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RAUTOMEAD'S 'ADVANCING METALS TECHNOLOGY' DIVISION HELPS ADVANCE TECHNOLOGY FOR METALYSIS

Continuous casting technology specialist Rautomead Limited of Dundee, Scotland has revealed the latest success story for the company's new 'Advancing Metals Technology' division: a key collaboration with Rotherham-based metals technology innovators Metalysis in the scaling up of their revolutionary process for the production of titanium, tantalum and other high value metals.

Rautomead was originally recommended to Metalysis some three years ago for its technical knowledge and expertise garnered over some thirty years of designing, constructing and operating high temperature furnaces. However, what really clinched the relationship, given that their process involves handling molten salt at 1200 degrees C, was the material that lies at the heart of Rautomead's furnaces: graphite. Unlike conventional metals, graphite does not corrode, so Rautomead's unrivalled experience in building furnaces based around graphite components was to be central to the project's success. In addition, Rautomead's in-depth knowledge of the material's thermal expansion characteristics and handling properties was also to prove invaluable.

As Metalysis Engineering Director Stephen Holloway explains: 'All we brought to the table for our initial meeting with Rautomead Managing Director Brian Frame and his team were a conceptual wish list and, frankly, a blank piece of paper! From these inauspicious beginnings, however, our collaboration soon sketched out a process with a flow scheme involving three large furnaces and three extremely high-tech smaller ones. Not only that but it's fair to say we were particularly demanding customers in terms of the thermal power and insulation properties required. And yet Brian and his team rose to every challenge with energy and imagination, adapting the existing Rautomead design to meet our very precise and exacting specifications'.

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A WORLD OF POSSIBILITIES

The Metalysis process has the capability to transform global manufacturing as we know it today, with its capacity for significantly reducing the hitherto significant cost involved in making titanium. In the light of the intensive production process and attendant high cost, titanium currently only makes an appearance in such extremely high-tech markets as medical implants and aerospace whereas a significant cost reduction could potentially open up a huge range of industry sectors to the potential of the material.

The existing production method, the Kroll process, is energy inefficient, potentially hazardous, labour intensive and therefore expensive.

The new process, however, starts, as does Kroll, with titanium dioxide but, crucially, replaces the need for adding chlorine, as Metalysis's process uses an electrolysis-based approach.

The result is a process capable of producing cheaper, purer, greener metal powders with a significantly reduced carbon footprint, and a whole host of potential applications including electronics, medical, marine, aerospace, defence and many more.

CARBON DATING

The third party in the success of the Metalysis project is Mersen UK, based in Portslade, Sussex. The Mersen Group (www.mersen.com) is one of the world's largest manufacturers of specialised carbon and graphite products and cooperation with them on this important project proved to be a natural extension of a long time supply relationship with Rautomead.

And, significantly, the triumvirate of Metalysis, Rautomead and Mersen is now looking to the future with some very ambitious plans indeed.

Adds Stephen Holloway: 'With the project here now 95% complete, we are already looking ahead at plans for international expansion for the new technology involving a manufacturing facility a hundred times bigger than the one we have now! We certainly feel that the relationship forged between the three partners in the Metalysis project has provided us with the basis for significant plans for growth'.

CASTING AROUND FOR THE RIGHT PARTNERS

Rautomead's new 'Advancing Metals Technology' division has as its strategic objective innovation in the exploration and development of more efficient non-ferrous metals production, including processes and end-user applications.

In addition to pursuing in-house research projects, the new division's mandate also covers involvement in a wide range of individual projects with universities and research groups in the UK and overseas. Further collaborations are actively sought with both existing and prospective customers, with the goal of providing new and innovative processes and products within the non-ferrous metals technology market.

Through harnessing its market-leading expertise in the field of graphite technology and transferring the skills it has developed in continuous casting as the basis for these collaborations, the division's objectives consist of developing imaginative and economical technological solutions with operating systems that will offer the end user significant application improvements in the next generation of Rautomead equipment.

Specific objectives consist of innovating technologies which are clean, safe and environmentally-friendly, shorten the manufacturing process, provide economies on the small to medium scale, recycle materials, reduce operating costs and enhance product quality.

CONTINUOUS IMPROVEMENT IN CONTINUOUS CASTING TECHNOLOGY

For over 30 years, Rautomead Limited has established a reputation as a global innovator and specialist in the design, manufacture and provision of continuous casting equipment for copper, copper alloys and precious metals and as a valued partner on turnkey projects for specialist upstream and downstream product manufacturers. There are currently over 330 Rautomead machines in operation in over 45 different countries all around the world.

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