Novacium's Silicon-Anode Batteries Achieve 900+ Cycle Efficiency, Outperforming Leading 18650 Cells

Montreal, Canada, February 5th, 2025 — HPQ Silicon Inc. ("HPQ" or the "Company") (TSX-V: HPQ, OTCQB: HPQFF, FRA: O08), a technology company specializing in green engineering of silica- and silicon-based materials is pleased to update shareholders on the latest exceptional battery results from its France-based partner, NOVACIUM SAS (Novacium).

The following summarizes our test results at 900 cycles on 18650 batteries:

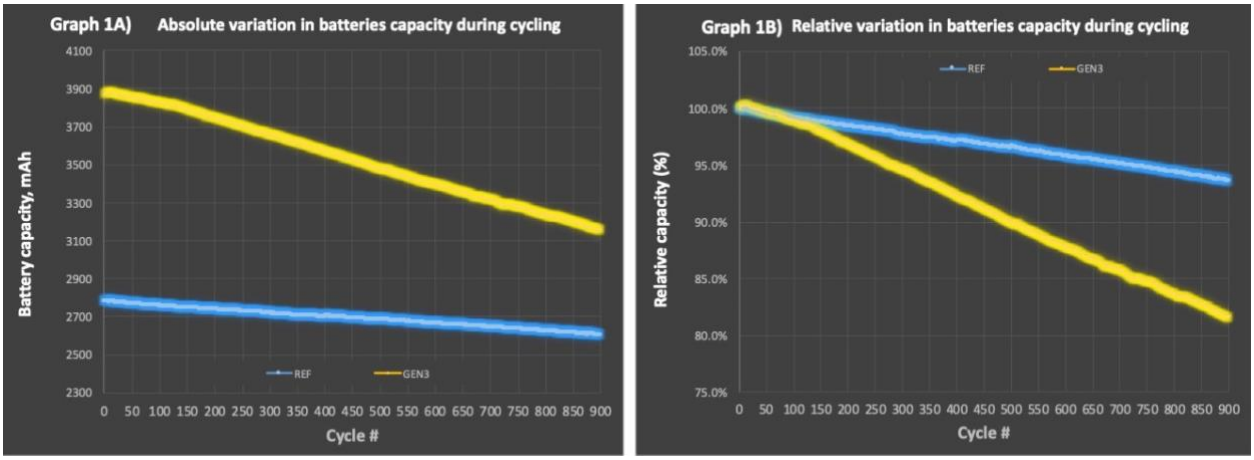
- **GEN3 silicon-anode material batteries** demonstrate **exceptional capacity and durability [1],**
- They **Outperform** leading commercial 18650 battery cells [2,3,4,5,6],
- They achieve exceptionally high **average Coulombic Efficiency** of **99.88%** [7],
- They deliver an outstanding **31%** cumulative energy gain [8], over graphite benchmark batteries.

Test Results at 900 Cycles Validate Unique Capabilities of GEN3 Silicon Anode performance

At 900 cycles, 18650 batteries made with Novacium's GEN3 silicon-based anode materials are still delivering more than 3,100 milliampere-hours (mAh) of capacity retaining more than 80% of their initial capacity. Furthermore, the graphite benchmark batteries, made with high-grade artificial graphite, delivered about 2,400 Ampere-Hours (Ah) cumulative energy, while the Novacium GEN3 batteries delivered a cumulative energy return of about 3,200 Ah—representing a more then 30% cumulative energy gain [8].

"These results at 900 cycles confirm that Novacium has successfully developed a unique capability to produce advanced silicon-based materials. When blended with high-grade artificial graphite, these materials integrate seamlessly into commercial batteries (18650, 21700, 26650, and 4680), delivering world-class capacity and durability [1]," said Dr. Jed Kraiem, COO of Novacium. *"Our analysis of the results concludes that targeted process refinements could unlock even greater performance gains and further minimize long-term degradation, while maintaining compatibility with existing manufacturing processes, paving the way for next-generation lithium-ion batteries."*

Graphic representation of the Superior Performance of GEN3 Silicon-Anode Material



Graph 1A presents the absolute capacity (in mAh) of the 100% graphite reference (the blue line) and GEN3 batteries (the yellow line), over 900 cycles [1]. Additionally, Graph 1B highlights the relative capacity variation for the same batteries used in Graph 1A.

Graph 1A illustrates the average capacity (in mAh) of two 18650 batteries [7] made utilizing Novacium's GEN3 silicon-based material (yellow line) compared to the average capacity of the 100% high-grade artificial graphite benchmark batteries (blue line). At 900 cycles, the two GEN3 batteries demonstrate an average capacity of about 3,200 mAh, which exceeds the graphite benchmark's 2,604 mAh by 21%.

Graph 1B presents the relative capacity retention of two 18650 batteries [7] utilizing Novacium's GEN3 material (yellow line) compared to the 100% high-grade artificial graphite benchmark batteries (blue line) over 900 cycles.

These results further showcase GEN3's notably more stable degradation profile—an encouraging step forward in material performance.

The key takeaway from these results is that GEN3 batteries retain an average of 82% capacity at 900 cycles. To put this into perspective, a comparison with leading commercial 18650 battery cells highlights the performance advantage:

- **Panasonic NCR18650GA (3,500 mAh):** Retains 70% capacity after ~300 cycles [2,4].
- **LG MJ1 (3,500 mAh):** Retains between 70% and 80% capacity between 300 and 400 cycles [4,5].
- **Samsung 30Q (3,000 mAh):** Retains ~60% capacity after 250 cycles [6].

Continued Milestones Toward Manufacturing

By combining Novacium's unique expertise in silicon anode materials with HPQ's proprietary Intellectual Property—free of any assignments or charges—alongside its property rights portfolio focused on High-Throughput Silicon-Based Anode Material Manufacturing (as detailed in our October 22, 2024, release), the Company gains a unique advantage in meeting the future demand for silicon-based materials required for manufacturing 18650, 21700, 26650, and 4680 commercial batteries.

Silicon-Based Materials Market Poised for Growth to Meet Rising Battery and Energy Storage Demand

Approximately 95% of the anode material in today's Li-ion batteries is graphite [9]. HPQ-Novacium's silicon-based material, which can seamlessly integrate into existing manufacturing processes and replace more than 10% of that graphite without costly retooling or overhauls, positions us to capture a significant share of the addressable market—ranging from 10% to 15% of the total graphite market—both now and in the future.

The global graphite market by volume, as estimated by Benchmark Minerals Intelligence (BMI), is projected to grow from approximately 700,000 tonnes in 2021 to 4.5 million tonnes by 2030 [10]. This growth translates into an addressable market of 450,000 to 675,000 tonnes for our material by 2030, valued between US$22.5 Billion and US$33.8 Billion [11].

"By advancing our proprietary processes, we are leveraging the battery expertise and silicon anode innovations developed throughout 2024 to deliver materials with low operating costs, minimal carbon footprints, and exceptional performance. HPQ's strategy remains focused on producing silicon-based materials for the 3C markets (Computer, Consumer, and Communication)—a US$12 billion market today, projected to grow to US$38.3 billion by 2030 [12]. This market is perfectly suited for the materials we have already validated at this stage of our development," said Bernard Tourillon, President and CEO of HPQ Silicon Inc. and NOVACIUM SAS. "Over time, our market focus will also expand to energy storage and electric vehicles."

More Milestones to Come

The next step will be to establish, either independently or through partnerships with industrial players (see December 10, 2024, release), a pilot plant capable of manufacturing silicon-based materials as outlined in our October 22, 2024, release.

REFERENCE SOURCES

[1] Management's opinion is based on a review of capacity and durability data from commercially available 18650 batteries

[2] https://www.orbtronic.com/content/Datasheet-specs-Sanyo-Panasonic-NCR18650GA-3500mah.pdf

[3] https://cdn.shopify.com/s/files/1/0481/9678/0183/files/60f5bf9a9fbf95001ac60005-GA6W.pdf?v=1626883833

[4] https://www.farnell.com/datasheets/2634739.pdf

[5] https://www.dnkpower.com/lg-inr18650-mj1-battery-3500mah-3-635v/

[6] https://e2e.ti.com/cfs-file/__key/communityserver-discussions-components-files/196/INR18650_2D00_30Q_5F00_datasheet.PDF

[7] Link to information on what is Coulombic efficiency.

[8] Novacium technical team analysis of the data from the ongoing charging and discharging cycle tests conducted at a world-leading university, the name of which is kept confidential for competitive reasons.

[9] Link to source for Graphite in batteries

[10] Link to source for Benchmark Minerals Intelligence ("BMI") estimates.

[11] The US $ 22.5 Billions is taken by multiplying 450,000 t by US$ 50 per Kg, while the US$ 33.8 Billions is taken by multiplying 600,000 t by US$ 50 per Kg.

[12] Link to source for 3C market date.

About NOVACIUM SAS

Novacium is an HPQ - affiliated company that started in Q3 2022. This green technology startup is based in Lyon, France and is a partnership with HPQ and three of France's leading research engineers, Dr. Jed KRAIEM PhD, Novacium's Chief Operating Officer ("COO"), Dr. Oleksiy NICHIPORUK PhD, Novacium's Chief Technical Officer ("CTO"), and Dr. Julien DEGOULANGE PhD, Novacium's Chief Innovation Officer ("CIO"). Novacium is a new Research and Development company which allows researchers to develop their own technology in high-added-value fields connected to renewable energy and allows HPQ Silicon Inc. a Canadian company, to expand the depth and reach of its technical team to help develop its silicon and new renewable energy projects.

About HPQ Silicon

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 CO_2 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.

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