



## Unlocking CO<sub>2</sub> Reduction Potential: Exceeding 500,000 Tonnes Per Year (t/y) In Key Markets

The significant CO<sub>2</sub> reduction potential of the HPQ Polvere Fumed Silica Reactor is exemplified by the following key markets examples<sup>3</sup>:

- In Canada, where approximately 24,000t of fumed silica is consumed annually, the adoption of the HPQ Polvere process would result in a remarkable reduction of 120,000t/y in CO<sub>2</sub> emissions,
- The United States, with an annual fumed silica consumption of around 29,000t, stands to benefit from a substantial reduction of 145,000t/y in CO<sub>2</sub> emissions through the implementation of the HPQ Polvere process, and
- European countries, consuming approximately 92,000t/y of fumed silica, could achieve an impressive reduction of 460,000t/y in CO<sub>2</sub> emissions by utilizing the HPQ Polvere process.

These figures highlight the significant environmental impact that can be achieved by utilizing the HPQ Polvere Fumed Silica Reactor in key markets. Furthermore, there is a potential for substantial per-tonne reduction in carbon taxes in these markets:

- In Europe, the current price per tonne of CO<sub>2</sub> emissions for manufactured and imported goods is approximately 90 euros<sup>4</sup>. This implies that traditional producers of fumed silica could potentially reduce their carbon tax by around 450 euros per tonne by upgrading to the HPQ Polvere process.
- In Canada, the price per tonne of CO<sub>2</sub> emissions for manufactured goods is approximately CAD\$50<sup>5</sup>, and in Quebec<sup>6</sup>, it is around CAD\$27 per tonne. This indicates that traditional producers of fumed silica, if they adopt the HPQ Polvere process, could potentially reduce their carbon tax by about CAD\$250 per tonne in Canada and CAD\$137 per tonne in Quebec.

These potential reductions in carbon taxes underscore an additional financial advantages and environmental benefits of embracing the HPQ Polvere Fumed Silica Reactor in these markets.

*“The reactor also represents a paradigm shift in Fumed Silica production, pushing the boundaries of sustainability and environmental impact,”* Mr. Tourillon added. *“The numbers speak for themselves as we envision a future with cleaner and greener manufacturing processes.”*

### SOURCE

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- <sup>1</sup> 2012 – Executive summary: [“SILICON-CHEMISTRY CARBON BALANCE, AN ASSESSMENT OF GREENHOUSE GAS EMISSIONS AND REDUCTIONS”](#), Covering the Production, Use and End-of-Life of Silicones, Siloxanes and Silane Products in Europe, North America, and Japan. [Pages 20 to 21] (Commissioned by Global Silicones Council, Centre Européen des Silicones, Silicones Environmental, Health and Safety Council of North America Silicone Industry Association of Japan).
  - <sup>2</sup> August 31, 2021 – Saevarsdottir, G., Magnusson, T. & Kvande, H. [“Reducing the Carbon Footprint: Primary Production of Aluminum and Silicon with Changing Energy Systems.”](#) [Pages 850-851] Journal of Sustainable Metallurgy (2021) 7: 848–857.
  - <sup>3</sup> Sales data per regions from MarketsandMarkets 2017 [“fumed silica market – global forecast to 2022”](#).
  - <sup>4</sup> The Wall Street Journal article, April 18, 2023, [“World’s First Carbon Import Tax Approved by EU Lawmakers”](#)
  - <sup>5</sup> Government of Canada: [The Federal Carbon polluting pricing benchmark.](#)
  - <sup>6</sup> Quebec Government: [The Carbon Market: Auctions](#)



### **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 m<sup>2</sup> and 2,940 m<sup>2</sup> 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](http://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](#).

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**Source:** HPQ Silicon Inc.

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