



HPQ SIGNS NON-DISCLOSURE AGREEMENT WITH ANOTHER LEADING FUMED SILICA MANUFACTURER, DELIVERS MORE COMMERCIAL-GRADE SAMPLES FOR THIRD PARTY REVIEW

MONTREAL, Canada, September 14th, 2023 — [HPQ Silicon Inc.](#) (“HPQ” or the “Company”) ([TSX-V: HPQ](#)) ([OTCQB: HPQFF](#)) ([FRA: O08](#)), A technology company specializing in green engineering processes for silica and silicon material production is pleased to announce additional milestones on the ongoing third-party commercial validation of HPQ-produced Fumed Silica material.

HPQ's wholly owned subsidiary, HPQ Silica Polvere Inc. (HPQ Polvere), and technology provider PyroGenesis Canada Inc. [PyroGenesis Canada Inc.](#) ([TSX: PYR](#)) ([NASDAQ: PYR](#)) ([FRA: 8PY](#)) (Pyrogenesis) have successfully signed a second Non-Disclosure Agreement (NDA) with a second Leading Fumed Silica Manufacturer (LFSM) [1].

ADDITIONAL THIRD-PARTY TESTING OF HPQ POLVERE FSR PRODUCED FUMED SILICA UNDERWAY

A second batch samples of fumed silica material produced using a lab-scaled model of HPQ Polvere’s proprietary Fumed Silica Reactor ('FSR') technology was shipped, received, and will be undergoing material quality evaluation by a third party under a non-disclosure agreement (NDA).

Mr. Bernard Tourillon, President and CEO of HPQ Silica Polvere Inc and HPQ Silicon Inc., noted, *“Strong third-party interest in our fumed silica material, expressed by various leading manufacturers early in our development, underscores the potential of our technology, our progress, and the value of our efforts. While success is not guaranteed, these non-disclosure agreements (NDAs) and sample requests hold the potential to form partnerships in our venture, which could manifest in different ways, such as commercial-scale offtake agreements or generating interest in adopting our technology.”*

PRODUCING AT LAB-SCALE COMMERCIAL GRADE FUMED SILICA

By using a lab-scaled model of HPQ Polvere’s proprietary Fumed Silica Reactor ('FSR') technology, PyroGenesis was successful in producing fumed silica. Preliminary tests and examination confirm that the produced material has the structural characteristics similar to commercially available fumed silica, and it is this material that is being tested by third parties under NDA.

This milestone signifies that HPQ Polvere has the only technology capable of using raw quartz (SiO₂) as feedstock to produce commercial grade fumed silica—in one step.

HPQ POLVERE FUMED SILICA INITIATIVE - FROM LAB-SCALE TO COMMERCIAL SCALE

Fumed silica, also known as Pyrogenic Silica, is a fine white powder characterized by its high surface area and low bulk density.

This is precisely where HPQ Polvere's strategy comes into play. By establishing a scalable production capability for fumed silica, ranging from 250 tonnes per year (TPY) to 2,500 TPY, we are well-aligned with both current and future market dynamics.

We are committed to a diligent expansion of our Fumed Silica production capacity. Currently, at 50 kg per year at lab scale, we aim to achieve 50 TPY within 12 months and subsequently exceed 250 TPY per reactor within the next 36 months.

FUMED SILICA: BACKGROUND AND GLOBAL MARKET

Fumed Silica is a crucial material used in various industries due to its unique properties. Its commercial applications encompass various industries including personal care, pharmaceuticals, agriculture (food & feed), adhesives, sealants, construction, batteries gel, automotive and more.



Worldwide demand for fumed silica in 2017 was 317,000 tonnes (t) worth US\$ 1.6 Billion (B). The market was estimated to grow at 6% CAGR and reach an estimated volume of 424,300 t, worth about US \$ 2.2 B in 2022 [2].

HPQ Polvere holds a distinctive competitive edge through its Fumed Silica Reactor. This advantage stems from our ability to directly transform quartz into fumed silica, resulting in energy requirements as low as 15,000 kWh per tonne produced [3]. This process not only enhances efficiency but also minimizes environmental impact and associated carbon taxes [4].

In contrast, conventional manufacturing processes for fumed silica depend on 2N purity Silicon Metal (Si) as feedstock. These processes entail substantial CO₂ emissions, intricate procedures, and high energy consumption (approximately 115,000 kWh per tonne produced). Moreover, they give rise to hazardous by-products like Hydrogen Chloride Gas (HCl) [5].

“The signature of the second NDA is a confirmation that as our process gains more industry visibility, HPQ Silica Polvere anticipates continued interest in fumed silica production technology, benefiting both the Company and the industries that rely on this essential material,” added Mr. Tourillon.

REFERENCE SOURCES

- [1] To maintain confidentiality for industry competitive reasons, the identity of the LFSM will remain undisclosed. PyroGenesis participation in the NDA agreements is done at HPQ's express request.
- [2] Worldwide Sales data from MarketsandMarkets 2017 "fumed silica market – global forecast to 2022" page 70.
- [3] PyroGenesis Canada Inc.
- [4] HPQ Silicon Inc July 13, 2023, release
- [5] Barthel, H., Rösch, L., & Weis, J. (2005). Fumed silica-production, properties, and applications. *Organosilicon Chemistry Set: From Molecules to Materials*, 761-778.

About PyroGenesis Canada Inc.

PyroGenesis Canada Inc., a high-tech company, is a leader in the design, development, manufacture and commercialization of advanced plasma processes and sustainable solutions which reduce greenhouse gases (GHG) and are economically attractive alternatives to conventional “dirty” processes. PyroGenesis has created proprietary, patented, and advanced plasma technologies that are being vetted and adopted by multiple multibillion dollar industry leaders in three massive markets: iron ore pelletization, aluminum, waste management, and additive manufacturing. With a team of experienced engineers, scientists and technicians working out of its Montreal office, and its 3,800 m² and 2,940 m² R&D and manufacturing facilities, PyroGenesis maintains its competitive advantage by remaining at the forefront of technology development and commercialization. The operations are ISO 9001:2015 and AS9100D certified, having been ISO certified since 1997. For more information, please visit: www.pyrogenesis.com

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.](#) (TSX: [PYR](#)) ([NASDAQ: PYR](#)) and [NOVACIUM SAS](#), new green processes crucial to make the critical materials needed to reach net zero emissions.

HPQ activities are centred around the following five (5) pillars:

- 1) Becoming a zero CO₂ low-cost (Capex and Opex) producer of High Purity Silicon (2N+ to 4N) using



our proprietary **PUREVAP™ “Quartz Reduction Reactors” (QRR)** 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) Becoming a green low-cost (Capex and Opex) producer of Fumed Silica using our proprietary **FUMED SILICA REACTOR** being developed by PyroGenesis.
- 4) HPQ SILICON affiliate NOVACIUM SAS is developing a low carbon, chemical base on demand and high-pressure autonomous hydrogen production system.
- 5) Working to become the first producer of nano silicon materials from High Purity Silicon chunks using our proprietary **PUREVAP™ Nano Silicon Reactor (NSiR)** being developed by PyroGenesis.

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

Disclaimers:

This press release contains certain forward-looking statements, including, without limitation, statements containing the words "may", "plan", "will", "estimate", "continue", "anticipate", "intend", "expect", "in the process" and other similar expressions which constitute "forward-looking information" within the meaning of applicable securities laws. Forward-looking statements reflect the Company's current expectation and assumptions and are subject to a number of risks and uncertainties that could cause actual results to differ materially from those anticipated. These forward-looking statements involve risks and uncertainties including, but not limited to, our expectations regarding the acceptance of our products by the market, our strategy to develop new products and enhance the capabilities of existing products, our strategy with respect to research and development, the impact of competitive products and pricing, new product development, and uncertainties related to the regulatory approval process. Such statements reflect the current views of the Company with respect to future events and are subject to certain risks and uncertainties and other risks detailed from time-to-time in the Company's ongoing filings with the security's regulatory authorities, which filings can be found at www.sedar.com. Actual results, events, and performance may differ materially. Readers are cautioned not to place undue reliance on these forward-looking statements. The Company undertakes no obligation to publicly update or revise any forward-looking statements either as a result of new information, future events or otherwise, except as required by applicable securities laws.

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Source: HPQ Silicon Inc.

For further information contact:

Bernard J. Tourillon, Chairman, President, and CEO Tel +1 (514) 846-3271

Patrick Levasseur, Director Tel: +1 (514) 262-9239

Email: Info@hpqsilicon.com