

IPERIONX DRIVES TOWARDS COMMERCIAL SCALE TITANIUM METAL PRODUCTION

- IperionX's HAMR titanium furnace, the foundation asset to produce low-cost titanium, has completed final mechanical assembly and successfully passed factory acceptance tests with the IPX technical team
- This advanced HAMR titanium industrial furnace is now being transported to the U.S. with anticipated delivery to the Titanium Manufacturing Campus during the first quarter of 2024
- Installation and commissioning of the HAMR titanium furnace is expected during the second quarter, before producing first titanium metal in mid-year 2024
- Construction and internal fit-out of the Titanium Manufacturing Campus is advancing to schedule
- IperionX has received the first US\$2.4 million payment from the US\$12.7 million Department of Defense DPA Title III grant to fund Phase I ramp-up of the Virginia Titanium Production Facility

IperionX Limited (IperionX) (NASDAQ: IPX, ASX: IPX) is pleased to announce significant progress in advancing its commercial-scale titanium metal manufacturing capabilities at IperionX's Titanium Manufacturing Campus in Virginia, comprising the Titanium Production Facility and the Advanced Manufacturing Center.

Commercial Scale HAMR Titanium Furnace

The HAMR titanium furnace has completed final mechanical assembly and successfully passed factory acceptance testing overseen by the IperionX technical team. The furnace is currently being transported from the European manufacturer to the Titanium Manufacturing Campus in Virginia. This large-scale titanium furnace is expected to be installed within the Titanium Production Facility during the second quarter, paving the way for the production of titanium metal in mid-2024.

A critical IperionX production asset, this large-scale, industrial titanium furnace leverages patented company technologies, such as HAMR¹ and HSPT², to produce sustainable, high-quality and high-strength titanium metal products at commercial scale. This first production milestone will combine leading innovation and sustainability to set new industry standards in titanium metal production.



Figure 1: IperionX's HAMR Furnace, the heart of the Titanium Production Facility

Importantly, the application of this conventional furnace technology for titanium production has been de-risked via a comprehensive furnace test work program. In 2023, the IperionX technical team successfully completed

¹ HAMR™: Hydrogen Assisted Metallurgical Reduction

² HSPT™: Hydrogen Sintering and Phase Transformation

North Carolina

129 W Trade Street, Suite 1405
Charlotte, NC 28202

Tennessee

279 West Main Street
Camden, TN 38320

Virginia

1080 Confroy Drive
South Boston, VA 24592

Utah

1782 W 2300 S
West Valley City, UT 84119

two full-scale titanium production test runs that surpassed the core target production parameters for the Titanium Production Facility.

Construction Progress - Titanium Production Facility, Virginia

Construction of the Titanium Production Facility is advancing to schedule, with the HAMR titanium furnace expected to be commissioned and to produce first titanium metal in mid-2024.



Figure 2: Construction activities at the Titanium Production Facility

Construction Progress – Advanced Manufacturing Center, Virginia

Construction of the Advanced Manufacturing Center is on-schedule and anticipated to be commissioned during the second quarter of 2024. This advanced manufacturing unit will utilize angular and spherical titanium powders from the Titanium Production Facility to manufacture a wide range of low-cost and high-performance titanium products using powder metallurgy, HSPT forging and additive manufacturing/3D printing. It will also leverage CNC machining, post-processing equipment and advanced R&D laboratories to support customer and government engagement.



Figure 3: IperionX's Advanced Manufacturing Center

Anastasios (Taso) Arima, IperionX CEO said:

"IperionX is nearing an important milestone designed to revitalize the U.S. titanium supply chain with a unique end-to-end solution that spans from recycled scrap titanium to high-performance forged titanium products.

Our patented titanium technologies can produce a wide range of high-performance titanium products - including angular and spherical titanium powders, semi-finished titanium products, near-net titanium shape products and additively manufactured titanium components - with superior energy efficiency, lower costs, and lower environmental impacts.

We have a strong pipeline of potential U.S. government funding and incentive programs designed to re-shore and secure critical mineral and metal supply chains. The commissioning of our Virginia Titanium Manufacturing Campus will be a pivotal step forward, positioning IperionX with an innovative end-to-end titanium supply chain capable of manufacturing high-performance and low-cost titanium products for advanced American industries."

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

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IPERIONX MARKET AND DEVELOPMENT UPDATE

IperionX Titanium: An innovative 'end-to-end' U.S titanium supply chain solution

IperionX has developed an innovative 'end-to-end' American titanium supply chain solution, that spans from the production of domestically sourced titanium minerals, the technology to upgrade these minerals to +99% TiO₂, as well as the ability to utilize the largest range of recycled scrap titanium as feedstocks for low-cost titanium metal production.

With an industry leading patented technology portfolio, IperionX can produce low-cost and high-quality angular and spherical titanium powder to produce titanium semi-finished stock products (such as ingot, bar, plate, wire etc) for advanced applications. IperionX can also use these titanium powders to produce near-net forged titanium alloy shapes and high-value final titanium parts and components using additive manufacturing.

IperionX's technologies can produce a large range of high strength forged titanium alloys at low cost, with class-leading sustainability and superior process energy efficiencies when compared to current industry methods such as the Kroll process.

IperionX's full-suite titanium product range, from titanium billets to semi-finished titanium and final titanium parts, significantly increases the potential long-term value capture from an end-to-end U.S. titanium supply chain.

These technologies provide IperionX with a sustainable competitive advantage and significant value uplift from upgrading raw titanium materials through to finished titanium products when compared to traditional titanium industry supply chains. IperionX's patented technologies negate the need for titanium metal sponge and ingot, allowing direct manufacturing of higher value titanium products from the billet stage onwards.

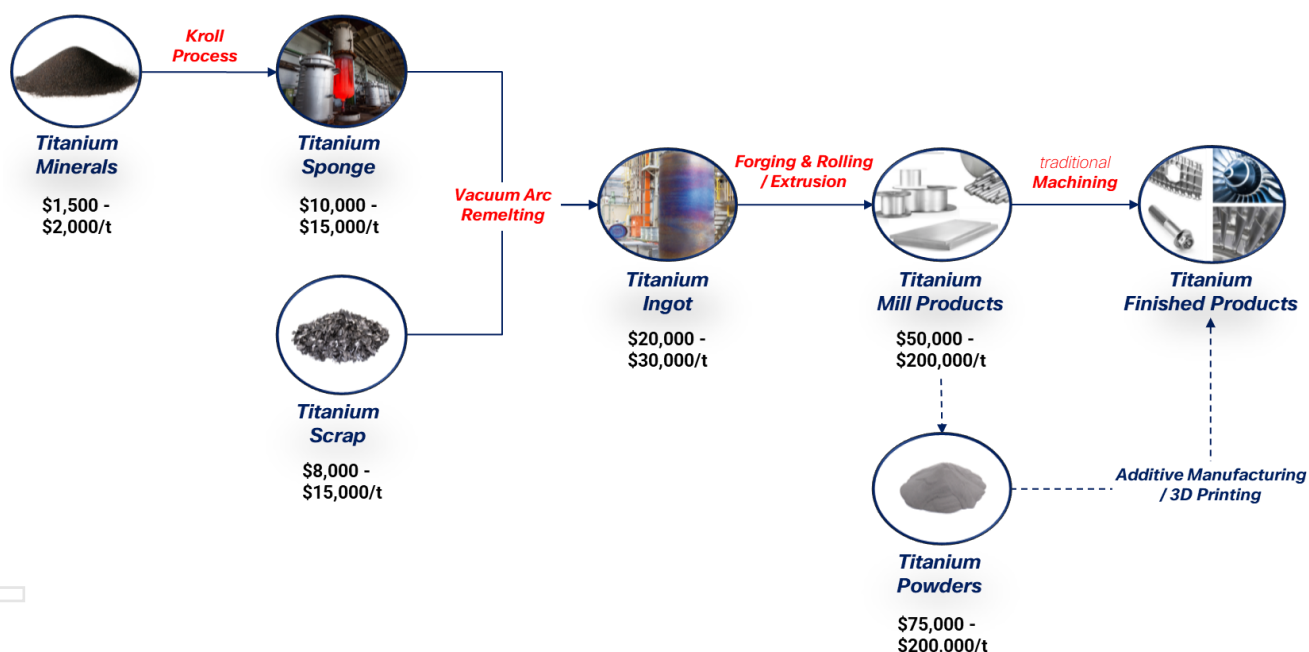


Figure 4: Traditional titanium metal value chain with estimated market prices

Titanium Manufacturing Campus – Virginia

IperionX's Titanium Manufacturing Campus in Virginia comprises of the Titanium Production Facility and the Advanced Manufacturing Center. The Titanium Production Facility will produce high-quality and low-cost angular and spherical titanium powders. These titanium metal powders will be marketed to a wide range of customers for use in additive and powder manufacturing. The high-quality titanium powders will also be an important low-cost internal feedstock for the Advanced Manufacturing Center, where they will be utilized to manufacture a wide range of higher value titanium products such as semi-finished traditional mill products, near-net shape forged titanium components and high-value titanium products using additive manufacturing.

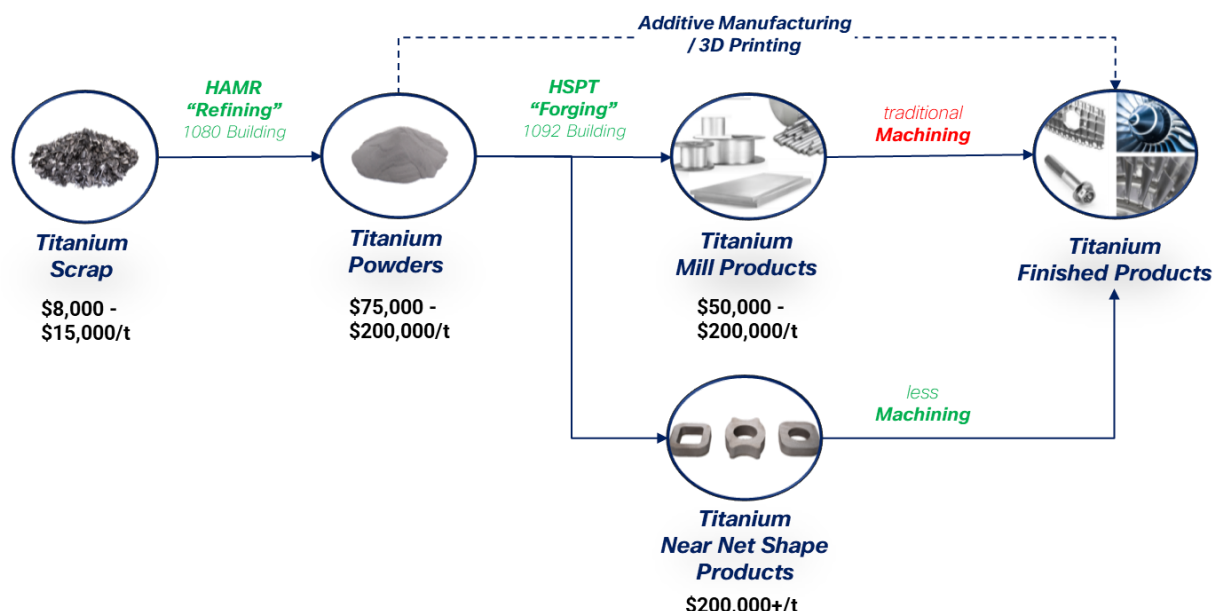


Figure 5: IperionX's Titanium Manufacturing Campus – A full suite titanium product value chain

Titanium Production Facility – Phase II: Higher Production Capacity at Lower Costs

In an market announcement on April 27, 2023³, IperionX announced that Phase II production capacity at the Titanium Production Facility⁴ would be 1,125 metric tons per annum. This production capacity, assuming a 100% spherical titanium powder product mix, projected that the total cash cost of production would be US\$42 per kilogram for spherical titanium powder.

At this lower cost of production, titanium's superior material properties would make it the metal of choice for a wide range of advanced applications. Many leading companies want to reduce their impact on the environment and IperionX titanium uniquely offers them a superior titanium, with greater durability and strength, that can be sustainably recycled at the end of product life. These advantages have generated extensive interest from leading companies for IperionX spherical and angular titanium powders, and also higher value titanium mill products, near-net titanium shapes and additively manufactured titanium parts.

Considering the compelling market demand signals for these high-value titanium products, IperionX now intends to increase its production of angular titanium powder to manufacture higher value titanium products - such as titanium plate, bar, near-net forged shapes and titanium parts - at the Advanced Manufacturing Center.

The Titanium Production Facility is projected to produce 2,000 metric tons per annum assuming the plant output is solely focussed on angular titanium powder. This increased capacity for a product mix of 100% angular titanium powder is a function of reduced process steps, reduced demand on furnace capacity from the granulation, sintering and deoxygenation ("GSD") process and increased equipment productivity. The production of angular powder significantly reduces the estimated cash cost, projected to be ~US\$30 per kilogram for angular powder at the full capacity of 2,000 tpa.

There is significant optionality to expand the capacity of the Titanium Production Facility to above +2,000 metric tons per annum. Comprehensive engineering, commercial, and financial studies are now underway to review potential product mix, production scale, and associated capital and operational expenditures at higher production levels. Updated financial forecasts and plans are anticipated to be announced in mid-2024.

IperionX confirms that all other material assumptions and technical parameters included in the previous announcement continue to apply and have not materially changed. Please refer to Appendix II and the announcement dated April 27, 2023 for further details regarding material assumptions used for the technoeconomic assessment.

Advanced Manufacturing Center – High-performance Titanium Product Manufacturing

IperionX plans to leverage its patented HAMR and HSPT technologies with powder metallurgy to manufacture high-performance forged titanium products.

³ ASX Release – 'IperionX Plans to Build the World's Largest 100% Recycled Titanium Metal Powder Facility by 2025' – April 27, 2023 (link)

⁴ Referred to in the April 27, 2023 ASX release as "TCF-1"

The use of powder metallurgy has historically been limited in the titanium industry for two key reasons:

1. Titanium powder manufactured from high-cost titanium billets generates high yield losses for on-spec (low oxygen) titanium metal angular powders. This results in high-cost angular titanium powders, limiting their application for traditional powder metallurgy production processes.
2. Standard argon-vacuum sintering processes used to consolidate titanium powder can produce inferior microstructure, strength and fatigue properties compared to traditional forged titanium products.

IperionX's patented HAMR titanium production technology can produce low-cost and high-quality titanium metal angular powders. Importantly, the proprietary HSPT 'forging' technology yields a wrought-like ultrafine grain microstructure to produce titanium products with superior fatigue properties versus traditional titanium powder metallurgy methods.

Combined, these titanium technologies have the potential to manufacture high-strength titanium products at a cost that was not previously possible. The forecast costs to "forge" titanium products via HSPT is expected to be US\$3-5/kg for near-net shape products, and US\$8-20/kg for powder metallurgy manufacturing and forging of titanium sheet, bar and wire.

First reimbursement from Department of Defense, DPA Title III award

IperionX is pleased that it has received the first US\$2.4 million payment from the US\$12.7 million Department of Defense DPA Title III grant that was awarded in 2023 to fund the first phase development of the Titanium Production Facility. Once the first phase is commissioned, IperionX intends to scale this advanced titanium production facility – in a modular development approach – to +2,000 metric tons p.a. on the same site in Virginia.

APPENDIX II: MATERIAL ASSUMPTIONS

Assumptions including development capital expenditure, operating costs and pricing for spherical and angular powder production, production capacity for 100% spherical and 100% angular powder production at the Titanium Production Facility is shown in the table below. Assumptions for material, labor and equipment utilisation remain as per the April 27, 2023 announcement.

Item	Material Estimates	
	100% Spherical Powder	100% Angular Powder
Annual Capacity	1,125 tpa	2,000 tpa
Development Capex	~US\$70 million	~US\$70 million
Operating Costs	US\$42/kg (US\$42,000 / t)	US\$30/kg (US\$30,000 / t)

Further, based upon current titanium market dynamics, customer interactions, external market data from existing titanium sales, and U.S. trade data on titanium metal products – the planned IperionX titanium product range is expected to have target pricing as per the table below:

Titanium Product Target Pricing (per metric ton)	
Angular Titanium Metal Powder	US\$70,000 – US\$100,000
Spherical Titanium Metal Powder	US\$100,000 – US\$250,000
Titanium Mill Products	US\$60,000 – US\$200,000
Titanium Near-Net Shape Products	+US\$200,000

U.S. Import-Export data for key titanium products

		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
8108908000 Other Wrought Titanium, Nesoi (kg)												
Export Value	US\$ million	932	1,062	1,003	1,077	1,172	1,246	1,382	926	719	935	1,146
Export Quantity	tons	12,831	11,761	10,723	10,635	11,462	12,335	13,480	9,067	7,032	9,063	9,777
Average Price	US\$/t	72,661	90,339	93,495	101,253	102,216	100,978	102,524	102,171	102,250	103,210	117,269
8108906031 Bars, Rods, Profiles And Wire Of Titanium, Nesoi (kg)												
Export Value	US\$ million	216	253	284	263	257	277	347	268	226	337	488
Export Quantity	tons	4,174	5,484	6,211	5,768	5,645	6,102	7,477	5,351	4,391	6,643	8,615
Average Price	US\$/t	51,732	46,052	45,723	45,599	45,561	45,409	46,454	50,096	51,446	50,692	56,642
8108903060 Other Articles Of Titanium, Nesoi (kg)												
Imported Value	US\$ million	73	97	99	124	110	98	126	108	74	107	138
Imported Quantity	tons	484	529	498	762	606	627	786	530	526	781	679
Average Price	US\$/t	150,710	182,787	199,853	162,427	181,955	157,011	160,759	203,982	140,435	137,271	202,939
8108200015 Titanium Powders (kg)												
Imported Value	US\$ million	4	7	8	12	13	17	20	18	23	24	21
Imported Quantity	tons	88	120	129	161	157	191	189	195	214	194	258
Average Price	US\$/t	49,900	55,777	64,028	74,073	81,356	87,083	105,290	90,269	109,611	124,892	82,090
8108903030 Titanium Castings (kg)												
Imported Value	US\$ million	2	2	2	3	4	7	8	7	7	7	11
Imported Quantity	tons	37	24	34	31	41	62	61	58	44	38	85
Average Price	US\$/t	64,387	67,864	50,876	82,882	87,650	116,023	135,434	120,163	166,223	178,257	132,501

Source: USITC DataWeb

About IperionX

IperionX aims to become a leading American titanium metal and critical materials company – using patented metal technologies to produce high performance titanium alloys, from titanium minerals or scrap titanium, at lower energy, cost and carbon emissions.

Our Titan critical minerals project is one of the largest mineral resources of titanium, rare earth and zircon minerals sands in the United States.

IperionX's titanium metal and critical minerals are essential for advanced U.S. industries including space, aerospace, defense, consumer electronics, hydrogen, electric vehicles and additive manufacturing.

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.

Forward looking statements inherently involve known and unknown risks, uncertainties and other factors that may cause the Company's actual results, performance, and achievements to differ materially from any future results, performance, or achievements. Relevant factors may include, but are not limited to, changes in commodity prices, foreign exchange fluctuations and general economic conditions, increased costs and demand for production inputs, the speculative nature of exploration and project development, including the risks of obtaining necessary licenses and permits and diminishing quantities or grades of reserves, the Company's ability to comply with the relevant contractual terms to access the technologies, commercially scale its closed-loop titanium production processes, or protect its intellectual property rights, political and social risks, changes to the regulatory framework within which the Company operates or may in the future operate, environmental conditions including extreme weather conditions, recruitment and retention of personnel, industrial relations issues and litigation.

Forward looking statements are based on the Company and its management's good faith assumptions relating to the financial, market, regulatory and other relevant environments that will exist and affect the Company's business and operations in the future. The Company does not give any assurance that the assumptions on which forward looking statements are based will prove to be correct, or that the Company's business or operations will not be affected in any material manner by these or other factors not foreseen or foreseeable by the Company or management or beyond the Company's control.

Although the Company attempts and has attempted to identify factors that would cause actual actions, events or results to differ materially from those disclosed in forward looking statements, there may be other factors that could cause actual results, performance, achievements, or events not to be as anticipated, estimated or intended, and many events are beyond the reasonable control of the Company. Accordingly, readers are cautioned not to place undue reliance on forward looking statements. Forward looking statements in these materials speak only at the date of issue. Subject to any continuing obligations under applicable law or any relevant stock exchange listing rules, in providing this information the Company does not undertake any obligation to publicly update or revise any of the forward-looking statements or to advise of any change in events, conditions or circumstances on which any such statement is based.