

Kairos Power and Materion Commission Molten Salt Purification Plant to Produce Coolant for High-Temperature Reactors

ELMORE, OHIO, UNITED STATES, July 19, 2022 /EINPresswire.com/ -- As part of a Cooperative Development Agreement with Materion Corporation, Kairos Power has commissioned a Molten Salt Purification Plant (MSPP) at the Materion campus in Elmore, Ohio. The plant, designed by Kairos Power, will produce large quantities of high-purity fluoride salt coolant to be used in high-temperature molten salt reactors, a clean, affordable and safe nuclear energy solution with the potential to transform the global energy landscape.

Kairos Power's fluoride salt-cooled high-temperature reactor (KP-FHR) technology is cooled by a mixture of lithium fluoride and beryllium fluoride salts known as "Flibe" which is chemically stable and operates at low pressure. This molten salt coolant will be used in Kairos Power's Engineering Test Unit (ETU), and the Hermes demonstration reactor, as well as future commercial KP-FHR reactors.

As an industry leader in the production and manufacturing of beryllium-based materials, Materion supplies beryllium fluoride for MSPP and contributes requisite expertise staffing and operating the plant. The decision to locate MSPP at Materion's Elmore facility reinforces a long-term, strategic commitment by both companies to demonstrate leadership in molten salt production.

By confirming the chemical process to produce Flibe at industrial scale, MSPP will help ensure the success of Kairos Power's iterative hardware demonstrations, reducing risk in a critical path workstream for the commercialization of KP-FHR technology while delivering cost certainty.

Ed Blandford, Chief Technology Officer and co-founder, Kairos Power

"We are thrilled to announce the commissioning of MSPP, a critical milestone to produce Flibe for KP-FHR technology and the cornerstone of our collaboration with Materion Corporation. MSPP represents a major investment in Kairos Power's vertical integration strategy to achieve cost certainty by establishing commercial Flibe production. We have confidence in our ability to produce Flibe that meets our nuclear specification for Kairos Power's testing program at the scale necessary to supply our major hardware demonstrations."

Alan Kruizenga, Senior Director of Salt Chemistry & Production, Kairos Power

"With MSPP we have scaled up a chemical process developed in Kairos Power's Salt Lab to produce Flibe in large quantities with specifications that demonstrate our ability to deliver for

ETU, Hermes and beyond. Our team is proud of what we've accomplished and excited about the prospects for further industrial application of this process. We are grateful for the collaboration of the Materion team, who worked alongside us throughout the pandemic to help set up a critical manufacturing capability for Kairos Power while working through the challenges a new process and technology have associated with it. We've established a plant and a working team that will scale as needed in the future."

Keith Smith, Vice President of Nuclear, Science & Government Affairs, Materion Corporation
"The MSPP has been in design and process development for more than a year," said Keith Smith, Vice President of Nuclear, Science and Government Affairs at Materion. "This is the largest Flibe production facility ever built and has the capacity to generate commercial quantities of the material."

About Kairos Power

Kairos Power is a mission-driven nuclear technology, engineering and manufacturing company singularly focused on commercializing the fluoride salt-cooled, high-temperature reactor (KP-FHR) – a clean source of carbon-free energy that can be deployed with robust safety at an affordable cost. Founded in 2016, the company is unique in applying a rapid iterative development approach supported by a vertical integration strategy to bring advanced reactor technology to market. Following extensive pre-application engagement with the Nuclear Regulatory Commission, Kairos Power's Construction Permit Application for the Hermes low-power demonstration reactor is currently under formal review. Kairos Power's mission is to enable the world's transition to clean energy with the ultimate goal of dramatically improving people's quality of life while protecting the environment. Learn more at kairospower.com.

About Materion Corporation

Materion Corporation is headquartered in Mayfield Heights, Ohio. Materion, through its wholly owned subsidiaries, supplies highly engineered advanced materials, enabling the advancement of next-generation technologies in a range of global markets. Products include precious and non-precious specialty metals, inorganic chemicals and powders, specialty coatings, specialty engineered beryllium alloys, beryllium and beryllium composites, and engineered clad and plated metal systems. Learn more at <http://materion.com/about>.

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