

High-Quality Kaolin from Bobalong Kaolin Project Successfully Qualified for Major Kaolin Processors

HIGHLIGHTS

- Comprehensive independent bulk-sample test results of kaolin from the Bobalong Project in the Great Southern region of WA confirm potential for high quality kaolin products with multiple uses
- Report was undertaken by the Wuhan University of Technology (WHUT), one of China's pre-eminent kaolin specialist centres
- Test-work has successfully qualified the Bobalong kaolin for two major kaolin processors operating in the ceramics market, in southern China
- Report concluded the washed and graded kaolin from the Bobalong Project to be a highly saleable product and delivered positive outcomes on whiteness and flake size;
 - Average whiteness of Bobalong ore sample was 81.47% and whitening testwork increased whiteness to >85%
 - Bobalong kaolin has a fine particle size and is also layered and flaky, indicating its amenability to reducing particle size
- The positive results are a significant step in the Project's development pathway – Pinnacle now plans to confirm a maiden JORC Mineral Resource at Bobalong as a next step towards delivering commercial-scale quantities of high-quality kaolin

Pinnacle Minerals Ltd (ASX: **PIM**) (**Pinnacle**, the **Company**) is pleased to announce that it has received the final detailed product qualification report for the kaolin bulk sample from the Company's **Bobalong Kaolin Project**, in the Great Southern region of Western Australia, which has confirmed that the Bobalong kaolin sample is suitable for a number of industrial uses by end-users and processors.

The report was undertaken by the Wuhan University of Technology (**WHUT**), one of China's pre-eminent kaolin specialist centres, for two major kaolin processors in the ceramics market, in southern China, with the results representing a highly significant step in the development pathway of the Bobalong Kaolin Project.

The report concluded that the **washed and graded kaolin from the Bobalong Project is a highly saleable product and meets the specific specifications of the two kaolin processors.**

See Table 1 for a breakdown of the chemical composition of Bobalong kaolin ore samples.

Given the positive outcomes of the qualification report, as a next step towards delivering commercial-scale quantities of high-quality kaolin to its two targeted kaolin processors, Pinnacle will now advance to confirm a maiden JORC Mineral Resource at the Bobalong Project when results from its resource definition drilling program completed in the previous quarter are finalised (ASX announcement, 14 April 2022).

“The Bobalong kaolin is now independently proven to contain commercial grade kaolin, suitable for a number of different industrial uses. This is an excellent result, with the test-work indicating the Bobalong kaolin’s suitability to be beneficiated to produce a kaolin product of high whiteness, and its flaky nature is indicative of the potential for a fine kaolinite product. We are now working to confirm final drill results and a maiden JORC Mineral Resource as a key next step at the Bobalong Project.”

Pinnacle Minerals Executive Director Robert Hodby

Results Commentary

The independent test-work undertaken on the Bobalong kaolin bulk sample by WHUT has successfully and formally qualified the Bobalong kaolin for the two kaolin processors, and delivered positive outcomes in the key determining factors for kaolin quality; whiteness and flake size.

High Whiteness – In excess of 85%

It is acknowledged that the whiter the kaolin product, the greater the commercial use and the higher the value. Generally, it is accepted a whiteness above 80% is acceptable for most of the kaolin standards.

The **average whiteness of the Bobalong ore sample was 81.47%**. In addition, whitening testwork, designed to increase whiteness, and demonstrate the potential of the Bobalong ore to end-users, demonstrated that the **whiteness can be significantly enhanced, to in excess of 85%**, by adding a brightener (and calcination at 900°C).

Fine Particle Size

The initial grading test of the raw Bobalong kaolin ore showed that **the kaolin has a fine particle size** and the gangue (background) mineral has a coarser particle size. This is a positive outcome, as the gangue mineral may be removed by a simple graded purification process, leaving the desirable fine particle size. The -0.045mm grain grade yield of Bobalong kaolinite is 66.5%, with the premium -0.002 mm particle size being 10.25%.

Electron microscope work carried out by WHUT found that the Bobalong kaolin is layered and flaky (Figure 1 & 2 below), however also exhibits a wormlike formation. Importantly, WHUT has concluded that the **layers are easy to peel to reduce particle size**. This is an important positive feature, as the finer the kaolinite, the higher its value.

There are eight kaolin standards covering the various kaolin industries; paper, enamel, rubber and plastic, ceramic and the coating industry. Within each standard there are several grades with different uses, all with differing requirements. Of significant importance, it is envisaged that the potential end-users of a Bobalong kaolin concentrate will be able to process the Bobalong kaolin to match the demands of the different industry requirements.

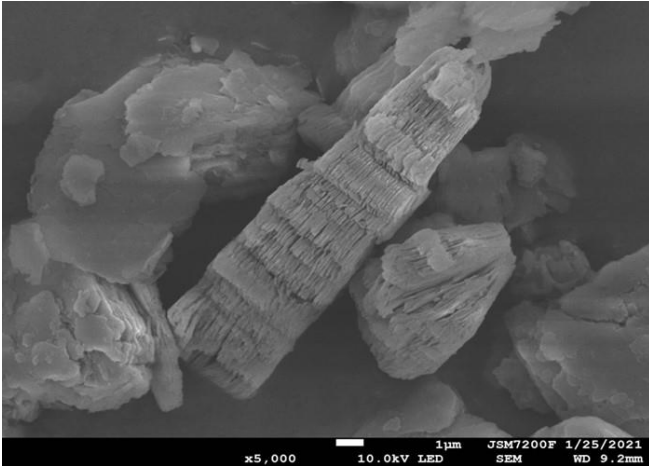


Figure 1: -0.010+0.005mm ×5000

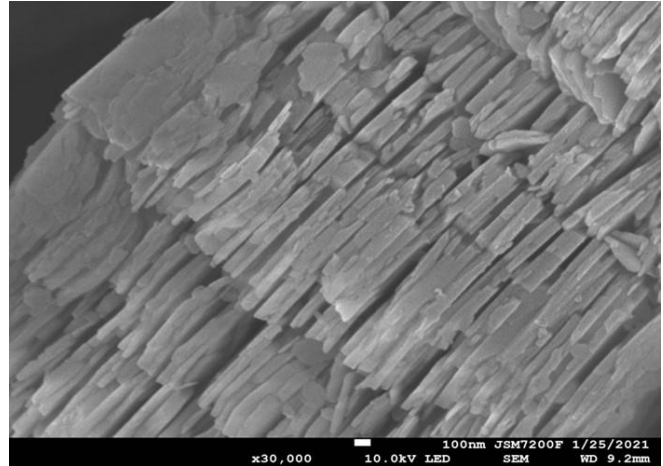


Figure 2: -0.010+0.005mm ×30000

Report Background and Rationale

The qualification report was undertaken by the School of Resource and Environmental Engineering of the Wuhan University of Technology (WHUT), who tested the kaolin products within the specifications required by two major kaolin processors located in southern China.

The report was developed for Pinnacle and these major processors, and end-users, to gain an understanding of the key kaolin properties of the Bobalong project including; whiteness, aluminium content, 2-micron particle content, and other indicators important in measuring kaolin's performance and suitability for commercial production.

The qualification process undertaken on the raw ore from Bobalong included chemical analysis, XRD, microscopy as well as scanning electron microscopy morphology observations. The mineral composition of the raw kaolin ore - kaolinite, quartz, mica and diorite - corroborated well with previous sample results from Intertek Genalysis in Australia.

Table 1: Chemical composition of Bobalong ore samples

Composition	SiO ₂	Al ₂ O ₃	TiO ₂	Na ₂ O	K ₂ O	Cl
Content/%	53.5-52.1	34.6-34.4	0.67-0.51	0.37	0.56-0.54	0.33-0.30
Composition	Fe ₂ O ₃	MgO	P ₂ O ₅	SO ₃	CaO	ZrO ₂
Content/%	0.26-0.25	0.13	0.07-0.04	0.08-0.05	0.07-0.04	0.04-0.03
Composition	ThO ₂	Rb ₂ O	Y ₂ O ₃	Nb ₂ O ₅	Burn Loss	
Content/%	0.02-0.01	0.005	0.003	0.001	9.26-11.26	

Next Steps

Pinnacle is focused on the potential to direct ship a kaolin product to overseas markets and is currently receiving the final round of results from the resource definition auger drilling program conducted in the previous quarter, with the results to be released to the market once finalised. Pinnacle has engaged a Resource Geologist with kaolin experience to compile the results, and confirm a maiden JORC resource for the Bobalong Project, which is expected in the current quarter.

Once the Resource is announced, Pinnacle will be in a position to advance off-take and supply discussions with its qualified kaolin processors in southern China.

As previously advised, Bobalong kaolin may also be amenable to calcination, and the Company has commenced a study on the calcination of kaolin.

In addition to the whitening of the kaolin (as noted in the qualification report), the calcination process (heating kaolin to high temperatures in a largely oxygen-free environment) removes impurities to convert kaolin into metakaolin. Metakaolin is a higher-value product which has the potential to replace up to approximately 20% of the cement used in concrete. This replacement may deliver stronger and lighter concrete, thereby significantly reducing the current carbon intensity of concrete production.

Pinnacle also advises it has commissioned an aeromagnetic and radiometric survey over the Bobalong and Holly projects, which it expects to be flown in September. The data from this survey will be important in identifying all types of granite, and the location of dolerite dykes, faults and pegmatites. In addition to kaolin, the data will be useful in delineating bedrock and regolith that could potentially contain rare earths and other minerals.

About the Bobalong Kaolin Project

The Bobalong Project consists of two granted exploration licences (E70/5347 and E70/5348) covering 116.61km² near the towns of Broomehill and Tambellup in the Great Southern region of WA, and is the Company's most advanced asset.

Drilling and a scoping study has been completed at the Bills Middle and Tambellup East targets. Kaolin at Bobalong exhibits exceptional quality of 38.3% Al₂O₃ and 45.9% SiO₂, high whiteness and high brightness of 80% to 85%; with a small particle size, high opacity and low impurities. These results indicate the potential for a high value product suitable for direct shipping ore (DSO) export, via the deep-water port of Albany, 133km to the south.

Kaolin samples have already been tested at Intertek in Australia and Wuhan University of Technology in China, and Mineral Resource definition is currently underway.

This announcement has been authorised for release by the Board of Pinnacle Minerals Ltd.

For further information, please contact:

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About Pinnacle Minerals

Pinnacle Minerals Ltd (ASX: PIM) is an ASX listed technology metals company focused on delivering shareholder value via the systematic exploration and development of its portfolio of kaolin and halloysite prospective projects in Western Australia and South Australia. The Company is focused on delineating resources at its advanced Bobalong and Holly Kaolin Projects in the Great Southern region of Western Australia. Drilling and a scoping study have been completed at Bobalong, with results indicating the potential for a high value direct shipping ore (DSO) product. The White Knight and Camel Lake Projects are strategically located adjacent to Andromeda Metals’ (ASX: ADN) high-grade kaolin-halloysite discoveries in South Australia. Pinnacle is focused on the exploration and evaluation of the kaolin and halloysite potential of these projects.

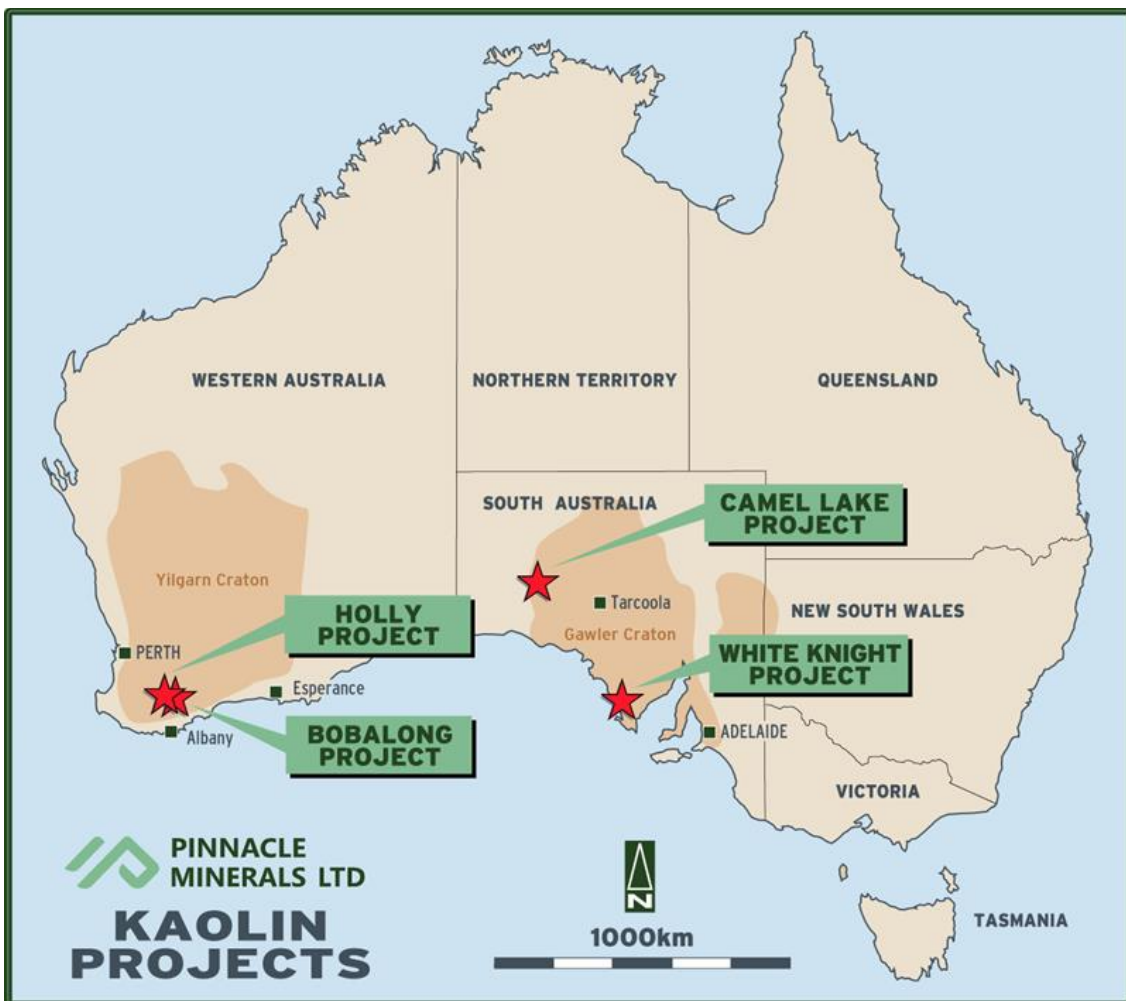


Figure 3: Pinnacle Minerals Projects’ Location Map

Competent person statement

The information in this announcement that relates to Exploration Targets, Exploration Results, Mineral Resources or Ore Reserves is based on information compiled by William Witham, a Competent Person who is a Member of The Australian Institute of Geoscientists (AIG). William Witham is a director of Pinnacle Minerals Ltd. William Witham has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. William Witham consents to the inclusion in the presentation of the matters based on his information in the form and context in which it appears.