



# METALYSIS

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## **Metalysis further boosts its sustainability credentials: purchase of Argon recycling system will save Metalysis 350 tonnes of argon each year – giving direct annual savings of 1000 tonnes of CO<sub>2</sub>**

Metalysis, the global leader in the manufacture of critical metal and alloy powders, including lightweight and refractory high-entropy materials for space, aerospace, defence and other advanced manufacturing sectors, has contracted with world leaders in gas recycling - clean tech firm Gas Recovery and Recycle Limited (GR<sup>2</sup>L) to install an argon recycling system, ArgonØ™ - the world's-leading argon recycling system.

Metalysis uses argon to create an inert atmosphere throughout its patented production process and across all of its reactor sizes - which range from Gen 1 producing grammes of output per run, to Gen 4 which produces tens of tonnes per annum. Argon is an inert gas and so protects the metal and alloy powders from contamination from atmospheric gases – particularly oxygen – as well as nitrogen and hydrogen.

**Installing this system will save Metalysis 350 tonnes of argon each year as 95% of the argon is recycled. The resulting reduction in energy used to process new argon and to transport it, will mean there are annual savings of 1000 tonnes of Scope 3 CO<sub>2</sub>. Every tonne of argon purchased brings with it at least another 2-4 tonnes of Scope 3 CO<sub>2</sub> equivalent. The ArgonØ™ recycling system has an energy footprint of less than 10% of conventional gas recycling systems.**

For Metalysis – which owns the disruptive Metalysis FFC process – originally developed as an energy and efficiency saving alternative to traditional titanium production – and is capable of producing metal and alloy powders across 49 elements of the Periodic Table – this further demonstrates the company's commitment to sustainability being built-in to the production process. The Metalysis FFC process is already 50% more energy-saving than traditional titanium production processes generating powders for additive manufacturing, as it reduces oxides in the solid state rather than being a melting technology.

As well as focusing upon capacitor grade tantalum powders; aluminium scandium alloys for semiconductors and lightweight structural applications; development of refractory alloys such as niobium hafnium alloy (C103); and an expertise in titanium, Metalysis specialises in groundbreaking high entropy alloys – with uses in extreme environments whilst having energy saving qualities – all showing Metalysis' technology driving sustainability metrics in end-applications.

GR<sup>2</sup>L, which like Metalysis is a UK-based entity, owns and operates the ArgonØ™ system which recovers, purifies and recycles exhaust purge argon gas from industrial processes. Working with Metalysis is a strategic step for GR<sup>2</sup>L to expand beyond its traditional markets such as solar photovoltaics and microelectronics, into advanced manufacturing and the materials processing sectors.

Nitesh Shah, CEO Metalysis: *“Argon recycling achieves another milestone in the Metalysis sustainability story. We are already a highly energy competitive process when compared to conventional melting technologies, whilst our ability to create lightweight alloys furthers the sustainability agenda of our end-users. Saving argon and resultant Scope 3 CO<sub>2</sub> proudly cements us further as a responsible business.”*

### **About Metalysis**

**Metalysis** is a global leader in producing metal powders, alloy powders and high entropy powders for use in space, advanced electronics including semiconductors and capacitors, defence, hypersonics, engineering and construction, aerospace, clean energy, electric vehicles, AI, 5G and the IoTs. Deploying its patented FFC solid-state electrolysis process the company can reduce metal oxides from 49 elements of the periodic table creating valuable metal, metal alloy and high entropy alloy powders.

Since 2019, Metalysis has emerged as the global leader in space exploration, having partnered with the European Space Agency and the UK’s space agency to extract oxygen from lunar regolith. Metalysis was approached because its electrolysis process liberates oxygen from metal oxides - employing an oxygen-evolving anode versus the conventional carbon, means that oxygen is the released gas – which can be captured, and when utilised in-situ on the lunar surface, can provide oxygen for propulsion and life support. Metalysis is the selected technology chosen by the European Space Agency (ESA) upon which all ESA oxygen extraction projects are being developed. Metalysis is also in conversations with commercial partners to accelerate the deployment of a larger scale unit – a Gen 2 and above - on the lunar surface.

Metalysis is a key-midstream asset for the UK and Her allies – providing domestic oxide reduction capabilities within the UK meaning critical materials and rare earth elements are not exposed to supply chain risks.

For more information

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