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**HIGH PURITY ALUMINA TEST RESULTS**

**10 January 2018**

**ASX Code: HEG, HEGOC**

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### **Outstanding Results from Initial High Purity Alumina Tests**

#### **Pre-Feasibility Study of Yendon high purity alumina project in Victoria now underway**

Hill End Gold Ltd (HEG) is pleased to announce that it has passed a key milestone in its strategy to become a global supplier of high purity alumina (HPA), with initial metallurgical test work returning exceptional results.

The tests, which used simple, conventional processes, showed that kaolin from Hill End's Yendon deposit near Ballarat in Victoria could be converted to HPA exceeding 99.99% purity. Importantly Hill End Gold's initial test sample contained low levels of the specific deleterious elements that concern HPA consumers.

These results are highly significant as they further de-risk the Yendon HPA project and mean Hill End Gold can now confidently undertake more detailed metallurgical test work as part of its pre-feasibility study (PFS) of Yendon. It is anticipated that additional test work should achieve further reductions in impurity levels thus yielding a higher purity product which may attract higher prices.

Demand for HPA is growing strongly from 2 high technology markets:

- As the feedstock for synthetic sapphire substrates in **LED lights** and semiconductors
- As a coating on the separator in the manufacture of **Lithium batteries**.

The unique physical and chemical properties of HPA make it ideal for use in these and other growing high technology industries.

Hill End Chairman Graham Reveleigh said, “The results showed that the Company’s plan to capitalise on the growing demand for HPA was well on track.”

“These results demonstrate that Hill End’s high-quality kaolin can be successfully converted into the high purity alumina that the market is seeking.”

“Importantly, the test work also indicates that our kaolin feed stock can be processed simply and quickly using the standard approach.” Mr Reveleigh said.

In light of these strong results, pre-feasibility study metallurgical test work has commenced with the aim of identifying the optimum process flow sheet equipment size, capital and operating costs.

Hill End believes that, if the leach kinetics and efficiency witnessed so far are proven in the larger-scale PFS test work, the Yendon project should be set to enjoy it very competitive capital and operating costs.

The PFS test work now underway is expected to generate sufficient HPA to enable samples to be provided to customers for market testing.

The PFS metallurgical test work is being managed by BHM Processing and conducted by ALS Global in Perth.

The PFS is expected to be completed in the second quarter of 2018.

## Details of metallurgical tests

The Yendon kaolin sample was beneficiated and purified by conventional processes at Nagrom's metallurgical facilities in Perth with the following significant assays:

Element*	Assay
Al <sub>2</sub> O <sub>3</sub> (alumina)	99.995%
Iron	21.5 ppm
Sodium	12.3 ppm
Magnesium	6.8 ppm
Calcium	2.6 ppm
Arsenic	2.3 ppm
Zinc	1.6 ppm
Manganese	1.1 ppm
Potassium	0.3 ppm
Gallium	0.2 ppm
Lead	0.2 ppm
Barium	0.2 ppm
Tungsten	0.1 ppm
Copper***	< 1 ppm
Silicon***	< 1 ppm
Boron***	< 1 ppm
Other**	0.7 ppm

- \* Analysis were conducted using induced coupled plasma mass spectrometry. Results shown are for elemental assays not the chemical compound the element may be present as. Volatile elements such as Chlorine, Sulphur, Phosphorus, Carbon and Oxygen were not tested as the analysis method was not suitable or the detection limit was insufficiently sensitive.
- \*\* includes 51 other elements analysed for whose results were each below 0.1ppm.
- \*\*\* certain elements were tested for but not detected and have been included at the detection limit of the equipment.

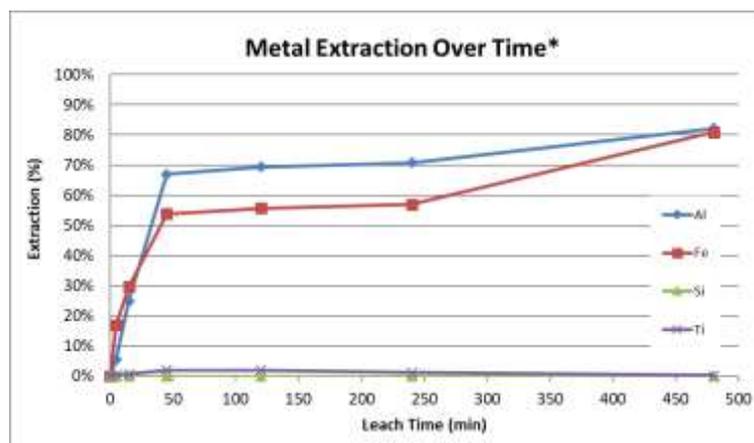
The processing tests were supervised by HEG's metallurgical consultants, BHM Process Consultants, and used the -63 micron fraction of a 2kg representative sample from the Yendon deposit. The standard hydrochloric acid HPA purification process was used and both the leach and crystallisation steps were rapid and thorough. In addition to successfully producing a low contaminant HPA product, other goals of the test work were to:

- Gain a high-level understanding of the leach kinetics of the Yendon material;
- Provide confidence that the planned prefeasibility study metallurgical test work program was appropriate; and

- Generate a sample of HPA to facilitate meaningful discussions with potential customers.

These main objectives were accomplished and several other positive outcomes were observed:

- Screening the composite sample to below 63 microns almost totally removed the quartz and mica while retaining a very high percentage of the kaolin. This simple beneficiation process will significantly reduce the logistics costs of the project; and
- The kaolin reacted rapidly in acid with approximately 70% of the aluminium being dissolved in the first hour in a 30% hydrochloric acid solution at 80°C, at a much lower temperature and substantially faster than the planned 8 hours test duration (see graph below). The short residence time and low temperature of the leaching process points to the potential for low capex and operating costs.



- In the crystallisation step, aluminium chlorohydrate precipitated swiftly from the pregnant leach solution when bubbled with HCl gas. The test was stopped early as the rapid rate of precipitation provided excellent recovery.
- Following only two stages of acid leaching and crystallisation, the precipitate was washed to remove sufficient impurities to achieve the high HPA purity and low contaminant levels contained in the above table.

## Yendon Resource Update

As previously advised, drilling and assaying of HEG's Yendon kaolin deposit near Ballarat is complete and has yielded consistent high grade kaolinite with low contaminant levels.

Drilling of samples for bulk density measurement has been completed following delays due to rain and drill rig availability. Resource modelling work has now commenced with the resource estimate expected to be announced before the end of January 2018.

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