

# HPQ Silicon Reports 1,900 % Increase In Total Mass Of Silicon Metal Produced By Gen2 PUREVAP Versus Baseline Gen1 Result

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MONTREAL, QUEBEC--(Marketwired - Feb 15, 2018) - HPQ Silicon Resources Inc ("HPQ") (TSX VENTURE:HPQ)(FRANKFURT:UGE)(OTC PINK:URAGF) is pleased to inform shareholders that PyroGenesis Canada Inc (PyroGenesis) has submitted an updated progress report on the ongoing Gen2 PUREVAP™ Quartz Reduction Reactor ("QRR") test work. The Gen2 PUREVAP™ process improvements and design modifications continue to produce very encouraging results.

## *GEN2 AN INVALUABLE BENCH TEST PLATFORM TO COMMERCIAL SCALABILITY OF PUREVAP™ QRR*

Increasing yield (Si quantity) and Production Yield of Gen2 PUREVAP™ are key objectives of the ongoing program. The results include the latest tests completed, which attained the following key milestones:

- Total mass of Si produced during Gen2 test #007 was 28.1 grams; 20 times greater than the baseline Gen1 test #63 result of 1.4 grams and 1.4 times greater than Gen2 test # 003 result of 19.9 grams<sup>1</sup>;
- Gen2 test #007 28.1 grams is the highest quantity of Si produced to date: 3.2 times greater than the best results of 8.8 grams from Gen1 test #32<sup>2</sup>;
- Gen2 test #007 achieved a Production Yield<sup>3</sup> of 13.4%, the highest to date: ten times greater than baseline Gen1 test #63 Production Yield of 1.3% and 1.8 times greater than Gen2 test # 003 Production Yield of 7.4%;

## *PRODUCTION YIELD A KEY CONTRIBUTING FACTOR THE FINAL PURITY*

Gen1 testing confirmed the key relationship between production yield and purity (November 1 2017 release) and from these results and ongoing tests PyroGenesis extrapolated as follows:

1. These results support the expectation that under a semi-continuous PUREVAP™ process, assuming standard production yield of 90%, it would be possible to transform Quartz (SiO<sub>2</sub>) into Silicon Metal (Si) with purity levels acceptable to the solar industry (4N+ or 99.998% Si)(4);
2. The positive correlation between production yield, purity, and PUREVAP™ QRR reactor size is optimized with a 50 Tonne per year reactor;
3. The Gen2 PUREVAP™ reactor capacity has limited achievable production yield at 15% (± 3%).

## *IMPLEMENTING ADDITIONAL METHODS TO INCREASE PURITY BECOMES KEY FOCUS*

With the Gen2 reactor now operating within the 90<sup>th</sup> percentile of its achievable production yield, test work in the current phase will concentrate on establishing a repeatable process at maximum yield prior to moving on to implementing and testing additional pathways to increase the final purity of the Si produced.

Purity of Gen 2 test #007 material was analyzed at (CM)<sup>2</sup> (École Polytechnique de Montréal) using the SEM-EDS method(5) and result confirmed, as expected, the production of 99.9+% pure Si, using low purity feedstock, 98.84% SiO<sub>2</sub>.

Subsequent Si produced will be sent to outside laboratories for bulk purity analysis using ICP-OES (inductively coupled plasma optical emission spectrometry). In this area, the expertise of Apollon Solar will be a great advantage given their long track record of conducting these types of tests for material very similar to the one currently being produced by the Company.

Bernard J. Tourillon, Chairman and CEO of HPQ Silicon stated, *"Our methodical approach is yielding exciting results and the Gen2 is proving to be an invaluable bench test platform for testing new design and process improvements prior to the final design and assembly of the pilot plant equipment later this year. Our objective for 2018 continue to be building on our technical successes as we get ready to commence the Pilot Plant phase with our 'Solar Silicon Team' of Pyrogenesis and Apollon Solar, as well as, building market awareness of our progress and plans. With every successful milestone, we are de-risking our project, while our ongoing tests are providing valuable information to implement the adjustments needed to produce the Solar Grade Silicon Metal necessary for the manufacture of multi and monocrystalline solar cells for high performance photovoltaic conversion."*

A photo accompanying this announcement is available at [http://media3.marketwire.com/docs/1107173\\_HPQ\\_L.jpg](http://media3.marketwire.com/docs/1107173_HPQ_L.jpg)

## KEY MILESTONES MOVING FORWARD

Milestones of the GEN2 PUREVAP<sup>®</sup> program in 2018 are:

- Tapping Silicon Metal from the Gen 2 PUREVAP<sup>®</sup>;
- Increasing Production Yield of Gen 2 PUREVAP<sup>®</sup>; over multiple test cycles from high grade feedstock;
- Testing the Purity of the Si produced and implementing additional methods to increase the final purity of the Si produced;
- Testing electrical parameters of the High Purity Si;
- Provide additional data to calculate the economics of PUREVAP<sup>®</sup>; QRR.
- Adapt the methods and processes developed in GEN2 PUREVAP<sup>™</sup> to the final design and assembly of the Pilot Plant equipment.

Pierre Carabin, Eng., M. Eng., has reviewed and approved the technical content of this press release.

This Press 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.

<https://agoracom.com/ir/HPQ-SiliconResources/forums/discussion>

La version française du communiqué de presse est disponible sur <http://www.hpqsilicon.com>

## About HPQ Silicon

[HPQ Silicon Resources Inc.](#) is a TSX-V listed resource company planning to become a vertically integrated and diversified High Purity, Solar Grade Silicon Metal (SoG Si) producer and a manufacturer of multi and monocrystalline solar cells of the P and N types, required for production of high performance photovoltaic conversion.

HPQ goal is to develop, in collaboration with industry leaders that are experts in their fields of interest, the innovative metallurgical PUREVAP<sup>®</sup>; "Quartz Reduction Reactors (QRR)" process (patent pending), which will permit production of the highest efficiency SoG Si. The pilot plant equipment that will validate the commercial potential of the process is on schedule for 2018.

## 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 on-going filings with the securities 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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(1) Evaluating the progression of the Gen2 PUREVAP reactor requires a baseline Gen1 result and similar testing conditions for the Gen 2 tests.

(2) Since the tests were done under different reactor operating conditions, the results are nice to know, but not material for the program

[HPQ Silicon Resources Inc.](#) Production results on the conversion efficiency of Quartz into Silicon Metal of the process

Bernard J. Tourillon

Chairman and CEO

(514) 907-0616 [Canada Inc. Technical Memo: "TM-2017-830 REV 00, - Final Report-Silicon Metal Purity](#)

[HPQ Silicon Resources Inc.](#)

Patrick Levasseur

President and COO

(514) 907-0616 [Scanning Electron Microscopy with Energy Dispersive Spectroscopy Detection limit 1000 ppm, a 100% Si](#)

[www.hpqsi.com](#) (99.9%)

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