ASX Announcement
By eLodgement
18 March 2024

Exceptional battery test results show Springdale concentrate is ideal for premium Li-ion battery anode

Highlights

- Purification testwork on micronised and spheroidised Springdale concentrates exceeds the purity requirements of major lithium-ion (Li-Ion) batteries.
- The optimised processing conditions using a chemical non-hydrofluoric acid (HF) method achieved results ranging from 99.96% LOI to 99.97% LOI.
- Electrochemical tests were conducted on an uncoated purified sample of Springdale graphite concentrate which showed exceptional battery charging and discharging capacity.

International Graphite Limited (**ASX: IG6**) is pleased to report exceptional results from purification and electrochemical testwork on graphite concentrates generated from the Company's 100% owned Springdale Graphite Project, in Western Australia (Springdale).

The graphite concentrate micronising, spheroidising and purification test program was conducted in Germany by industry specialists ProGraphite GmbH (ProGraphite). The electrochemical test work was also conducted in Germany, under ProGraphite's supervision, by a specialist graphite battery testing group.

The graphite concentrate tested came from reserve samples produced from previous beneficiation testwork using drill core samples from Springdale[1]. Purification testwork involved the application of a modified caustic soda roast process at lower temperature than previously applied and with a simplified number of stages.

Optimised tests achieved results ranging from 99.96% Loss On Ignition (LOI) to 99.97% LOI, thereby exceeding the industry standard purity grade of 99.95% and also meeting all the element-specific requirements of major Li-Ion battery and electric vehicle manufacturers (refer to Table 1). There is considerable scope to further optimise these results.

Electrochemical testwork on the uncoated purified sample of Springdale graphite concentrate achieved near theoretical-specific capacity for a graphite anode in Li-ion batteries of 372 mAh/g.

[1] ASX release Comet Resources Limited dated 21 July 2021 including JORC Table 1 that has been attached to this release.

Battery stress testing over 46 charging / discharging cycles showed Springdale graphite concentrate has very high stability and durability, with the 46th cycle giving a reversible capacity of 368 mAh/g. Stress testing over longer cycles will be conducted in the next stage of battery testwork.

International Graphite Technical Director David Pass said, “The purification results demonstrate the potential for an optimised and simplified purification process to be used as an alternative to the traditional industry standard HF method.

“The electrochemical results are highly encouraging as a first phase sighter test program. These results will inform the optimisation of micronisation, spheroidisation and purification testwork and flowsheet development for our planned battery anode facilities.

To do that, we will be using ~115kg of Springdale graphite concentrate that was produced by the bulk concentrate testwork program undertaken in the second half of 2023.”

Table 1 - 26 Element ICP analysis of purified Springdale graphite concentrate sample

Element	Purified sample (ppm)	Element	Purified sample (ppm)
Ag	< 0.1	Mo	< 0.3
Al	8.2	Na	48.6
Ba	< 0.1	Ni	< 5.0
Bi	< 0.1	P	0.6
Ca	5.8	Pb	0.1
Cd	< 0.1	Si	34.6
Co	< 0.1	Sn	0.1
Cr	2.0	Sr	< 0.3
Cu	0.8	Ti	1.2
Fe	19.1	V	< 0.1
K	4.1	W	< 0.1
Mg	2.4	Zn	0.5
Mn	0.2	Zr	0.7
LOI	**99.97**		

This announcement has been authorised for release by the Board of Directors of International Graphite Limited.

Andrew Worland
Managing Director & CEO

Competent Persons Statement

The information in this document that relates to metallurgical test work managed by Battery Limits Pty Ltd (BL) is based on, and fairly represents, information and supporting documentation reviewed by Mr David Pass, who is a Member of The Australasian Institute of Mining and Metallurgy (AusIMM). Mr Pass is a fulltime employee of BL, who has been engaged by International Graphite Ltd to provide metallurgical consulting services. Mr Pass has approved and consented to the inclusion in this document of the matters based on his information in the form and context in which it appears.

For more information please contact:

Robert Hodby
CFO/Company Secretary
rhodby@ig6.com.au

Marie Howarth
Media and Communication
mhowarth@ig6.com.au

JORC Code, 2012 Edition – Table 1

Section 1 - Sampling Techniques and Data

Criteria	JORC Code explanation	Commentary
Sampling techniques	• Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling. • Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used. • Aspects of the determination of mineralisation that are Material to the Public Report. • In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.	• Diamond drilling was done to collect adequate samples for metallurgical and ore characterisation testwork. • Individual sample intervals including graphitic zones were sampled based on logged geology intervals and can vary from 0.3m to 1.5m with the majority of samples at 1m intervals. • Samples were ¼ PQ3 or ¼ HQ3 core and were cut and sampled at Nagrom Labs from Comet specified cut sheets using either an automatic diamond core saw where competent, or manually by hand using a paint scraper, where soft and friable (oxidised clays). • Core was first cut in half lengthwise and then one half was cut in half again for the ¼ core sample. This produced an approximate 2kg sample which is considered representative of the full drill metre interval sampled. • Drill samples selected for analysis were limited to those containing visible graphite, together with a one to two metre buffer of barren country rock. • Graphite quality and rock classifications were visually determined by field geologist. • Metallurgical test samples of 3/4 PQ diameter core were visually selected from mineralised intervals of HD024 and HD031. The samples represent typical mineralised zones drilled within the project area.
Drilling techniques	Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).	• Diamond Drilling (DD) was conducted with Rotary Mud (MR) pre-collars. • DD and RM was completed by DDH1 Drilling using a track mounted Sandvik DE710 diamond rig (Rig 42). • Core size was PQ3 (85mm diameter) and HQ3 (61.1mm diameter) triple tube system. • All inclined core holes were oriented using a True Core PQ or HQ orientation tool, TC0999/TC0156. Due to the deeply oxidized nature of the core not all orientations were successful, so the majority of the core remains un-orientated. • Where orientated successfully dip and dip direction structural measurements were collected using a rocket launcher style CORE Orientation device or cradle.
Drill sample recovery	• Method of recording and assessing core and chip sample recoveries and results assessed. • Measures taken to maximise sample recovery and ensure representative nature of the samples. • Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	• DD Sample recovery was measured and recorded for each core run. • Downhole depths were validated against core blocks and drillers sheets. • DD core recoveries were good in fresh and moderately weathered material. • Core recovery was reduced in some instances in highly weathered clay zones and this was recorded in sampling details. • Twin hole comparison of RC vs Diamond Indicated that there is no sample bias for graphite assays • There does not appear to be any relationship between sample recovery and grade.
Logging	• Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies. • Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography. • The total length and percentage of the relevant intersections logged.	• All drillholes were geologically logged in full by an independent geologist. MR pre-collars were bagged from the collar water and logged but not sampled. • All data is initially captured on paper logging sheets and transferred to pre-formatted excel tables and loaded into the project specific drillhole database. • The logging and reporting of visual graphite percentages on field logs is semi-quantitative. A reference to previous logs and assays is used as a reference. • All logs are checked and validated by an external geologist before loading into the database. Logging is of sufficient quality for current studies.

INTERNATIONAL GRAPHITE

Criteria	JORC Code explanation	Commentary
Sub-sampling techniques and sample preparation	• If core, whether cut or sawn and whether quarter, half or all core taken. • If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry. • For all sample types, the nature, quality and appropriateness of the sample preparation technique. • Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples. • Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling. • Whether sample sizes are appropriate to the grain size of the material being sampled.	• All sampling was carefully marked up on core and core trays (where oxidised and difficult to write on) with paint markers and photographed before core trays were sent to the Nagrom for cutting and sampling. • Diamond core samples were cut lengthwise using a manual core saw. The core was cut in half, and then one half was quartered to provide samples for metallurgical testwork and assaying respectively. One quarter core is kept for reference in the trays. • Individual ¼ core samples were collected in labelled foil trays and prepped as below. • Duplicate samples were inserted at the NAGROM Lab in Perth using a coarse crushed split of the specified sample interval. Coarse duplicates were inserted approximately 1:25 samples. • Samples sizes are considered appropriate and representative of graphite material being sampled.
Quality of assay data and laboratory tests	• The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total. • For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc. • Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.	• Analysis was completed at Nagrom.and IMO • Quarter core analytical samples were separately coarse crushed to a nominal topsize of 6.3mm (CRU01), dried at 105°C (DRY01), and where over 2.5kg riffle split (SPL01). • The sample is then pulverised to 80% passing 75µm (PUL01). • A LabfitCS2000 combustion /IR analyser was used for Graphitic Carbon analysis (0.1 % to 100% detection limits). • Graphitic Carbon (TGC; CS003, 0.1% lower detection), Total Carbon (TC; CS001, 0.1% detection limit) and Total Sulphur (TS; CS001, 0.1% detection limit) is analysed by Total Combustion Analysis. • For TC and TGC, the prepared sample is dissolved in HCl over heat until all carbonate material is removed. The residue is then heated to drive off organic content. The final residue is combusted in oxygen with a Carbon-Sulphur Analyser and analysed for Total Graphitic Carbon (TGC) and Total Carbon (TC). • Sample size is appropriate for the material being tested. • QC measures include duplicate samples, blanks and certified standards (1:20) • CRL is confident that the assay results are accurate and precise and that no bias has been introduced.
		• All data is initially captured on paper logging sheets and transferred to pre-formatted excel tables and loaded into the project specific drillhole database. Paper logs are scanned and stored on the companies server. Original logs are stored in the Perth office. • Assay data is provided as .pdf and .csv files from the laboratory and entered into the project specific drillhole database. Spot checks are made against the laboratory certificates. • No adjustments have been made to assay data.
Location of data points	• Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation. • Specification of the grid system used. • Quality and adequacy of topographic control.	• Collar positions were set out using a handheld Garmin GPS with reported accuracy of 5m and reported using MGA94 Zone 51. • Two pegs were lined up using a Suunto sighting compass and a tape laid out on the ground between the pegs to align the rig. Drillers also checked rig alignment with the non-magnetic AXIS CHAMP GYRO. A final collar position was recorded using a handheld Garmin GPS. • For inclined holes downhole surveys (dip and azimuth) were taken using a non-magnetic AXIS CHAMP GYRO Serial number 13232
Data spacing and distribution	• Data spacing for reporting of Exploration Results. • Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied. • Whether sample compositing has been applied.	• In the Northern Zone previous drilling has been completed on 100 – 200m spaced drill lines roughly perpendicular to strike with holes nominally 30m apart. The 2019 DD holes were designed as cross twin metallurgical holes and are thus not on a pre-determined grid spacing. New drilling range from 5m to 40m from existing drilling and are considered infill. • In the Western Zone previous drilling has been completed on 80 – 200m spaced drill lines roughly perpendicular to strike with holes nominally 30m apart. A single hole was drilled as a 40m step out from a previous intersection. • No sample compositing has been done.

Criteria	JORC Code explanation	Commentary
Orientation of data in relation to geological structure	• Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type. • If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	• Drilling indicates that the graphite-rich stratigraphy is part of a kilometre-scale syncline with the western limb striking at around 034° and dipping between 50° to 75° to the SE and the eastern limb dipping shallow to moderately (around 30°) to the SW. The dip and strike of stratigraphy in the fold closure is variable but shallows significantly from 15°to 40° to the south. • Drillholes were planned to intersect the lithology/mineralisation at right angles or as close as possible to right angles. • The folded nature of the stratigraphy and lack of previous structural information in the North zone resulted in two of the twin holes appearing to have been drilled sub-parallel of structures. These holes are clearly identified in reporting of results.
Sample security	• The measures taken to ensure sample security.	• Whole core in PQ and HQ trays was sent to Nagrom Labs in Perth on pallets for cutting and sampling with no core sampling conducted in the field. • All trays and pallets were photographed and documented before leaving site. • Core trays were stacked and securely strapped on pallets and then delivered by CRL field personnel from Springdale to Freight Lines Group (FLG) Depot in Ravensthorpe. Consignment notes were completed and signed on handing over the pallets to FLG. • FLG then transported the core pallets directly to Nagrom Labs in Perth. • Comet Exploration Manager visited Nagrom in Perth and verified all core was present and undisturbed. • At Nagrom, cut samples were logged and barcode scanned throughout the analytical process.
Audits or reviews	• The results of any audits or reviews of sampling techniques and data.	• External geological consultants conducted site visits in September 2019 during the drilling program to observe all drilling. • All procedures were considered industry standard, well supervised and well carried out.