

## IPERIONX & MRL PARTNER TO QUALIFY AND DEMONSTRATE U.S. TITANIUM METAL POWDER FOR THE U.S. NAVY

- IperionX has formally partnered with MRL to qualify and demonstrate the performance of IperionX's U.S. produced titanium powder for additively manufactured aerospace parts. This partnership supports an MRL project with the U.S. Navy to test titanium flight critical metal replacement components for the U.S. Department of Defense ("DoD").
- MRL is an Ohio-based company with over 10 years of experience working with the U.S. DoD, which recently was awarded US\$72 million by the U.S. Air Force, and will conduct the printing and testing of the components.
- MRL has worked on over 30 combined projects with the DoD and DoE to produce and qualify additively manufactured metal parts that can replace conventionally produced parts.
- IperionX is actively engaged in multiple U.S. DoD discussions regarding the reshoring of a 100% U.S. sourced titanium supply chain for military components, and the partnership with MRL is expected to result in further projects with other agencies within the DoD.
- The titanium supply chain is a critical issue for the U.S. defense industrial base as there is no commercial domestic primary titanium metal production. Titanium metal production is now 70% controlled by China & Russia.
- IperionX is the only company in the U.S. focused on an end-to-end U.S. titanium supply chain to counter the dominance of China and Russia in the production of primary titanium metal.
- IperionX is producing titanium metal powders from its operational pilot facility in Utah from titanium metal scrap and will be rapidly scaling the production from this facility in 2022.

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**IperionX Limited ("IperionX" or "Company") (ASX: IPX)** is pleased to announce that it has entered into an agreement with Ohio-based aerospace additive manufacturing company Materials Resources, LLC ("MRL") to qualify and demonstrate the performance of IperionX's high quality titanium alloy powders for additively manufactured aerospace parts under an MRL project with the U.S. Navy to test titanium flight critical metal replacement components for the U.S. Department of Defense ("DoD").

IperionX has supplied MRL with titanium alloy (Ti-6Al-4V) powders from the Company's fully operational pilot facility in Utah, which will be used to produce flight critical components via metallic additive manufacturing to reduce production lead times and cost while achieving the demanding requirements of aerospace.

The U.S. has no commercial domestic production of primary titanium metal (titanium sponge) and is now 100% import reliant after Timet's plant in Nevada closed in 2020. The world's largest producers of primary titanium metal are China, Japan and Russia. Given the lack of domestic production capacity, and that the U.S. no longer maintains titanium sponge in the National Defense Stockpile, downstream titanium producers, including producers of goods such as ingot, billet, sheet, coil, and tube, are almost all entirely dependent on non-U.S. sources of titanium.

This presents the possibility that in a national emergency, U.S. production of titanium components would be curtailed as a result of being denied access to imports of titanium sponge, limiting the ability to serve customers requirements, including the defense sector.

Further, currently only Japan, Russia and Kazakhstan have titanium sponge plants certified to produce aerospace rotating-quality sponge that can be used for aerospace engine parts and other sensitive aerospace applications,



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with Russian company VSMPO-AVISMA being the largest titanium supplier for Boeing commercial production for parts used on Boeing 737, 767, 787, 777 and 777X airplanes.

IperionX's mission is to re-shore a low-cost, low-carbon end to end U.S. titanium supply chain for high value industries including defense and aerospace, using its breakthrough titanium technologies, which have demonstrated the potential to produce titanium products which are sustainable, 100% recyclable, low carbon intensity and at product qualities which meet or exceed current industry standards. The Company is currently producing titanium metal powders at its pilot facility in Utah for qualification by potential customers and industry partners.

Materials Resources, LLC is an Ohio-based aerospace additive manufacturing company with over 10 years of experience working with the U.S. DoD and Department of Energy ("DoE") for agile manufacturing using model-based senso-assisted qualification processes. In September 2021, MRL was awarded US\$72 million by the U.S. Air Force to research, develop, and assess new alloys and metallic materials-processing technologies for aerospace applications. More information about MRL can be found at [www.ICMRL.net](http://www.ICMRL.net)

IperionX and MRL have executed a Cooperative Research and Development Agreement for IperionX to deliver titanium alloy powders to MRL to qualify and demonstrate the powders for the production and testing of parts for MRL customers, including the U.S. Navy, as well as to produce and test parts for IperionX. IperionX will deliver to MRL titanium alloy powders for each MRL order, and MRL will use the titanium alloy powders to manufacture parts requested by MRL customers and test them using performance and other standards as appropriate for the objectives and functionality of the specific part and customer. The agreement will continue until terminated by either party. In return for MRL manufacturing and testing parts for the U.S. Navy using IperionX's titanium alloy powders, IperionX will pay MRL US\$50,000 and will provide the titanium alloy powders to MRL. IperionX and MRL see the potential to work together on further U.S. DoD and other commercial projects to produce qualifiable titanium components using U.S. sourced titanium.

**Ayman Salem, MRL's Founder and CEO said:** *"Having a domestic supplier of titanium alloys for additive manufacturing can address a major challenge in the supply chain. Demonstrating the repeatability and reproducibility of properties in flight critical components will close the loop from powder to fatigue performance. The planned use of MRL's integrated computational adaptive additive manufacturing (iCAAM) tools, machine learning, and in-situ NDE sensors will produce crucial information on the behavior of the material while keeping records of the pedigree for use in the qualification process."*

**Anastasios (Taso) Arima, IperionX's Managing Director and CEO said:** *"We are very pleased to be working with MRL to produce and test parts for the U.S. Department of Defense utilizing U.S. sourced titanium alloy powders. The U.S. has no commercial domestic production of primary titanium metal and is 100% import reliant, presenting the possibility that in a national emergency U.S. production of titanium components would be curtailed as a result of being denied access to imports of titanium sponge, limiting the ability to serve customers requirements, including the defense sector."*

*We see this partnership with MRL as an important step in the reshoring of a 100% U.S. sourced titanium supply chain for military components."*

This announcement has been authorized for release by the CEO and Managing Director.

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## **Forward Looking Statements**

*Information included in this release constitutes forward-looking statements. Often, but not always, forward looking statements can generally be identified by the use of forward-looking words such as “may”, “will”, “expect”, “intend”, “plan”, “estimate”, “anticipate”, “continue”, and “guidance”, or other similar words and may include, without limitation, statements regarding plans, strategies and objectives of management, anticipated production or construction commencement dates and expected costs or production outputs.*

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