

# HPQ Silicon and Pyrogenesis Evaluating a Low-cost and Environmentally Friendly Plasma Based Process to Manufacture Fumed Silica

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MONTREAL, May 04, 2021 - [HPQ Silicon Resources Inc.](#) ("HPQ" or the "Company") (TSX-V: HPQ) (OTCQX: HPQFF) (FWB: UGE), an innovative silicon solutions company, is pleased to announce that HPQ and PyroGenesis Canada Inc. (TSX: PYR) (NASDAQ: PYR) (FRA: 8PY) are actively evaluating the commercial opportunity of developing a plasma process that could convert Silica (Quartz, SiO<sub>2</sub>) into Fumed Silica (Pyrogenic Silica) in one step. This new process is a natural evolution from PyroGenesis' unique plasma-based processes and would be a low-cost and environmentally friendly option. As conceived, the process is expected to eliminate the harmful chemicals presently generated by traditional flame pyrolysis of silicon tetrachloride that are currently used to make fumed silica.

## THE MARKET: FUMED SILICA ADDRESSABLE MARKET TO REACH US\$ 2.2 BILLION BY 2022<sup>1</sup>

Fumed silica (Pyrogenic Silica) is a white microscopic powder with high surface area and low bulk density. Its commercial applications encompass various industries including personal care, pharmaceuticals, agriculture (food & feed), adhesives, sealants, construction, batteries and automotive to name a few. Demand for Fumed Silica is growing at 6% CAGR, with a global addressable market of US\$ 1,5 billion in 2016 expected to grow to US\$ 2,2 billion in 2022.

## OPPORTUNITY: END USERS LOOKING TO IMPROVE THEIR ENVIRONMENTAL FOOTPRINT NEED OPTIONS

Manufacturing fumed silica is a hazardous process that is both capital intensive and energy consuming. It causes significant air pollution due to 1) the carbon dioxide emission associated with the current processes and 2) the hydrogen chloride gas produced and released during the manufacturing process, a highly regulated gas with stringent regulations associated with its production in North America.

Combining HPQ Silicon High Purity Quartz initiatives with PyroGenesis industry leading knowhow in the development of commercial plasma processes, this new process could revolutionize the manufacturing of Fumed Silica, give HPQ and PyroGenesis a market leadership in its green manufacturing and pivot production back to North America, all the while allowing end users to improve their environmental footprint.

*"We are very excited to work with PyroGenesis on this new venture. With over 25 years of expertise in torch plasma applications PyroGenesis is a market leader in plasma technology. This expertise will be applied to transform Silica (Quartz, SiO<sub>2</sub>) into Fumed Silica (Pyrogenic Silica) in one step, similar to the successful work with our PUREVAP™ QRR&#8482; system the venerable Quartz Reduction Reactor" said Bernard Tourillon, President and CEO HPQ Silicon. "Over US\$50 billion in capital flowed in US ESG funds in 2020, and these are the types of investment they are looking for, so our timing could not be better. Our market research has identified several sectors wishing to improve their environmental footprint, and HPQ's innovative silicon solutions is prepared to meet this demand."*

*"This opportunity is a natural extension of the work we are doing with HPQ and aligns with both what PyroGenesis is targeting and environmental initiatives currently taking place worldwide" said Peter Pascali, President and CEO of PyroGenesis Canada Inc. "This underscores the potential of what we are doing with HPQ, and the reason why we are excited about how things are developing. We were always taken by the myriad of exciting and potentially lucrative off-shoots possible from our initial project with HPQ. We are looking forward to evaluating this opportunity in detail."*

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 products. The Company provides its engineering and manufacturing expertise and its turnkey process equipment packages to customers in the defense,

metallurgical, mining, advanced materials (including 3D printing), and environmental industries. With a team of experienced engineers, scientists and technicians working out of its Montreal office and its 3,800 m<sup>2</sup> and 2,940 m<sup>2</sup> manufacturing facilities, PyroGenesis maintains its competitive advantage by remaining at the forefront of technology development and commercialization. The Company's core competencies allow PyroGenesis to provide innovative plasma torches, plasma waste processes, high-temperature metallurgical processes, and engineering services to the global marketplace. PyroGenesis' operations are ISO 9001:2015 and AS9100D certified. For more information, please visit [www.pyrogenesis.com](http://www.pyrogenesis.com).

#### About HPQ Silicon Resources

[HPQ Silicon Resources Inc.](#) (TSX-V: HPQ) is a Quebec-based innovative silicon solutions company that offers innovative silica (SiO<sub>2</sub>), silicon (Si) based solutions and is developing a unique portfolio of high value-added silicon (Si) products sought after by battery and electric vehicle manufacturers.

Silicon (Si), also known as silicon metal, is one of today's key strategic materials needed for the decarbonization of the economy and the Renewable Energy Revolution ("RER"). However, silicon does not exist in its pure state and must be extracted from quartz (SiO<sub>2</sub>) in what has historically been a capital and energy-intensive process.

With PyroGenesis Canada Inc. (TSX: PYR), a high-tech company that designs, develops, manufactures and commercializes plasma - based processes, HPQ is developing the *PUREVAP™ "Quartz Reduction Reactors" (QRR)*, an innovative process (patent pending), which will permit the one-step transformation of quartz (SiO<sub>2</sub>) into high purity silicon (Si) at reduced costs, energy input, and carbon footprint that will propagate its considerable renewable energy potential. Through its 100% owned subsidiary, HPQ NANO Silicon Powders Inc., the *PUREVAP™ Nano Silicon Reactor (NSiR)* is a new proprietary process that can use different purities of silicon (Si) as feedstock, to make a wide range of nano/micro spherical powders of different sizes and nanowires. For more information, please visit HPQ Silicon web site.

#### Disclaimers:

The Corporation's interest in developing the PUREVAP™; QRR and any projected capital or operating cost savings associated with its development should not be construed as being related to the establishing the economic viability or technical feasibility of any of the Company's Quartz Projects.

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](http://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 Resources Inc.](#)

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<sup>1</sup> Source Marketandmakerts.com

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