

MICA TESTWORK UPDATE

- **Significant stage of testwork successfully completed by ANZAPLAN which demonstrates the commercial potential of mica sales as a by-product for Borborema Gold Project.**
 - **ANZAPLAN produced quartz-free, bulk mica product using low cost magnetic separation technology.**
 - **Studies are ongoing to assess target markets and marketing strategy**
 - **Studies are planned to assess the potential of further separating coarse flake, high value phlogopite material from the bulk product.**
 - **Additional capital and operating costs required to produce a mica by-product expected to be relatively low.**
 - **Mica recovery technology could readily be retrofitted to the current plant design so as not to affect the construction and commissioning of the Borborema Gold plant.**
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Big River Gold Ltd (ASX:BRV) (the **Company** or **Big River**) wishes to advise that a significant stage of the testwork being undertaken to assess the commercial viability of mica production at the Company's 100% owned Borborema Gold project, has been completed with very positive results.

The testwork program is being undertaken by Dorfner Analysenzentrum und Anlagenplanung GmbH (**ANZAPLAN**) at their testing and engineering facility in Germany. ANZAPLAN is a world-recognised research group specialising in specialty and industrial minerals including the recovery and marketing of mica.

Potential scale of mica by-product production

The Borborema ore body contains very significant quantities (~30%) of auriferous mica or nominally 600,000 tonnes of contained mica at a 2Mtpa throughput rate. Initial work showed that after processing through the milling, cyanide leach and elution circuits, a substantial amount of mica could be readily separated by flotation. This float product retained attractive commercial properties including flake size. However, during subsequent feasibility work which originally focussed on producing a high purity, high value mica product via flotation, magnetic separation was identified as a more effective and attractive process route.

Separation process path defined

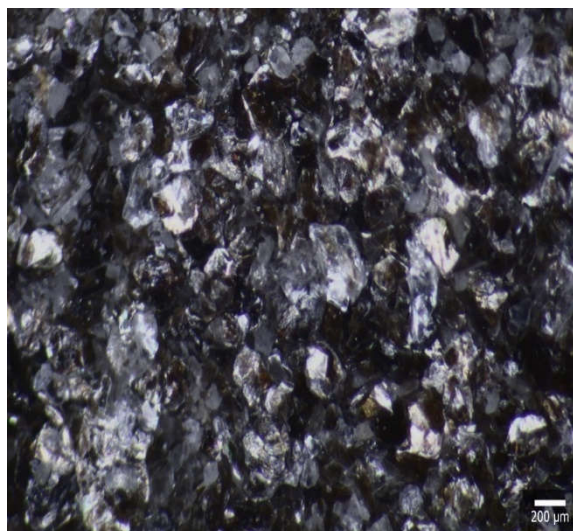
The ANZAPLAN studies moved from considering a pure flotation recovery route and developed an alternate process involving simple, chemical-free, low cost magnetic separation that produced a pure mica product free of deleterious crystalline silica (quartz). The physical and chemical characteristics of this bulk concentrate are looking commercially attractive (refer attached data sheet for more details).

Potential applications for this type of product are in the large volume filler market, (in particular dark coloured polymers), coatings and in the paint market where it could serve as a key additive with anti-

corrosive properties. The 2018 pricing for a wet ground fine mica concentrate of this type from the USA was US\$300 – US\$500/tonne¹.



Picture showing the gold plant leach residue (left), non magnetic reject (centre) and mica rich magnetic concentrate (right)



Magnetic mica under optical microscope – size on lower right

Commercialisation and market for mica.

Further testwork is being planned to investigate:

1. technical acceptance in the above markets in line with the testwork results. 50 kg bulk mica product will be produced and provided to 10-20 potential customers for commercial assessment;
2. determination of key technical information relating to effective fine grinding of the mica product, and
3. the separation of coarse flaked phlogopite (high magnesium biotite) from the bulk concentrate for use in the specialist electronics and automotive industries. The presence of coarse flake phlogopite has been noted and separation of even small quantities of this material will be significant due to its very high value.

Table 1 summarises the main uses and approximate sizes of the world market of both bulk mica and phlogopite products.

Table 1. Uses, scale and potential significance of mica products			
Product (Various classes)	Global Market Annual Capacity	Indicative price range. US\$/tonne ¹	Uses
Coarse phlogopite-rich	300 – 500,000 tonnes	US\$200 - US\$1000	Electronics, high-end cosmetics, metallic (auto) paints, rubber & plastic compounds, brake linings
Bulk mica (muscovite-biotite)	~3 million tonnes	US\$300- US\$500	Excellent electrical and electronic performance, fillers and extenders in a variety of rubber compounds and adhesives, insulation, automotive plastic compounds, paints, lubricants, electrical capacitors, gypsum wallboard, oil drilling muds, some soaps and cosmetics, insulation, glitter, faux jewellery etc

¹ Statista Industrial Minerals Market Information: <https://www.statista.com/>

The mica market is specialised and relatively small requiring careful management to establish offtake without disrupting the market. However, Borborema does offer the market good quality product derived from ethical mining practices not always present in this sector². In conjunction with supplying samples to prospective customers, Big River will carry out a market study aimed at identifying markets for the product both within Brazil and internationally.

Capital and Operating costs

With mining and processing costs already met in recovering gold from the mica, the operating costs of producing a commercially attractive mica product at Borborema is expected to be low as magnetic separation is chemical free and requires only power consumption at an estimated cost of \$0.08/kWh³. The capital required by magnetic separation is also expected to be relatively low subject to a detailed feasibility costing.

Economic implications

With the Borborema Project already considered to be a robust and standalone gold project, Big River believes that the testwork results warrant follow up to unlock the potential of mica sales as a by-product. If this proves viable, the Company anticipates it will have a significant positive impact on the economics of the already very attractive Borborema Gold Project and gold production costs.

For and on behalf of the Board.



Andrew Richards
Executive Chairman
Big River Gold Ltd

² *Global Mica Mining, and the impact on childrens rights. Terre des Hommes, SOMO. March 2018*

³ *Definitive Feasibility Study, December 2019*

Mica concentrate

Product description: Beside the main phases phlogopite and muscovite, traces of albite and clinocllore are identified. The concentrate is free of crystalline silica.

Chemical analysis

	[wt%]
SiO ₂	38.6
Al ₂ O ₃	20.2
Fe ₂ O ₃	17.4
TiO ₂	2.1
K ₂ O	7.6
Na ₂ O	0.7
CaO	0.8
MgO	9.0

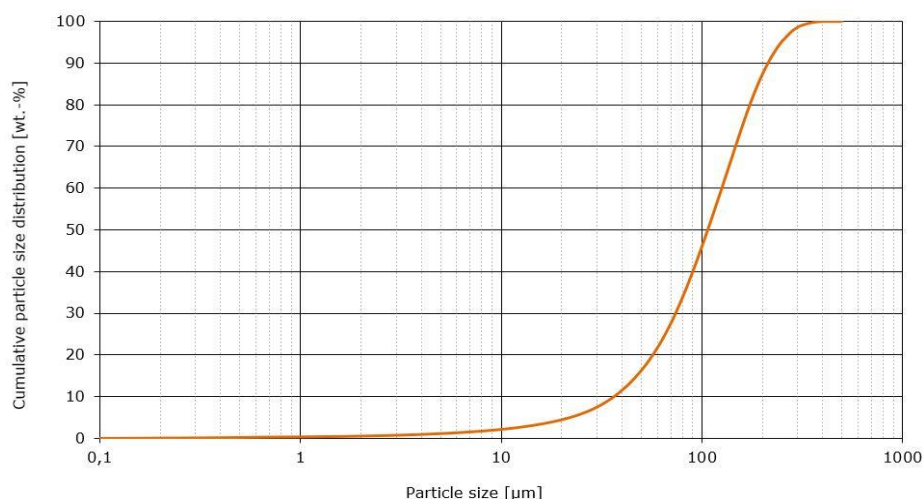
Loss on Ignition _{1025°C} 2.7

Physical properties

Tap density	[t/m ³]	1.2	ISO brightness	[%]	10.1
Bulk density	[t/m ³]	0.8	yellowness	[%]	37.5
oil absorption	[g/100g]	30	d50	[µm]	107.4

Particle size distribution

Fraction	PSD
[mm]	[wt.-%]
250.0	95.0
200.0	87.1
175.0	80.2
125.0	59.4
90.0	39.7
40.0	11.5
20.0	4.4
5.0	1.1
2.0	0.5



Please notice that this product is a natural product, processed from a bulk sample in lab scale. Accordingly, all data and values shall be regarded merely as approximate values, which may include product-related tolerances. It is the customer's responsibility to check the suitability of the product with regard to the intended use; to request information regarding tolerances resulting from production and deposit conditions as well as options and experiences regarding the use of the product.

About Big River Gold

Big River Gold Ltd (ASX:BRV), is a mineral exploration and development company listed on the Australian Securities Exchange. Its major focus is the Borborema Gold Project in Brazil; a country the Company believes is underexplored and offers high potential for the discovery of world class mineral deposits.

Borborema Gold Project

Borborema is a project with a resource of 2.43Moz gold, located in the Seridó area of the Borborema province in north-eastern Brazil. It is 100% owned by Big River and consists of three mining leases covering a total area of 29 km² including freehold title over the main prospect area.

The Project benefits from a favourable taxation regime, existing on-site facilities and excellent infrastructure such as buildings, grid power, water and sealed roads. It is close to major cities and regional centres and the services they can provide.

Definitive Feasibility Study (DFS)

A DFS for development and construction of Stage 1 of the Borborema Project was completed in December 2019 as detailed in the ASX Announcement of 23 December, 2019. It confirmed the project's strong economics and optimised a profitable open pit with a mine life of more than 10 years producing approximately 729,000 ounces gold at a C1 cash cost of US\$642/oz and AISC of US\$839/oz.

Assuming a gold price of US\$1,400 per ounce, the post tax NPV (8%) returned US\$203M with an IRR of 41.8%. The project returns an average EBITDA of US\$54M pa (full years).

Stage 1 mining schedules less than half of the original Mineral Reserve and Resource which will be targeted for later stages of operation. No inferred category Mineral Resources were included in the Stage 1 mine schedule.

Borborema Gold Project Definitive Feasibility Study at Gold Price US\$1400	
Stage 1 Reserve scheduled in DFS	20 Mt at 1.22g/t Au (784,480 oz)
Mine Life	10.2 years
Gold produced (oz): LOM	729,734 oz
Years 1- 4	352,633 oz
C1 Cash cost per oz	US\$642/oz
AISC (per oz Au)	US\$839/oz
Capex (incl 11.4% Contingency)	US\$99.3M
NPV (8%) Post Tax	US\$203M
IRR	41.8%
Gross Revenue (LOM)	US\$1,012M
Average EBITDA (Full years)	US\$54M

The project's measured, indicated and inferred Mineral Resource Estimate of 2.43Moz @ 1.10 g/t gold, remains open in all directions (refer to ASX Announcement of 24 July 2017).

Borborema Gold Project Mineral Resource by Multiple Indicator Kriging (MIK) estimation			
Category	Tonnes (Mt)	Grade (g/t Au)	Contained Gold (Moz)
Measured	8.2	1.22	0.32
Indicated	42.8	1.12	1.55
Total Measured + Indicated	51.0	1.14	1.87
Inferred	17.6	1.00	0.57
Total Mineral Resources	68.6	1.10	2.43

Table 1. Mineral Resource (JORC 2012) table, reported above 0.5 g/t Au cut-off. Parent Block 25mE x 25mN x 5mRL. Selective Mining Unit 5mE x 6.25mN x 2.5mRL. Note, appropriate rounding has been applied, subtotals may not equal total figures. (refer ASX Announcement of 24 July 2017).

Competent Person Statements

Borborema mineral resource estimate

The information in this announcement that relates to the mineral resource estimate for the Borborema Project was first reported in accordance with ASX Listing Rule 5.8 on 24 July 2017. Big River confirms that it is not aware of any new information or data that materially affects the information included in the announcement of 24 July 2017 and that all material assumptions and technical parameters underpinning the Mineral Resource estimate continue to apply and have not materially changed.

Borborema ore reserve estimate

The information in this announcement that relates to the Ore Reserve estimate for the Borborema Gold Project was first reported in accordance with ASX Listing Rule 5.9 on 6 March 2018, 29 March 2018 and 11 April 2018. Big River confirms that it is not aware of any new information or data that materially affects the information included in these previous announcements and that all material assumptions and technical parameters underpinning the Ore Reserve estimate continue to apply and have not materially changed.