GENMIN

ASX Announcement

09 December 2021

Excellent value-in-use results confirm Baniaka's potential for greener, high-quality African iron ore

Highlights

- Preliminary value-in-use results received from Central South University in China for Baniaka Fines and Baniaka Lump iron ore samples, with final results and model expected end of December 2021
- Central South University is a globally recognised institution providing insight to Chinese steel mills regarding the value-in-use of new products entering the market
- Both Baniaka Fines and Baniaka Lump are characterised by Central South University as high iron grade (63-64%), low silica (2.5-3.1%) and low alumina (2.3%), while harmful elements such as P, S, Cl, Pb and alkali metals are all very low
- The chemical composition of Baniaka Fines and Baniaka Lump are considered by Central South University as high-quality raw materials for the Sinter process, and Blast Furnace iron making
- Baniaka Fines increased Sinter productivity by 12.5% and reduced solid fuel consumption by 8.6% with no change to Sinter strength when it replaced some Australian Fines and Brazilian Fines to form 20% of the Sinter feed blend
- Baniaka Lump has very good thermal stability and reducibility (conversion of iron oxide to iron metal), making it a good Blast Furnace feed stock

African iron ore explorer and developer, Genmin Limited (**Genmin** or **Company**) (ASX: GEN) is pleased to report preliminary results of the value-in-use (**VIU**) test work being undertaken at Central South University in Changsha, Hunan, China (**CSU**), on proposed Fines and Lump iron ore products from its 100% owned Baniaka Iron Ore Project (**Baniaka**), located in the Republic of Gabon, central West Africa (Figure 1).

The preliminary results indicate Baniaka Fines and Baniaka Lump iron ore samples have a potentially high value in the Blast Furnace iron making process. The VIU test work, and subsequent VIU model will inform the financial model to be included in the Baniaka Preliminary Feasibility Study, of the price differentials for the proposed Fines and Lump iron ore products.

Managing Director and Chief Executive Offer, Joe Ariti commented: "The preliminary value-in-use results show Baniaka Fines and Baniaka Lump have a potentially significant value to Chinese steel mills with both being high iron grade, low silica and alumina, with very low levels of deleterious elements and alkali metals. Metallurgically, Baniaka Lump has excellent thermal stability and reducibility, and Baniaka Fines not only delivers high iron grades and low deleterious elements but improves Sintering efficiency with a 12.5% increase in productivity and 8.6% lower solid fuel consumption when substituting for some Australian Fines and Brazilian Fines currently used in Sinter feed blends".

He added: “Not only can Baniaka deliver high-quality raw materials to the iron making process, but it also fits China’s decarbonisation policy with greener iron ore products through a high proportion of Lump and mine site infrastructure planned to be powered by renewable hydroelectricity, and, secondly, China’s strategy to diversify its raw materials supply chain away from traditional markets.”

The preliminary conclusions of CSU in respect of Baniaka Fines and Baniaka Lump are outlined below.

Baniaka Fines

- Baniaka Fines are characterised as high iron grade (63.9%), low silica (2.5%) and low alumina (2.3%) with minor harmful impurities such as P, S, K, Na, Pb and Zn. Consequently, Baniaka Fines are considered as high-quality raw materials for the Sintering process.
- In pilot scale Sinter pot tests, Baniaka Fines was substituted in part for Australian Fines and Brazilian Fines in a Sinter feed blend consisting of three (3) concentrates and seven (7) Australian Fines and Brazilian Fines such that it made up 20% of the Sinter feed blend. Excellent results were achieved with:
    a) Sinter productivity improving by 12.5%;
    b) Solid fuel consumption reduced by 8.6%; and
    c) Sinter strength and texture (Figure 2 and Figure 3) classified as superior.
- Consequently, Baniaka Fines can replace some Australian Fines and Brazilian Fines in Sinter feed blends with a substitution ratio as high as 20% with productivity gains and cost reductions.

Baniaka Lump

- Baniaka Lump has a high iron grade of 63%, low silica (3.1%) and alumina (2.3%). In addition, harmful elements such as P, S, Cl, Pb, and alkali metals are all very low, making it a good Lump product.
- The Decrepitation Index (**DI**) of Baniaka Lump is only 1.8%, which is below 5% indicating it has very good thermal stability. The DI is a measure of an iron ore’s resistance to break up or decrepitation on a rapid temperature rise as encountered on entering the blast furnace.
- Baniaka Lump has good reducibility with a Reducibility Index (**RI**) of 81.5% (cf. an average 67.2% for nine (9) Australian, Brazilian and African Lump products), an all-important measure in Blast Furnace technology where the objective is to convert iron oxides to relatively pure iron through chemical reduction.

Value-in-Use

From a customer perspective, it is the behaviour of iron ores in downstream processing that gives them their value. That is, their impact on the Sintering or Pelletising processes, and subsequently Blast Furnace iron making. It is therefore important to consider this value when developing projects, making mine planning decisions and in setting price differentials for differing quality iron ores.

CSU is a national university comprised of several schools including, Minerals Processing; Chemistry and Chemical Engineering; and Materials Science and Engineering. CSU’s School of Minerals Processing is globally recognised for its expertise in laboratory and pilot scale assessment of Lump products in the Blast Furnace, Fines products in the Sintering process and Pelletising ultra-fines iron ore products.

Genmin selected CSU to undertake the VIU test work and prepare a VIU model based on the fact it has provided similar services to major iron producers including Fortescue Metals Group, Vale, BHP and Rio Tinto. In addition, CSU is an institution providing insight to Chinese steel mills in respect of the VIU of new products entering the market.

The objective of the VIU test work was to characterise Baniaka Lump iron ore (chemical and strength analysis, and metallurgical performance) and benchmark it against commercial Lump iron ores from the world market. For Baniaka Fines iron ore, the aim was to determine its performance in the Sintering process, and by extension its ability to

replace Australian Fines and Brazilian Fines in established Sinter blends to enable its promotion to steel mills in China for use in their Sintering plants.

The Company prepared and delivered to CSU in September 2021, a 700kg Baniaka Fines sample and a 700kg Baniaka Lump sample. The VIU samples were composites prepared from the Fines and Lump products produced from the pilot plant metallurgical test work reported on 15 September 2021, and their summary chemical composition and size distribution are shown in Table 1.

Table 1: Value-in-Use Samples

Product	Head Grade (%)					
	Fe	Al_2O_3	SiO_2	P	S	LOI
Lump (-32+6mm)	63.2	2.58	2.66	0.096	0.022	3.8
Fines (-6+0.5mm)	64.6	2.27	2.47	0.066	0.020	3.3

Methodology

Sintering is a high temperature agglomeration process in which iron ore fines are partially melted and bonded together using fluxes and a relatively cheap source of fuel, usually coke breeze. The agglomerated product, Sinter, has improved metallurgical properties making it an ideal ferrous burden for feed into the iron making Blast Furnace. In modern day operations Sinter can make up 80-85% of the total ferrous burden in a Blast Furnace. The Baniaka Fines VIU test work included:

- chemical analysis;
- determination of Sinter chemistry;
- a range of small scale and pilot scale Sinter pot tests;
- size distribution and chemical analysis of Sinter products; and
- sinter RI and Reduction Degradation Index (**RDI**).

For the pilot scale Sinter pot tests, a Sinter feed blend consisting of three (3) concentrates and seven (7) Australian Fines and Brazilian Fines formed the base line for comparison. Baniaka Fines was introduced to the base line Sinter feed blend at up to 20% by substituting in part for one Australian Fines and one Brazilian Fines. The Sinter productivity, fuel rate and Sinter strength were then measured against the base Sinter feed blend.

Lump iron ore is added directly to the Blast Furnace with no requirement for chemical or metallurgical pre-treatment. VIU is generally confined to physical and chemical assessment, and testing metallurgical performance, and for Baniaka included:

- chemical analysis;
- sizing analysis, Tumble Index and DI; and
- metallurgical performance, e.g., RI, RDI and Low Temperature Degradation Index.

This announcement has been authorised by the Board of Directors of Genmin Limited.

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About GENMIN

Genmin Limited (ASX: GEN), is an ASX-listed African iron ore exploration and development company with a pipeline of projects in the Republic of Gabon, central West Africa. The Company has a 100% interest in three (3) projects comprising six (6) exploration licences covering approximately 5,270km^2.

Genmin's Baniaka and Bakoumba projects are located in south-east Gabon near the provincial city of Franceville, where the Company has an extensive footprint and controls all acreage prospective for iron ore. The Baniaka and Bakoumba projects represent a potential iron ore hub with 2,450km^2 of landholding and 121km of iron mineralised strike with only 12% drill tested with diamond drilling.

Genmin's flagship project, Baniaka, is at feasibility stage with defined JORC Code (2012 Edition) compliant Mineral Resources and is favourably situated adjacent to existing and operating bulk commodity transport and renewable energy infrastructure.

Gabon is a stable central West African country with a mining and oil production history dating back to the early 1960s. It is currently the second largest producer of manganese ore in the world and eighth largest crude oil producer in Africa.

Competent Persons Statement

The information in this announcement that relates to the reporting of the evaluation of Baniaka Fines and Baniaka Lump iron ore samples in the Sintering and Blast Furnace iron making process is based on information compiled by Mr Giuseppe Ariti who is a full-time employee, and shareholder, of Genmin Limited. Mr Ariti is a member of the Australasian Institute of Mining and Metallurgy and has sufficient, relevant experience to the style of mineralisation and type of deposit under consideration, and to the activity for which he is undertaking to qualify as a Competent Person as defined in the JORC Code.

Mr Ariti consents to the inclusion in this announcement of the matters based on his information in the form and context in which it appears.

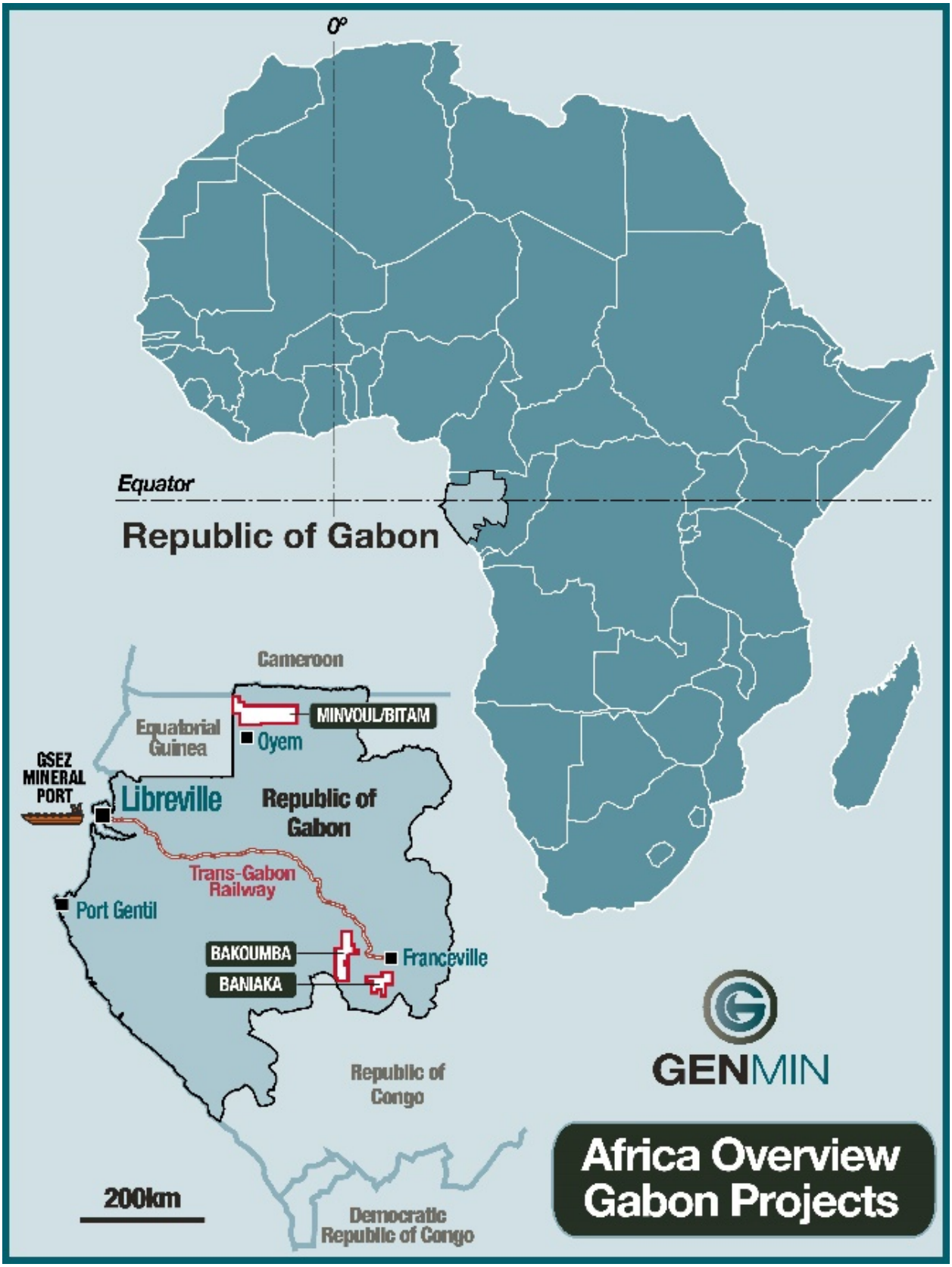

Figure 1: Location map of Genmin's iron ore projects in Gabon, central West Africa

Figure 2: Sinter from pilot sinter pot tests containing 20% Baniaka Fines iron ore

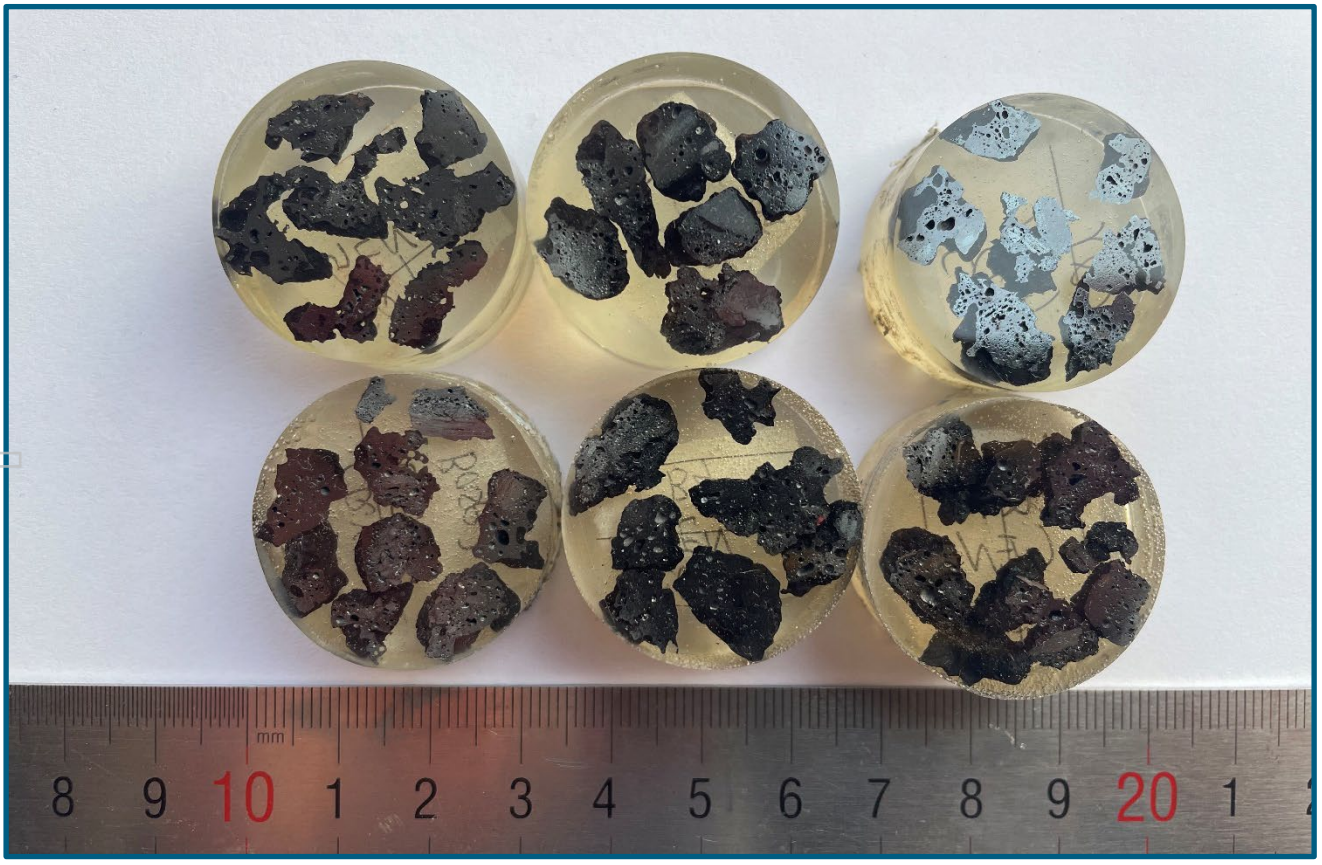

Figure 3: Polished thin sections of crushed Sinter containing up to 20% Baniaka Fines iron ore for microscope textual analysis