

# EXCEPTIONAL GRAPHITE CONCENTRATE PURITY ACHIEVED FROM MALINGUNDE SAPROLITE.

Sovereign Metals Limited ("the Company" or "Sovereign") is pleased to report that the latest flotation testwork on Malingunde saprolite has achieved **exceptional purity concentrates averaging 98.6%** graphite, with 99.0% grade achieved across a number of size fractions.

A simple process flowsheet with no primary crush or grind can produce **both exceptional concentrate purity and outstanding flake distribution** from the soft, saprolite-hosted graphite mineralisation at Malingunde.

## **HIGHLIGHTS**:

The results highlight the simplicity and flexibility of the Malingunde process flow sheet; increased grade of final concentrates has been achieved with minimal deterioration in flake size.

Concentrate grades of up to 99.0% graphite across a number of different size fractions produced through a simple, physical flotation process requiring no chemical or heat purification techniques.

71% of the final graphite concentrate exceeds 149µm in size, including 28% of +297µm jumbo flake and 9% of +500µm super jumbo flake.

Exceptional purity combined with outstanding flake distribution provides potential to attract a significant pricing premium and entry into traditional industrial and emerging Li-ion battery market sectors.

| MALINGUNDE 2017 FLOTATION RESULTS |             |           |              |                |
|-----------------------------------|-------------|-----------|--------------|----------------|
|                                   |             | TEST #F18 |              |                |
| PARTICLE SIZE                     |             | с         | Distribution |                |
| Tyler mesh                        | (µm)        | (%)       | (wt. %)      | Flake category |
| +32                               | + 500       | 99.0      | 9.1          | Super Jumbo    |
| + 48                              | + 297       | 98.8      | 27.5         | Jumbo          |
| -48 + 100                         | - 297 + 149 | 98.2      | 34.1         | Large-Medium   |
| -100 + 200                        | - 149 + 74  | 99.0      | 23.1         | Small          |
| -200                              | - 74        | 98.3      | 6.2          | Amorphous      |
| TOTAL                             |             | 98.6      | 100.0        |                |

Managing Director Dr Julian Stephens commented, "These world-class concentrate purity results and flake distribution results were produced via a simple yet flexible process flow sheet. The results provide increased confidence in the potential to achieve a premium basket price for Malingunde concentrates, and entry into traditional industrial and emerging Li-ion battery market sectors. When coupled with the inherent low capex and low opex nature of soft saprolite operations these results enhance the potential for best in class operating margins at Malingunde."

ENQUIRIES:

Dr Julian Stephens – Managing Director +618 9322 6322





## Metallurgical test-work

Metallurgical test-work on material from the Malingunde saprolite-hosted flake graphite project was undertaken at SGS Lakefield Canada under the supervision of Mr Oliver Peters (MSc, P.Eng, MBA).

The recent test-work was conducted on several composite samples of PQ diamond drill core obtained from the 2016 drilling program. The work forms part of a larger test-work program that will be used as the basis for the current Scoping Study process design criteria.

Test #F18 was undertaken on the same saprolite core sample that had previously been used for test #F14 (ASX announcement 27 February 2017) grading 7.4% TGC. #F18 was designed to test the effect of increased attritioning on flake size and concentrate grades in the cleaner flotation stages. Results showed little difference in flake size distribution, but very importantly, showed a substantial lift in final concentrate grade from 95.3% to 98.6%.

## **Concluding Comments**

Saprolite-hosted flake graphite deposits are sought after as they generally have substantially lower capital and operational costs compared with hard rock operations. This is primarily due to their free-dig nature, low life-of-mine stripping ratios and simplified processing plants that do not require more expensive crushing or primary milling circuits.

The new high-grade concentrates with excellent flake size distribution highlight the simplicity and flexibility of the Malingunde process flow sheet. Significant increases in grade of the final concentrates has been achieved with minimal reduction in flake size.

Concentrate grades of up to 99.0% graphite can be produced through a simple, physical flotation process requiring no chemical or heat purification techniques.

Sovereign has now achieved production of concentrates very similar to those from Magnis Resources Limited's (ASX: MNS) Nachu deposit, considered by many analysts to be one of the benchmark products in terms of purity and flake distribution (Figure 1). Exceptional purity combined with outstanding flake distribution provides potential to attract a significant pricing premium and gain entry to a diverse range of market sectors.









Figure 1. Product flake size distribution and average concentrate purity<sup>1</sup>



Figure 2. Simplified initial Malingunde flowsheet

1. Magnis 2016 AGM presentation, 21 October 2016





### **Competent Person Statement**

The information in this report that relates to Metallurgical Testwork Results is based on information compiled by Mr Oliver Peters, M.Sc., P.Eng., MBA, who is a Member of the Professional Engineers of Ontario (PEO), a 'Recognised Professional Organisation' (RPO) included in a list promulgated by the ASX from time to time. Mr Peters is a consultant of SGS Canada Inc. ("SGS"). SGS is engaged as a consultant by Sovereign Metals Limited. Mr Peters has sufficient experience, which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking, 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'. Mr Peters consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

#### Forward Looking Statement

This release may include forward-looking statements, which may be identified by words such as "expects", "anticipates", "believes", "projects", "plans", and similar expressions. These forward-looking statements are based on Sovereign's expectations and beliefs concerning future events. Forward looking statements are necessarily subject to risks, uncertainties and other factors, many of which are outside the control of Sovereign, which could cause actual results to differ materially from such statements. There can be no assurance that forward-looking statements will prove to be correct. Sovereign makes no undertaking to subsequently update or revise the forward-looking statements made in this release, to reflect the circumstances or events after the date of that release.

#### Footnote to Table 1.

The chemical analysis used to determine the total carbon content employs combustion of a sample followed by infrared detection on a LECO SC-632 instrument. All reported analytical results have an associated measurement uncertainty based on the expected precision and accuracy relating to the method and sample concentration. Values at 100% should not be treated as pure products without additional impurity testing. The estimated measurement uncertainty for total carbon values greater than 90% C is 1.7% (relative) with a resolution of 1 significant figure. No carbonate minerals or organic carbon have been detected in mineralogical test-work, hence all carbon units are considered to be graphite.

