

HPQ Fumed Silica Reactor Pilot Plant Produces First Material

Montreal, Canada, February 27th, 2025 — [HPQ Silicon Inc.](#) (“HPQ” or the “Company”) ([TSX-V: HPQ](#), [OTCQB: HPQFF](#), [FRA: O08](#)), a technology company specializing in green engineering of processes would like to update shareholders on the latest developments at **HPQ Silica Polvere Inc.** (“**HSPI**”)^[1] regarding the ongoing pilot-scale testing of its proprietary **Fumed Silica Reactor (FSR)** process.

HSPI’s technology provider, [PyroGenesis Inc.](#) ([TSX: PYR](#), [OTCQX: PYRGE](#), [FRA: 8PY1](#)) (“PyroGenesis”), has confirmed the successful production of material during the first batch test of the Fumed Silica Reactor (FSR) pilot plant. **The material produced and collected during this test cycle exhibits visually morphological characteristics consistent with those observed in lab-scale production.** A comprehensive analysis of the material will be conducted at an independent university laboratory to verify its structural and chemical properties. This evaluation will provide quantitative validation of product quality and inform any necessary process optimizations for subsequent pilot-scale trials.

*“We could not be more excited about successfully **producing material in a single step, with the same visual characteristics as the material previously produced at lab scale, during our first batch test with the FSR pilot plant.** This achievement bodes very well for the future,”* said Bernard Tourillon, President & CEO of HPQ Silicon and HPQ Silica Polvere. *“The coming weeks should be very exciting, as we will be in a position to start delivering samples to independent parties under LOI and NDA.”*

FSR Pilot Plant: Transitioning from Theoretical Modeling to Scaled Industrial Validation

The FSR pilot plant represents a 20-fold scale-up of the laboratory-scale system that successfully demonstrated the feasibility of the plasma-based fumed silica production process. The primary objective is to reproduce the validated lab-scale operating conditions at pilot scale while systematically assessing process performance under real-world conditions. This approach follows the successful lab-scale validation that produced commercial-quality fumed silica (refer to the [November 8, 2023, release](#) and subsequently attracted the interest of Evonik, leading to a Letter of Intent (LOI) (refer to the [July 9, 2024, release](#)).

The first successful batch test of the pilot plant is a critical milestone, providing empirical validation of the theoretical process model. This test evaluates how the reactor and its auxiliary systems respond to high-temperature plasma processing and allows for real-time data acquisition on system performance, material conversion efficiency, and process stability. Key operational parameters such as reactor temperature profiles, feedstock behavior, energy input, and gas-phase reaction kinetics are being established as reference data for subsequent optimizations.

The next three batch tests will focus on achieving consistent and repeatable production of high-surface-area fumed silica, ensuring that product specifications align with or exceed those achieved at lab scale. Each test cycle, spanning approximately 14 days, accounts for thermal ramp-up to operational conditions, controlled cooling, reactor inspection, and extensive material characterization. Product quality will be verified through in-house analyses and independent third-party validation under LOI and NDA agreements. Once these tests confirm the FSR’s ability to produce materials with BET surface areas ranging from 150 to 300 m²/g, the program will progress to semi-continuous operation.



The transition to semi-continuous production will significantly scale up material throughput, increasing feedstock input from 20–30 kg per batch to over 480 kg per day across two operational days. This phase targets the production of at least 200 kg of commercial-grade fumed silica, enabling expanded validation efforts, supply chain engagement, and pre-commercial market trials. The data and insights gathered from this stage will be pivotal in de-risking full-scale industrial deployment and advancing the technology toward commercialization.

"Since 1944, the fumed silica industry has relied on the same conventional, fossil-fuel-intensive production methods. At PyroGenesis, we are committed to breaking that cycle through innovation," said P. Peter Pascali, President and CEO of PyroGenesis Inc. *"The Fumed Silica Reactor represents a revolutionary shift—scaling up a plasma-based process that eliminates carbon emissions while maintaining superior product quality. By decarbonizing this industry, we are not just enhancing efficiency; we are setting a new standard for sustainable, commercially viable fumed silica production, empowering HSPI's clients with a cleaner and more reliable process."*

REFERENCE SOURCES

- [1] A wholly owned subsidiary of HPQ Silicon Inc. when technology supplier PyroGenesis announced its intention to exercise its option to acquire a 50% stake in HSPI in May 2024.

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 centred around the following five (5) 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 Silica Polvere Inc being developed for HSPI 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) HPQ SILICON affiliate NOVACIUM SAS is developing a new process to transform black aluminium dross into a valuable resource.
- 5) 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](#).

About PyroGenesis Inc.

PyroGenesis, a high-tech company, is a proud 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 four 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 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. PyroGenesis' shares are publicly traded on the TSX in Canada (TSX: PYR), the OTCQX in the US (OTCQX: PYRGF), and the Frankfurt Stock Exchange in Germany (FRA: 8PY). www.pyrogenesis.com

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Source: HPQ Silicon Inc.

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