



HPQ Silicon Welcomes Canada's Recognition of Silicon Metal as a Critical Mineral

The addition will enhance the value of HPQ's innovative and sustainable silicon production technologies while supporting Canada's efforts to reshore industrial supply chains.

MONTREAL, Canada, June 18th, 2024 — [HPQ Silicon Inc.](#) ("HPQ" or the "Company") ([TSX-V: HPQ](#)) ([OTCQB: HPQFF](#)) ([FRA: 008](#)), a technology company specializing in green engineering processes for silica and silicon material production, is pleased to announce its support for the Government of Canada's latest expansion of the Critical Minerals List, which now recognizes Silicon Metal as a critical mineral resource key to domestic industry and security.

The [news release](#), published on Monday, June 10th, 2024, summarizes the [Government of Canada's Critical Minerals List](#). Announced by the Honourable Seamus O'Regan Jr. and Natural Resources Canada, the update highlights the growing importance of silicon metal in modern technologies that drive a low-carbon economy, including semiconductors, batteries, solar panels, and more.

The move will offer greater certainty for Canadian mining and manufacturing businesses while further building out the nation's capacity to meet the growing global demand for sustainably sourced minerals.

"We are thrilled that the Government of Canada has finally recognized silicon metal (Si) as a critical mineral," said Bernard Tourillon, President and CEO of HPQ Silicon. "This validates our strategic vision of developing the PUREVAP™ QRR technology, a new proprietary process to produce, in one step, a zero-carbon footprint, high purity silicon metal material. Our innovative solutions will not only help meet the growing demand for high-purity silicon, it will also allow silicon metal manufacturing to evolve from being the largest emitter of CO₂ among all metals and non-ferrous metal, based on tonnes (t) of CO₂/t of product basis ^[1] to a manufacturing process that can help Canada and the world reach its carbon reduction targets. We are committed to advancing our technology and doing our part to ensure Canada realizes its full potential as a global mineral powerhouse."

Significance for HPQ Silicon

HPQ, leveraging its proprietary PUREVAP™ Quartz Reduction Reactor (QRR) technology, will benefit from the recognition of the strategic importance of silicon, with the company well-positioned to play a leading role in being the only Company capable of supplying Canada's and the world market with zero carbon footprint silicon materials ([June 27, 2023, release](#)).

HPQ's PUREVAP™ QRR represents a significant breakthrough in silicon production; unlike traditional methods, which require large scale facilities for their multi-stage, energy-intensive, and polluting processes, the PUREVAP™ process is a small footprint scalable process that can efficiently convert raw quartz into high-purity silicon metal (3N+) in a single step, a material that is ideal for high-tech industries, including metallurgy, electric vehicles, aluminum alloys, silicones, renewable energy, battery storage, and electronics. Furthermore, the system reduces raw material input by approximately 25%, versus traditional process ^[2].

Finally since the QRR, *by design*, operates under controlled atmospheric conditions, this ensures that the CO gas ("Co(g)") generated during the carbothermic reaction remains unoxidized. Consequently, in addition to producing high purity silicon, the QRR also produces a gas composition enriched with CO(g), which can be readily captured and valorize by combining it with green hydrogen to produce valuable green synthetic fuels.

"This designation will likely unlock federal and provincial funding opportunities to bolster domestic supply chains for critical minerals, assisting HPQ in scaling its commercial operations," said Mr. Tourillon. "Adding silicon to the Critical Minerals List also serves as a strong market signal to investors and industry partners about the importance of a sustainable and reliable silicon supply chain."

PUREVAP™ QRR's Economic Advantage

The QRR's clear economic advantage over competing silicon metal production techniques empowers the repatriation of industry back to Canada's ESG-friendly markets. With the potential to displace dirty silicon



production primarily produced overseas while supporting North American industrialization, the QRR offers an efficient and sustainable solution that aligns with Canada's decarbonization efforts.

REFERENCE SOURCES

- [1] Bernstein L, Roy J, Delhotal KC, Harnisch J, Matsuhashi R, PriceL, Tanaka K, Worrell E, Yamba F, Fengqi Z (2007) Industry. [In: Climate change 2007: Mitigation. Contribution of working group III to the fourth assessment report of the intergovernmental panel on climate change](#). Cambridge University Press, Cambridge, UK and New York, USA.
- [2] PyroGenesis estimates the production of silicon with the PUREVAP™ QRR uses 25% **less feedstock** than conventional carbothermic processes that, according to Ferroglobe PLC investor presentation dated October 17, 2017 (Page 11), use a ratio of 6 tonnes (t) of raw materials to produce 1 tonne of metallurgical grade silicon (MG Si – 98.5% to 99.5%).

About HPQ Silicon

[HPQ Silicon Inc. \(TSX-V: HPQ\)](#) is a Quebec-based TSX Venture Exchange Tier 1 Industrial Issuer.

HPQ is developing, with the support of world-class technology partners [PyroGenesis Canada Inc.](#) and [NOVACIUM SAS](#), new green processes crucial to make the critical materials needed to reach net zero emissions.

HPQ activities are centered around the following four (4) pillars:

- 1) Becoming a green low-cost (Capex and Opex) manufacturer of Fumed Silica using the **FUMED SILICA REACTOR**, a proprietary technology owned by HPQ being developed for HPQ by PyroGenesis.
- 2) Becoming a producer of silicon-based anode materials for battery applications with the assistance of NOVACIUM SAS.
- 3) HPQ SILICON affiliate NOVACIUM SAS is developing a low carbon, chemical based on demand and high-pressure autonomous hydrogen production system.
- 4) Becoming a zero CO₂ low-cost (Capex and Opex) producer of High Purity Silicon (2N+ to 4N) using our **PUREVAP™ "Quartz Reduction Reactors" (QRR)**, a proprietary technology owned by HPQ being developed for HPQ by PyroGenesis.

For more information, please visit [HPQ Silicon web site](#).

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