ASX ANNOUNCEMENT

SAYONA MINING LIMITED

18 SEPTEMBER 2015

SUPERIOR QUALITY GRAPHITE DEMONSTRATED IN 31 TONNE PILOT PLANT TEST

Highlights

- **Pilot testing produces high-value, high-purity, jumbo and large flake graphite**
- **Simple, low-cost, process flow sheet preserves large flake graphite**
- **Ultra-high purity (+99.9%) graphite produced in a simple purification process**
- **Positioned to supply a multitude of markets that command premium pricing**

Sayona Mining Limited (ASX: SYA) ("Sayona" or "The Company") is pleased to announce the results of the Itabela graphite project pilot plant testing program conducted at Brazil's leading certified graphite laboratory, Fundacao Gorceix.

Metallurgical test work yielded an excellent combination of high-purity and large flake graphite which achieves premium pricing in global graphite markets. Table 1 demonstrates that 63% of Itabela concentrate contains large, jumbo and super jumbo flakes at a minimum purity of 95% (or 73% at a minimum carbon purity of 93%).

Table 1: Itabela Concentrate Flake Size and Carbon Purity

Flake Size	Mesh	Graphite Size µ	Distribution	Carbon Content
Super Jumbo	30#	>500	4%	95%
Jumbo	50#	>300	32%	95%
Large	80#	>180	27%	97%
Medium	140#	>106	17%	97%
Fine	-140#	<106	20%	97%

The 31 tonne pilot plant program has provided the Company with more than one tonne of high quality processed material which it will test with potential customers. The Company will also examine the potential downstream markets, including Expandable, Micronised and Spherical Graphite markets.

The simple process flow sheet incorporates disaggregation, and several stages of regrinding and flotation – no crushing. The process flow sheet is expected to have very low operating costs and low initial construction capital expenditure. In addition, metallurgical test work has produced a graphite of +99.9% purity in a one-step purification process after flotation.

Itabela is located in the heart of the largest graphite producing district in the world outside of China. Itabela is located near three open-cut graphite mines in operation that have a history of over 70 years of continuous graphite production. The graphite qualities are well known in world markets and are in strong demand both locally and internationally.

Metallurgy and Process Flow Sheet Development

The Itabela project has been subject to extensive metallurgical testing at bench and pilot scale. More than 31,000 kilograms (31 tonnes) of sample has been pilot tested at Fundação Gorceix, a major mineral research centre located in Ouro Preto, State of Minas Gerais. Several other major Brazilian and peer ASX listed graphite and mining companies utilize Fundação Gorceix as a pilot plant testing facility.

The metallurgical test work was managed by Mr Placido Campos, a registered professional mining and process engineer in Brazil. Mr Campos has more than 30 years experience and expertise in graphite processing. Mr Campos was previously employed by Nacional de Grafite Ltda, the world largest graphite producer. Responsibilities included production supervision for major operating units of the company, project management, research development, reaching General Manager of the company. He has also previously worked for Grafite de Brasil (private Brazilian graphite producer) helping optimize their process circuit as well as several other private and listed graphite companies.

Test work objective

The objectives of the pilot test work program was to optimise the positive results from the bench scale test work, including:

1. Achieve a high-grade graphite concentrate of greater than 93% and maintain a large flake size distribution;
2. Demonstrate that ultra-high purity graphite could be produced from Itabela concentrate; and
3. Design a feasibility standard, simple, low cost flotation circuit.

Prices for graphite vary based on parameters including carbon purity, size, impurities and shape. Flake size is one of the critical elements of graphite pricing, especially for use in the new technology sectors. Jumbo and large flake sizes attract premium pricing and have experienced strong demand, driven by the increased use in new technologies such as lithium-ion batteries.

Table 2 demonstrates the premium pricing for graphite flakes above 300 microns.

Table 2: Indicative Flake Size Pricing

Graphite Product	Carbon Content %	Mesh Size	Graphite Size Micron	Approximate Price US$/t*
Jumbo Flake	94 – 97%	+48	>300	$2,000
Large Flake	94 – 97%	-48 to +80	180 – 300	$1,500
Medium Flake	94 – 97%	-80 to +100	150 – 180	$1,100
Fine Flake	94 – 97%	-100 to +200	75 – 150	$750
Amorphous	80 – 85%	-200	=<75	$450
Synthetic	99.95%			+$7,000

Source: Various

Other important economic considerations of large flake graphite include:

- Widest range of end uses when compared to finer and amorphous graphite;
- Substitution is expensive - synthetic graphite prices are substantially more expensive than jumbo flake prices; and
- Larger flake graphite is more amendable to processing into value-added graphite products like expandable and spherical graphite.

Pilot plant sample size

A total of 31,000 kilograms of run-of-mine ore ("ROM"), selected from three locations within the deposit, was mined and sent to the Fundação Gorceix pilot plant for processing.

The Company believes this is one the largest bulk samples and pilot plant tests undertaken by an ASX or TSX listed graphite explorer based on a review of published reports, providing a high quality, reliable set of data that can be used in a feasibility study.

Table 3: Bulk sample locations

Sample Location	Sample Size (kilograms)
Sao Rubens East	6,000
Sao Rubens West	9,000
Sao Manuel	16,000
Total	**31,000**

Figure 1: Itabela´s pilot plant at Fundação Gorceix

Pilot plant results

The floatation test work demonstrated that jumbo and large flake graphite of high purities could be achieved.

Table 4 demonstrates the distribution of flake sizes and concentrate grades of each fraction as a composite of the three samples based on achieving a minimum concentrate grade of 95%.

Table 4: Itabela Concentrate Minimum +95% Carbon Content

Flake Size	Mesh Size	Graphite Size (Microns)	Distribution	% Cg
Super Jumbo	30#	>500	4%	95%
Jumbo	50#	>300	32%	95%
Large	80#	>180	27%	97%
Medium	140#	>106	17%	97%
Fine	-140#	<106	20%	97%

As an alternative to producing a 95% concentrate, a +93% carbon content concentrate can be produced to test the flake size distribution in the event of market changes or potential client requests for a lower grade concentrate. Table 5 demonstrates a 10% increase in flake size in the +50# and +80# mesh sizes compared to the minimum 95% carbon content.

Table 5: Itabela Concentrate Minimum +93% Carbon Content

Flake Size	Mesh Size	Graphite Size (Microns)	Distribution	% Cg
Super Jumbo	30#	>500	4%	95%
Jumbo	50#	>300	37%	93%
Large	80#	>180	32%	93%
Medium	140#	>106	12%	97%
Fine	-140#	<106	15%	97%

The Company believes the test work demonstrates that it has the flexibility to produce a wide range of products and meet a large number of customer specifications.

Figure 2: Large flake graphite concentrate (+80# mesh)

Simple processing flowsheet

A simple process flow sheet comprising vibrating screen, milling, flotation, screening, filtering and drying was developed (Figure 3) from the pilot plant test work.

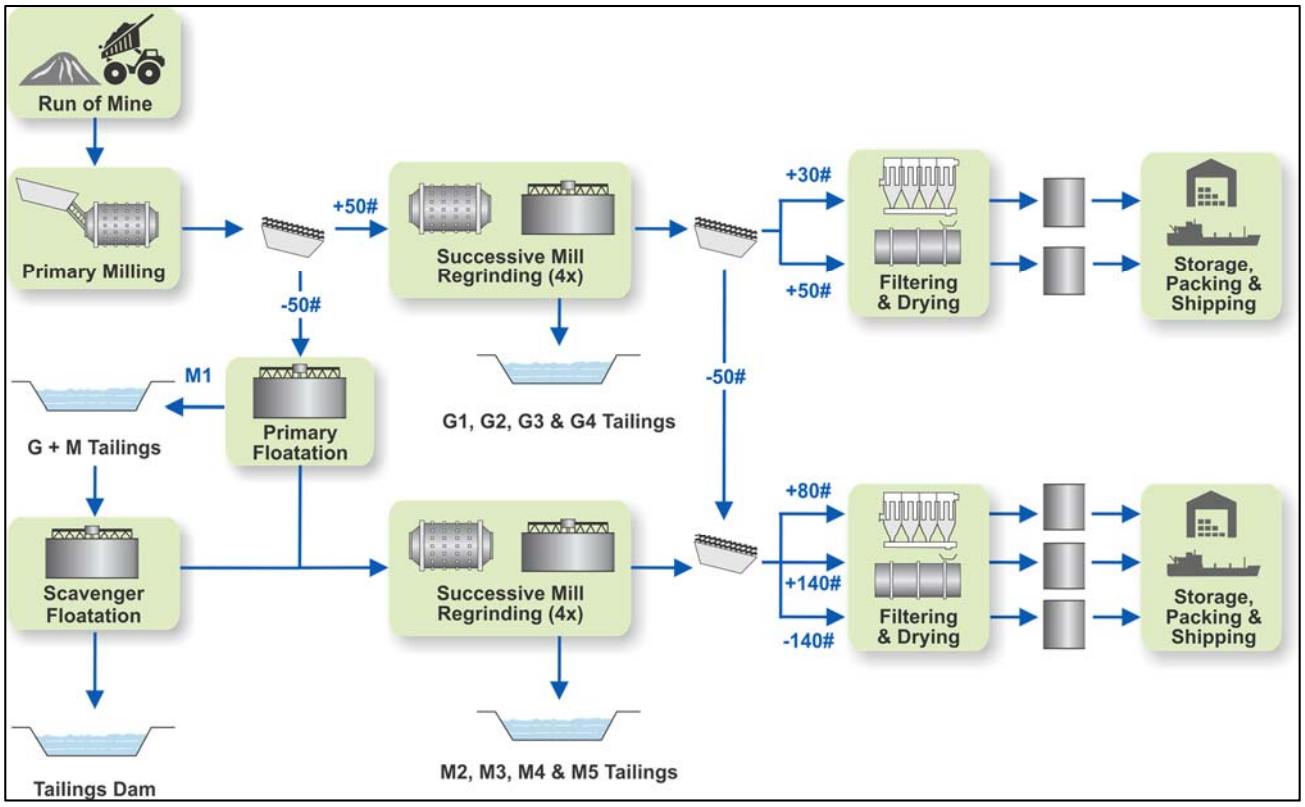

Figure 3: Itabela Process Flowsheet

ROM ore is disaggregated prior to primary grinding down to 2.0mm followed by screening into ±50# mesh (0.3mm) to separate the larger and finer flake sizes. The +50# mesh flake was processed separately to preserve the large flake sizes.

The separately screened material was passed through primary floatation, then through successive additional grind and float circuits to upgrade the quality of the concentrate. Several optimisations to test retention times, reagents and milling times were completed.

One of the key advantages of Itabela ore is the ease at which the flakes are liberated from the ore without excessive processing which damages the flake sizes. Figure 4 shows the dispersion of flakes in the highly friable and deeply weathered saprolite ore.

Figure 4: Samples of Itabela showing the homogenous distribution of the large flakes

Ultra-high purity graphite produced

Following the production of a high-grade graphite concentrate, an ultra-high purity graphite grading +99.9% carbon content was produced from a simple one-step chemical process. By removing all the impurities a very high grade concentrate suitable for selected high technology applications including batteries is produced.

In addition, a +50# concentrate with a carbon content of 98% was produced by additional grinding and floatation of a 97% carbon content concentrate. The additional high-grade concentrate confirmed Itabela´s potential to generate a wide range of products, adaptable to the changing market dynamics.

Bulk sample provides product for client testing

The pilot plant program has provided Brasil Graphite with more than one tonne of high quality final graphite concentrate material. A number of samples have been sent to potential customers and feedback on the graphite quality has been well received. Sayona plans to intensify this efforts in the near future, including engaging an experienced graphite sales specialist, and further testing the product in the market.

The Company will also examine the potential of downstream markets including Expandable, Micronised and Spherical Graphite markets which can easily utilise the high purity (+99.9% Cg) concentrate that can be produced at Itabela.

Potential for a very low operating cost structure

A major advantage of the Itabela deposit is that the mineralisation is hosted from surface and is very friable, deeply weathered saprolite ore, with large quantities of large flake graphite. The soft material is expected to be easily mined with no drilling or blasting required. The processing circuit will not incorporate crushing, minimal grinding and simple flotation circuits will result in low energy consumption and operating costs. Jumbo and large flake graphite is recovered in the front end of the circuit, thus preserving the premium characteristics of Itabela´s ore.

Summary

The pilot plant test work demonstrates that Itabela can produce a superior quality graphite product. The metallurgical characteristics are considered exceptional and provide a number of significant and commercial advantages, including:

- High purity graphite from a very simple flotation process;
- High proportion of large flakes sizes which will command premium pricing within growing markets;
- Low percentage of lower value fines; and
- The ability to produce ultra-high purity graphite through a simple purification process.

Figure 5: Itabela pilot plant individual processing steps

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Sayona Mining Limited is an Australian, ASX-listed, company focused on sourcing and developing high purity flake graphite for use in the rapidly growing new technology sectors.

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