



GEN3 PUREVAP™ QRR PILOT PLANT VALIDATION: PURITY AND PROCESS MILESTONES REACHED AHEAD OF SCHEDULE

MONTREAL, Canada, March 16th, 2023 — [HPQ Silicon Inc.](#) (“HPQ” or the “Company”) ([TSX-V: HPQ](#)) ([OTCQX: HPQFF](#)) ([FRA: O08](#)), a technology company engaged in green engineering processes for producing silica and silicon material, would like to inform shareholders of the two (2) major milestones reached as we continue with series #1 ([January 19, 2023 release](#)) of the GEN3 PUREVAP™ Quartz Reduction Reactor (QRR) (“GEN3 QRR”) (“Pilot Plant”) testing and validation program. Technology provider [PyroGenesis Canada Inc.](#) ([TSX: PYR](#)) ([NASDAQ: PYR](#)) ([FRA: 8PY](#)) (“Pyrogenesis”) achieved, under less-than-optimal operating conditions, better than expected purity results, and demonstrated its ability to operate the Pilot Plant on a semi – continuous basis. Both are described in more detail below.

PRODUCED SILICON EXCEEDS 99.5% BEST COMMERCIALY AVAILABLE PURITY THRESHOLD

Pyrogenesis tested the purity of Silicon material produced during the first three (3) series #1 tests completed.

This was done:

- 1) To validate the GEN3 PUREVAP™ QRR pilot plant scale-up,
- 2) To determine how HPQ QRR Silicon purity compares to the purity threshold of the metallurgical grade silicon (“MG Si”) (98.0% to 99.5% Si) presently available in the market,
- 3) To determine the optimal parameters required and the process improvements needed to produce battery-grade silicon purity (3N+) during test series #2, and
- 4) To optimize and improve the production yield for the next PUREVAP™ QRR generations.

Samples from each of the three (3) tests were sent for ICP-MS Silicon Bulk Sample Analysis at Air Liquide Electronics (Balazs NanoAnalysis).

The results showed that:

- Samples 1 (from Test Series 1, Production test 1, performed between the 22 & 25 of November 2022) yielded an averaged Silicon Purity (%) of 99.23% (equivalent to commercial grade Si-421)¹
- Samples 2 (from Test Series 1, Production test 2, performed between the 6 & 9 of December 2022) yielded an averaged Silicon Purity (%) of 99.58% (equivalent to commercial grade Si-1101) and 99.30% (equivalent to commercial grade Si-411), respectively¹.
- Samples 3 (from Test Series 1, Production test 3, performed between the 24 & 26 of January 2023) yielded an averaged Silicon Purity (%) of 99.60% (higher than the best MG Si commercial grade of 99.5% available in the market)¹.

“While we never doubted that our GEN3 PUREVAP™ QRR would produce High Purity Silicon (> 99.5% Si),” said Mr. Bernard Tourillon, President and CEO of HPQ Silicon Inc. “Validating the fact that our system can produce the best grade MG Si offered in the market and better, this early in the testing program was unexpected and is quite an accomplishment.”

These results demonstrate the value of the technical team at PyroGenesis and validates their methodical approach. While the focus of using our PUREVAP™ QRR technology remains on developing our battery

¹ [Link to the source](#)



initiative, these results confirm the added potential commercial value of the technology as a better alternative to conventional silicon processes. Furthermore, HPQ's QRR will be highly sought after as we continue to exist in a market environment that will be looking at building new plants to meet the demand for 99.5% Silicon as feedstock to make Silicones and Polysilicon.

QRR SUCCESSFULLY ATTAINED SEMI-CONTINUOUS BATCH PRODUCTION MILESTONES

Between February 28th and March 2nd, 2023, PyroGenesis completed Production test #4 under Test Series 1.

During the test, the Gen3 QRR pilot plant was successfully operated under semi-continuous batch production mode. The system operators powered up the reactor to the required operating state, after which feedstock was loaded into the system, and a complete production cycle was performed.

The production cycle was repeated 3 more times, to properly validate the milestone attained.

The remaining milestone before testing can proceed to test series #2, is obtaining a successful silicon pour. The technical team at PyroGenesis have identified final technical adjustments needed for the reactor to attain this milestone, which could occur during the Production Test #5 under Test Series 1 - tentatively scheduled for the end of March 2023.

"The methodical approach taken by PyroGenesis during the ongoing process modifications has created the GEN3 PUREVAP™ QRR as a stable operating platform to use in producing High Purity Silicon," added Mr. Tourillon. "So, we are very confident that the same approach will allow us to obtain a Silicon pour and move the process to the next testing phase."

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 green low-cost (Capex and Opex) producer of High Purity Silicon (2N+ to 4N) using our proprietary **PUREVAP™ "Quartz Reduction Reactors" (QRR)** being developed by PyroGenesis.



- 2) Becoming North America's first producer of micron size High Purity Silicon (3N & 4N) powders with the assistance of NOVACIUM SAS.
- 3) 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.
- 4) Becoming a green low-cost (Capex and Opex) producer of Fumed Silica using our proprietary **FUMED SILICA REACTOR** being developed by PyroGenesis.
- 5) Developing a small and compact process for the on-demand production of hydrogen via hydrolysis of Silicon and other materials.

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.

Neither the TSX Venture Exchange nor its Regulation Services Provider (as that term is defined in the policies of the TSX Venture Exchange) accepts responsibility for the adequacy or accuracy of this release.

This News Release is available on the company's [CEO Verified Discussion Forum](#), a moderated social media platform that enables civilized discussion and Q&A between Management and Shareholders.

- 30 -

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