

PRESS RELEASE

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Global partnership utilises innovative materials for sustainable energy storage

A global partnership between UK-based Morgan Advanced Materials and FZSoNick Switzerland is utilising innovative new materials to help store and harness excess energy generated from renewable sources.

The two businesses have partnered on a long-term project to manufacture modular energy storage solutions for use globally in residential housing, large energy grid support systems, and light commercial vehicles. These solutions are being used to supply, manage and store energy without the need for maintenance, granting communities and businesses greater independence from national grid networks.

Key to the high performance of these systems are the materials used, engineered through this important industry partnership. FZSoNick manufactures the systems using Sodium Nickel Chloride batteries, a technology which is relatively new to the market. Not only is this material in good supply, but its high energy density characteristics, together with its fully recyclable properties, result in storage systems that are highly sustainable.

At the heart of these systems are modular batteries containing interconnecting Beta alumina tubes, with high grade 95% alumina collars developed by Morgan Advanced Materials. These are thin-walled square sections of ceramic tubing, which perform as solid Beta-alumina solid electrolyte (BASE). This is a fast ion conductor material when utilised as a membrane in a type of molten salt (Sodium Nickel Chloride) electrochemical cell. The latter system has an improved life cycle, can run at a large operational temperature range (-40 to 60°C/-40 to 140°F) and can fully discharge without damage when compared to lithium ion cells. This material integration provides high electrical and thermal insulation, chemical stability, and high levels of metallisation for the efficient electrical connection of cells for power storage.

As the partnership between Morgan and FZSoNick continues to grow, with sustainability and energy storage high on the global agenda, Morgan has increased production of its alumina collars in excess of 1 million per

PRESS RELEASE

year. These components are being machined to very high geometries for seamless assembly onto the Beta tubes.

Chris Paine, Business Development Manager at the Technical Ceramics business of Morgan Advanced Materials commented: “Our international partnership with FZSoNick in Switzerland is proving hugely successful, prompting us to increase our manufacturing output. By collaborating with FZSoNick, which is a recognised leader, and working closely with them on materials innovation, we have been able to develop modular cell battery systems which are more sustainable and environmentally-friendly than any other on the market, prompting demand from residential, light commercial vehicles, and power station markets. We can only see this partnership growing even further as the world continues to embrace alternative forms of energy.”

For further information please visit: <http://www.morgansealsandbearings.com/BatteryCap>

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About Morgan Advanced Materials

Morgan Advanced Materials is a global materials engineering company which designs and manufactures a wide range of high specification products with extraordinary properties, across multiple sectors and geographies.

From an extensive range of advanced materials we produce components, assemblies and systems that deliver significantly enhanced performance for our customers’ products and processes. Our engineered solutions are produced to very high tolerances and many are designed for use in extreme environments.

The Company thrives on breakthrough innovation. Our materials scientists and applications engineers work in close collaboration with customers to create outstanding, highly differentiated products that perform more efficiently, more reliably and for longer.

Morgan Advanced Materials has a global presence with over 10,000 employees across 50 countries serving specialist markets in the energy, transport, healthcare, electronics, petrochemical and industrial sectors. It is listed on the London Stock Exchange in the engineering sector.

PRESS RELEASE

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