the United States, expanding its global testing capabilities and strengthening support for medical device manufacturers. The facility enhances our ability to assess how materials interact with human biological systems, ensuring patient safety and helping companies meet strict regulatory requirements.

Biocompatibility testing is essential to confirm that implants and devices do not trigger harmful reactions such as toxicity, inflammation, or immune response. The new US-based lab offers faster turnaround times by eliminating overseas shipping delays and operates in alignment with FDA and international standards.

"Having a dedicated US biocompatibility testing laboratory means Lucideon can deliver world-class materials testing closer to where device innovations are happening for US-based clients." said Tom Archer, Product Marketing Specialist – Healthcare & Life Sciences

With this expansion, Lucideon strengthens support across the full product lifecycle, helping manufacturers reduce development risks and bring safer medical technologies to market more quickly.

Expansion of Lucideon's Healthcare sector into Life Sciences

Lucideon has taken an important strategic step, evolving from a traditional healthcare testing partner into a broader Life Sciences solutions provider. This shift reflects both the rapid changes across global industries and the expansion of our own technical capabilities. Our journey began in medical devices, where our expertise in ceramics and organic chemistry naturally positioned us to support the evaluation of hydroxyapatite-based bone cements.

Over time, this grew into a wider suite of services for orthopaedic manufacturers, GMP microbiology, and chemistry in the UK, which expanded our work with pharmaceutical clients, while our formulations and surface science expertise strengthened relationships with consumer health companies in oral care, skincare, and haircare.

As the industry evolves, with advances in biomaterials, cell and gene therapies, and biological manufacturing, the term "healthcare" no longer fully captures the breadth of sectors we support. Our new positioning, Healthcare & Life Sciences, better reflects the innovative fields we operate in and our growing ability to help develop next-generation products.

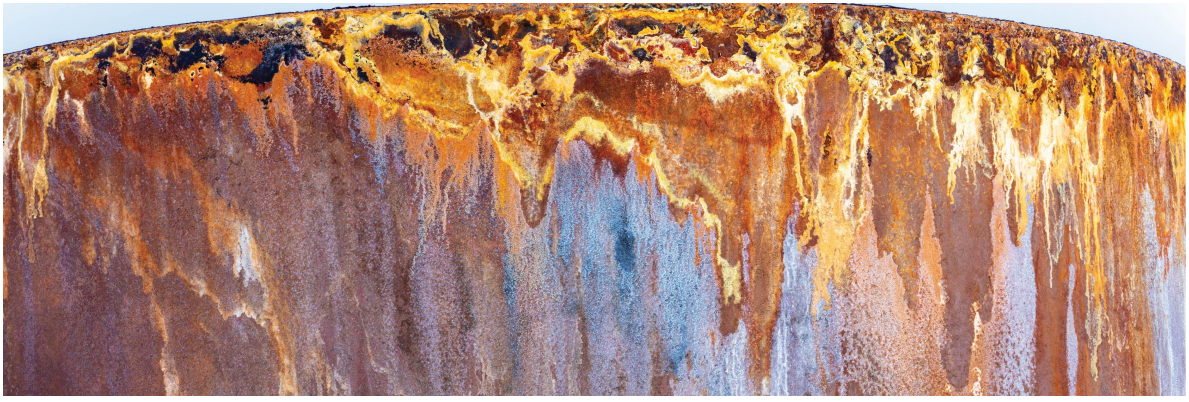
Flash Sintering for In-Situ Resource Utilisation of Lunar Regolith - A Project with ESA

As future lunar habitation will require oxygen, water, food, and robust infrastructure, transporting construction materials from Earth is not sustainable. Instead, in-situ resource utilisation (ISRU), using local lunar regolith as a building material, is essential. While regolith can be pressed and sintered into structurally sound bricks, conventional sintering demands extremely high energy, limiting its viability.

Lucideon, through a European Space Agency (ESA) funded programme, is developing Flash Sintering as a transformative alternative. Flash Sintering offers dramatically reduced furnace temperatures and processing times while maintaining microstructural control. Early results show it can achieve similar density and structure to conventional sintering but in a fraction of the time and energy.

Ongoing developments, including improved electrode interfaces, advanced control software, and future trials in vacuum environments, aim to scale the technology and further enhance performance. ESA's energy assessments indicate substantial reductions in energy use and potential payload savings, bringing sustainable lunar construction a step closer to reality.

If you want to listen to a talk by Dr David Pearmain, presented at Space Resources Week in Luxembourg earlier this year, you can watch it **here**.



Rolls-Royce SMR - Stress Corrosion Cracking Study Supports Rolls-Royce SMR Design

Lucideon partnered with Rolls-Royce SMR to support the development of their Small Modular Reactor (SMR), ensuring that primary water safety-classified components are robust against stress corrosion cracking (SCC). The project aimed to demonstrate that adding zinc to the primary coolant - used to minimise shutdown dose rates - does not accelerate crack propagation compared to zinc-free conditions.

Our team conducted two key tests in simulated Rolls-Royce SMR primary water.
The first assessed Environmentally Assisted Fatigue Crack Growth under cyclic loading, while the second evaluated SCC growth at constant stress intensity. Results showed no detrimental effect of zinc on environmentally assisted cracking, even at concentrations up to 150 ppb.

With over 40 autoclave systems and world-leading expertise in high-temperature water SCC, Lucideon's facilities and technical capabilities provide clients like Rolls-Royce SMR with reliable, high-precision testing to support safe and effective reactor designs.

Hydra partnership - Lucideon and Hydra Manufacturing Collaborate on Advanced Ceramic AM

Lucideon and Hydra Manufacturing have joined forces to accelerate the development of advanced ceramic additive manufacturing (AM) solutions. The partnership combines Hydra's CHAMP printer, which integrates robocasting with in-situ green machining for shaping complex parts before sintering, with Lucideon's expertise in ceramic ink formulation, materials testing, and validation.

Lucideon develops customised inks for oxides like alumina and non-oxides such as silicon carbide and silicon nitride, ensuring components meet extreme-environment requirements. Using the AMRICC Centre's
end-to-end processing facilities, the collaboration supports scale-up, quality control, and commercialisation of next-generation ceramic AM.

Dave Pearmain, Business Manager - Technology Engagement & Partnerships, said,

"This collaboration combines Lucideon's material expertise with Hydra's innovative shaping method to underpin the next generation of advanced ceramic production."

AMRICC Academy

The AMRICC Academy's training community continues to grow and we're expanding our course offering with fresh content and new partnerships.

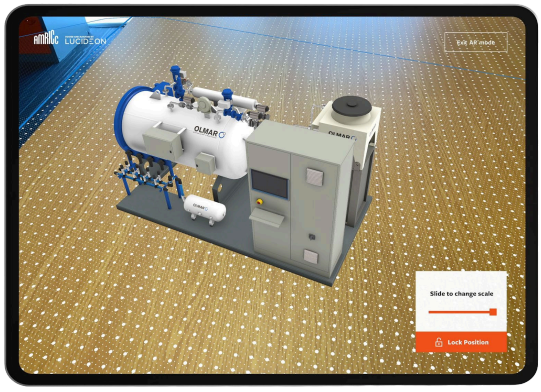
Following the positive feedback from our first in-person refractory course, we're pleased to announce the launch of our new self-guided **Introduction to Refractories** e-Learning course, now available on our website. We recommend completing this course before attending our in-person Refractories course to help you get the most value from the experience.

If you already have experience in refractories, you're welcome to dive straight into the **in-person course**, which is designed at an intermediate level and builds on the foundational theory covered in the eLearning module. We'll be holding a free discovery session in January where you can learn more about these courses and ask any questions before signing up.

Contact us if you'd like to sign up to the discovery call.

We're also thrilled to be partnering with The Hartree Centre to deliver a free webinar series exploring the power of data in industry. These sessions walk through real-world scenarios, showcasing the solutions, insights and benefits that data and modelling techniques can bring. **Sign up here**.

To gain full access to previous webinars along with a wide range of additional learning resources be sure to **subscribe** to The AMRICC Academy. Subscribers also enjoy discounted courses and a complimentary skills signposting session.



AMRICC App now on app store - Explore The AMRICC Centre with the new virtual tour app

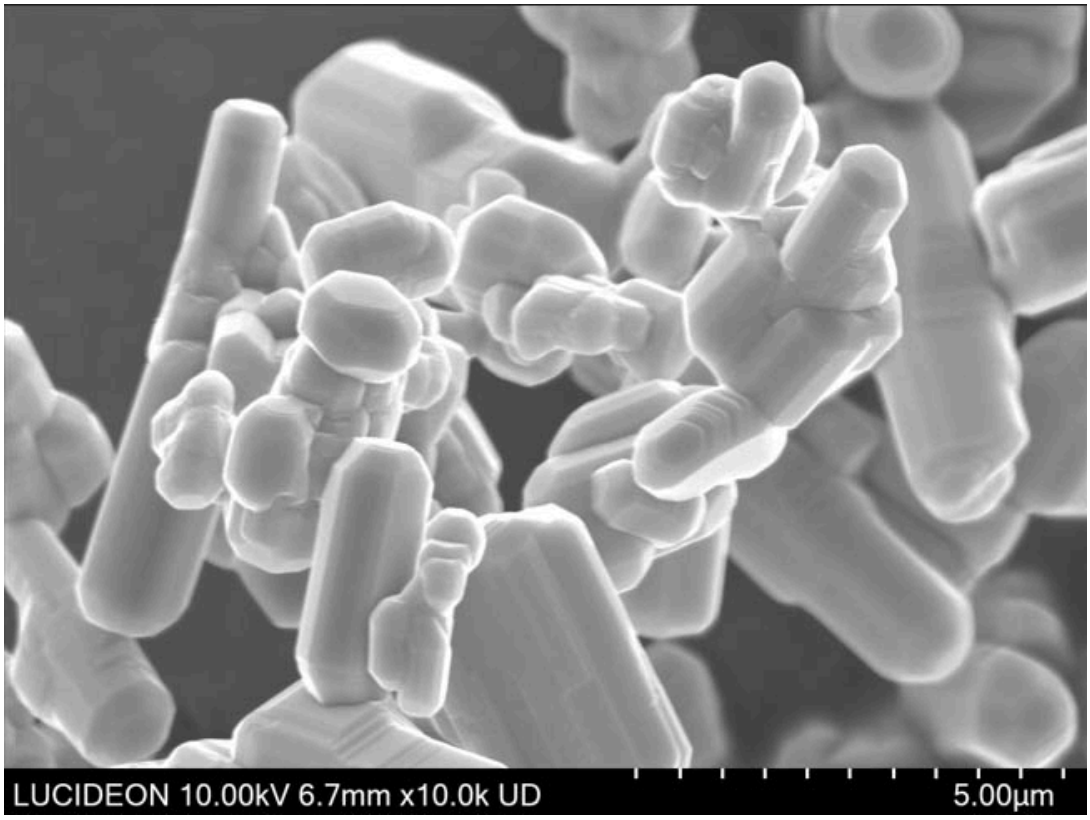
The AMRICC Centre has launched a new app, giving users a digital window into its world-class advanced ceramics capabilities. The Staffordshire-based facility, hosted and managed by Lucideon, supports sectors including space, energy, healthcare, nuclear, and aerospace, providing open-access equipment for industrially relevant product and process development.

The app offers an immersive way to explore the centre's cutting-edge equipment and operations and will also be expanded to support training and skills development through AR and VR technology.

Download the AMRICC Virtual Tour:
Play Store | **Apple Store**

At Lucideon, we love to celebrate the achievements of our colleagues across a range of professional and educational awards.

Here are some recent highlights:



Amin Damena shortlisted in national IOM3 image competition

Teamwork continues to drive success across the Advanced Materials Team, and we're delighted to celebrate another achievement.

As part of our project developing ultra-high temperature ceramics using a low-temperature sol-gel process, our third-year apprentice, Amin, captured a striking SEM image of zirconium diboride powder. He submitted the image, titled "Order in the high temperature realm", to the IOM3 Image Competition and was shortlisted as one of only six finalists nationwide.

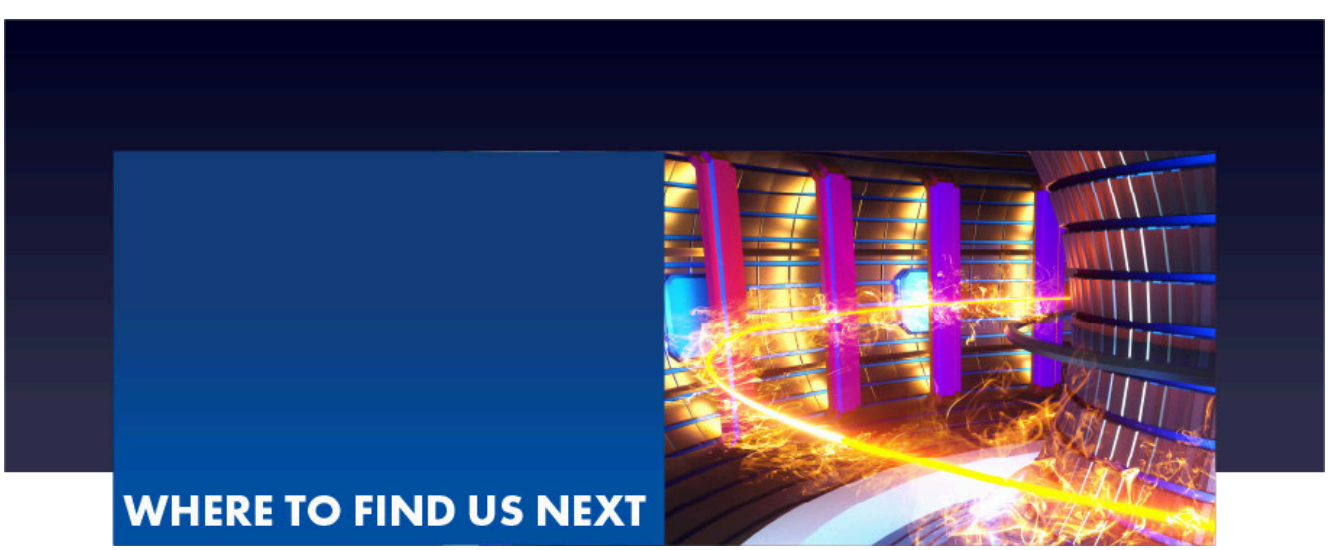
A huge congratulations to Amin for this fantastic recognition of his skill and creativity.

Apprentices shine at the Engineering Skills Conference

On 30th October, Katie Hadley and Connor Ayre were invited to speak at the Engineering Skills Conference, hosted by Next Gen Makers at the MTC Training Centre, where they shared their experiences as apprentices.
Their session was such a success that the organisers now plan to expand next year's apprentice panel from 30 minutes to a full hour, including a live Q&A segment.

Katie and Connor offered valuable insights into how employers can attract and retain young engineering talent, highlighting the importance of trust, fostering independence, and creating a supportive environment where mistakes are seen as learning opportunities.

A huge well-done to both for making such a positive impact and representing Lucideon brilliantly.



Catch us in action at these upcoming events:

Golden Jubilee Celebration of the 50th International Conference and Expo on Advanced Ceramics and Composites (ICACC 2026) - Florida, US – 25th - 30th January
Alex Dobosz (Senior Advanced Ceramics Scientist) presenting.

CMS 2026 – New Orleans, LA – 26th - 29th January
Carolyn Grimley (Commercial Engineer - Ceramics) exhibiting.

AAOS 2026 – New Orleans, LA– 2nd - 6th March
Andrew Atisa (Technical Sales Consultant - Healthcare) exhibiting.

Space COMM – London, UK – 4th - 6th March
Enya Collier (Product Marketing Manager - Aerospace & Nuclear) exhibiting.

Ceramitec – Munich, Germany – 24th - 26th March
Ed Maynard (Business Development Manager) exhibiting.

New services, big wins, and a future full of possibilities - stay tuned, and if you want to chat about how our latest innovations can help you, you know where to find us!

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