

Australian Securities Exchange Announcement

25 March 2021

Highlights

- ❖ High Purity Alumina (HPA) assays from 5 batches all returned >4N (99.99%) purity.

King River Resources Limited (ASX:KRR) is pleased to announce the production of HPA at >4N (99.99%) purity. The HPA batches were produced by calcining high purity precursor materials (see KRR ASX release on 11 November 2020), purified by the KRR refining process from an industrial chemical feedstock material available from domestic and international suppliers.

The >4N purity results are from five HPA production runs (Batches 2-6 Table 1) completed by Source Certain International (SCI), previously TSW Analytical Pty Ltd. The >4N purity results were calculated by the addition of all the assayed element impurities then subtracted from 100% (Table 1). The main contaminants in the HPA samples are potassium (K) and iron (Fe), with varying amounts for calcium (Ca), chromium (Cr) and niobium (Nb) (see Table 1). The last three HPA batches (4, 5 and 6) reported HPA alumina grade >99.99% Al_2O_3 on the oxide basis where the individual elements have been converted to their oxide equivalent value as a percent, then summed and subtracted from 100%. These >4N HPA grade results are due to improvements in the decomposition of the precursor during calcination which removed more of the volatile element.



Batch 6 HPA powder product (>99.99% Al_2O_3) produced from an industrial chemical feedstock

SCI has developed a new assay method that has eliminated some of the conventional reagents and process steps that introduced contamination and the method has also significantly reduced the detection limits of most elements. A modified calcination and washing process have helped reduce silicon (Si), Cr and Fe contamination and volatile elements noted in previous test runs.

The HPA samples will be sent to an independent laboratory in Perth to verify the HPA purity using fusion-XRF and fusion-laser ablation assay techniques. These assays will help to ensure quality control and quality assurance, and is an important step in completing the HPA Prefeasibility Study (PFS). A phase analysis is also planned to confirm the crystal structure is 100% alpha alumina.

Other Prefeasibility Study (PFS) Outcomes

Kwinana Industrial Site

KRR has continued investigations for an industrial site in the Kwinana area located 30-40 km south of Perth in Western Australia. This area is close to a skilled and productive workforce, hosts specialist centres for chemical and resource-based processing, marine engineering and ship-building, and has industrial land areas specifically set aside for companies wishing to invest in downstream processing and other heavy or strategic industrial activities, including the Lithium Valley concept plan.

Engineering Studies

Como Engineers' Capex and Opex estimates are pending some final Vendor costings. On completion, the PFS documentation will be finalised for release to the market.

Mini-Pilot Plant

KRR has commenced development of a Mini-Pilot Plant to demonstrate the KRR process works at a larger scale for the Definitive Feasibility Study and to produce market samples. The process flowsheet and mass balances have been used to scale the mini-pilot plant and enquiries with vessel vendors are underway. KRR has already purchased a rotary tube furnace for the calcination stage of the process with delivery in about 8 weeks. The mini-pilot work will not hold up the release of the PFS.

Other Metallurgical Developments

Metallurgical HPA testwork is continuing to further refine the KRR process with the current focus on improving the Precursor product to simplify the final calcination stage.

Testwork is also ongoing into extracting high purity vanadium and titanium products from the Speewah vanadium deposit suitable as intermediate products for battery and master alloy applications.

Directors Comment

The Directors are pleased that KRR's new process development is able to produce >4N purity High Purity Alumina from commonly available industrial feedstock and look forward to the imminent release of the PFS.

This announcement was authorised by the Chairman of the Company.

Anthony Barton

Chairman

King River Resources Limited

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Table 1: HPA Assay purity results - Trace Element Impurities in HPA Batches

HPA Batches		HPA 2	HPA 3	HPA 4	HPA 5	HPA 6
Na	ppm	<0.76	<0.76	<1.3	2.60	<1.3
Mg	ppm	<0.08	<0.08	0.355	0.496	0.548
Si	ppm	10.2	13.3	<1	<0.64	<1
P	ppm	<1.9	<1.9	<0.16	<0.93	<0.16
K	ppm	<9.8	19.1	21.8	19.3	16
Ca	ppm	<0.05	<0.05	<0.14	8.35	<0.14
Ti	ppm	<0.03	<0.03	0.470	<0.04	0.128
V	ppm	<0.02	<0.02	<0.02	<0.01	<0.02
Cr	ppm	0.772	1.28	0.973	4.08	0.851
Mn	ppm	<0.02	0.071	<0.09	<0.05	<0.09
Fe	ppm	3.10	3.21	5.5	4.55	4.78
Co	ppm	<0.02	<0.02	0.015	<0.05	<0.01
Ni	ppm	<0.04	<0.04	0.096	6.23	0.055
Cu	ppm	<0.1	<0.1	<0.25	<0.17	<0.25
Zn	ppm	0.525	0.614	<2.2	<0.14	<2.2
Ga	ppm	0.600	0.583	0.645	0.740	0.845
Rb	ppm	<0.01	0.058	<0.08	<0.01	<0.08
Sr	ppm	0.056	0.205	<0.05	<0.01	<0.05
Zr	ppm	<0.01	1.05	<0.01	0.083	0.101
Nb	ppm	0.371	0.394	<0.45	3.83	3.71
Mo	ppm	<0.02	<0.02	<0.01	0.057	0.032
Cs	ppm	<0.01	<0.01	<0.01	<0.01	<0.01
Ba	ppm	0.133	0.107	<0.05	0.224	0.126
Pb	ppm	<0.02	<0.02	<0.01	<0.02	<0.01
Li	ppm	<0.08	<0.08	0.233	<0.12	0.116
B	ppm	2.8	2.02	2.52	1.23	2.03
As	ppm	0.265	0.62	<0.03	<0.13	<0.03
Ce	ppm	0.093	0.109	<0.07	0.141	0.085
Ta	ppm	<0.01	<0.01	0.268	1.34	1.15
Hg	ppm	<0.01	<0.01	0.024	<0.02	0.03
Anion	ppm	27.6	45.7	13.5	<9.3	16.3
HPA Purity	%	99.9954	99.9912	99.9954	99.9947	99.9953

Note: 1. Results shown are for elemental concentrations and not a molecular compound (oxide) of that element.
2. The volatile anion element listed above in Table 1 has been included in the HPA purity calculation.
3. Another twenty eight elements were also assayed that are present at concentrations below detection limits for all 5 HPA batch samples and the sum of the concentrations for these other elements is <0.5 ppm.
4. Assayed by Microwave digest-ICP method.

Statement by Competent Person

The information in this report that relates to Metallurgy is based on information compiled by Mr Ken Rogers (BSc Hons) and Dr John Watling (PhD) and fairly represents this information. Mr Rogers is the Chief Geologist and an employee of King River Resources Ltd, and a Member of both the Australian Institute of Geoscientists (AIG) and The Institute of Materials Minerals and Mining (IMMM), and a Chartered Engineer of the IMMM. Dr Watling is the Chief Scientist at Source Certain International Pty Ltd, and former Professor of Forensic Chemistry at the University of Western Australia, he is a Fellow of both the Royal Australian Chemical Institute (RACI) and the Royal Society of Chemistry (RSC) (London), he is a Chartered Scientist and Chartered Chemist and a Registered Analytical Chemist with the Royal Society of Chemistry, he supervised the hydrometallurgical test work, analytical procedures and chemical studies reported in this announcement. Mr Rogers has sufficient experience in the activities undertaken to qualify as a Competent Person as defined in the 2012 Edition of the Joint Ore Reserves Committee (JORC) Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr Rogers and Dr Watling consent to the inclusion in this report of the matters based on information in the form and context in which it appears.

Appendix 1: King River Resources Limited HPA Project JORC 2012 Table 1

SECTION 1 : SAMPLING TECHNIQUES AND DATA

Criteria	JORC Code explanation	Commentary
Sampling Techniques	<p><i>Nature and quality of sampling (e.g. 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.</i></p> <p><i>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</i></p> <p><i>Aspects of the determination of mineralisation that are Material to the Public Report.</i></p> <p><i>In cases where 'industry standard' work has been done this would be relatively simple (e.g. '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 (e.g. submarine nodules) may warrant disclosure of detailed information.</i></p>	<p>This ASX Release dated 25 March 2021 provides an update on KRR HPA Project, including hydrometallurgical processes involved in the production of high purity alumina (HPA) from alternative Aluminium feedstocks produced from other industrial chemical processes.</p> <p>Chemical precipitation and recrystallisation purification methods have been used in the separation and precipitation of the high purity Aluminium precursor compound reported in this announcement. The Precursor compound is then calcined at 1250°C to the high purity alumina product.</p> <p>The process and reagents used are commercial-in-confidence.</p> <p>The five HPA products reported in this announcement were made from a crystalline powder sample of an industrial Aluminium chemical feedstock.</p> <p>Two samples of the Aluminium chemical feedstock were initially used to make two batches of the high purity Precursor compound by the KRR process.</p> <p>HPA batches 2, 3 and 4 (Table 1) were replicate tests from a 423.48g sample of the industrial chemical feedstock.</p> <p>HPA batches 5 and 6 (Table 1) were replicate tests from a 423.45g sample of the industrial chemical feedstock.</p> <p>All these HPA batches were produced by the KRR process to initially make a high purity Precursor. Subsamples of the two Precursor samples were then calcined and washed to make the five HPA products, producing similar >4N (>99.99%) purity results.</p>
Drilling techniques	<i>Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. 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.).</i>	Not Applicable. The samples were generated from a feedstock of an industrial chemical.
Drill sample recovery	<i>Method of recording and assessing core and chip sample recoveries and results assessed.</i>	Not Applicable.
	<i>Measures taken to maximise sample recovery and ensure representative nature of the samples.</i>	Not Applicable.
	<i>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.</i>	Not Applicable.
Logging	<i>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.</i>	Not Applicable.
	<i>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.</i>	Not Applicable.
	<i>The total length and percentage of the relevant intersections logged.</i>	Not Applicable.

Criteria	JORC Code explanation	Commentary
Sub-sampling techniques and sample preparation	<i>If core, whether cut or sawn and whether quarter, half or all core taken.</i>	Not Applicable.
	<i>If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.</i>	Not Applicable.
	<i>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</i>	Not Applicable.
	<i>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</i>	Not Applicable.
	<i>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.</i>	Not Applicable.
	<i>Whether sample sizes are appropriate to the grain size of the material being sampled.</i>	Sample sizes are considered appropriate to the grain size of the material being sampled.
Quality of assay data and laboratory tests	<i>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</i>	<p>Source Certain International (SCI), previously TSW Analytical, Testwork Testwork on the Aluminium chemical feedstock includes chemical precipitation, solid liquid separations, purification steps and calcination and washing processes, that produce purified intermediate Precursor precipitates and final high purity alumina (HPA) calcine products. Assays are conducted on solutions and solid precipitates and calcines.</p> <p>SCI is an established analytical service provider that has developed a reputation for providing accurate analyses of complex samples. The company's expertise has assisted with the development of hydrometallurgical flow-sheets for multi-element ore concentrates.</p> <p>The Aluminium Precursor and High Purity Alumina products have been assayed using ICP-AES and ICP-MS. Samples are either:</p> <ol style="list-style-type: none"> 1) Fused using a lithium metaborate/lithium tetraborate flux and the resultant glass bead dissolved in hydrochloric acid and suitably diluted prior to either ICP-AES or ICP-MS analysis; or 2) Dissolved in acid directly using a high pressure microwave digestion system. <p>The latter method is extremely useful when dealing with high purity samples as the chance of introducing contaminants during dissolution is significantly reduced and the concentration of contaminants in the blank is almost negligible resulting in greater analytical accuracy.</p> <p>Loss on Ignition (LOI) at 1000 °C was performed for completeness of the analytical data and to give a better indication of the total analytical percentage approximation to 100%.</p> <p>The leach solutions and wash liquors have been analysed using ICP-AES and ICP-MS. The samples were diluted suitably for the appropriate ICP based analysis. Dilutions are used to bring the analyte concentration into the optimum analytical range of the ICP instrument used and to reduce matrix interference complications during quantification.</p> <p>Precipitation efficiency has been determined using the mass of the total analyte in the leach residue divided by the mass of the total analyte in the initial leach solution used. The resulting fraction is multiplied by 100 to give a percent precipitation efficiency.</p> <p>SCI uses in-house standards and Certified Reference Materials (CRMs) to ensure data are "Fit-For-Purpose".</p>

Criteria	JORC Code explanation	Commentary
	<i>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.</i>	Not Applicable.
	<i>Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.</i>	<p>Source Certain International</p> <p>SCI reports concentrations as micrograms per gram (µg/g) in the solid (unless otherwise stated). Instrumental response is measured against AccuTrace High Purity multi-element standards (Choice Analytical) to achieve quantitation. Data are subjected to in-house QA and QC procedures where an independent analyst recalculates instrumental output and compares the newly generated data set with the original. Lack of equivalence between the two data sets triggers an internal review and if necessary re-analysis of the entire data set. Under these circumstances a third independent analyst will assess all generated data prior to sign off. Initial equivalence between the two data sets, generated by the analyst and reviewer, will clear data for remittance to the customer. In addition to these procedures, samples are regularly sent to selected analytical laboratories in Western Australia for confirmation of the analytical data obtained. Once completed, all reports are then reviewed by an independent analyst prior to submission to the customer and where necessary, relevant changes such as wording that may give rise to possible ambiguity in interpretation will be modified prior to the final report being sent to the customer.</p> <p>In order to validate analytical data, SCI circulates duplicate samples to selected analytical laboratories in Western Australia for confirmation of their results.</p>
Verification of sampling and assaying	<i>The verification of significant intersections by either independent or alternative company personnel.</i>	Assay results have been verified by alternative laboratory company personnel.
	<i>The use of twinned holes.</i>	Not applicable - no drilling. Multiple samples have been produced and assayed.
	<i>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</i>	Not applicable
	<i>Discuss any adjustment to assay data.</i>	Not applicable.
Location of data points	<i>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.</i>	Not Applicable.
	<i>Specification of the grid system used.</i>	Not Applicable.
	<i>Quality and adequacy of topographic control.</i>	Not Applicable.
Data spacing and distribution	<i>Data spacing for reporting of Exploration Results.</i>	Not Applicable.
	<i>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.</i>	Not Applicable.
	<i>Whether sample compositing has been applied.</i>	Not Applicable.

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.	Not Applicable.
	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.	Not Applicable.
Sample security	The measures taken to ensure sample security.	Chain of Custody is managed by the Company until feedstock samples pass to Source Certain International, for subsampling, assaying, and hydrometallurgical test work. The Aluminium feedstock sample was delivered to the metallurgical laboratory by the Company or a competent agent. The chain of custody passes upon delivery of the samples to the metallurgical laboratory. Products, Residues and Duplicates of all samples are retained at the Company's Perth laboratory to insure against any sample loss
Audits or Reviews	The results of any audits or reviews of sampling techniques and data.	No external audits have been completed.

SECTION 2 : REPORTING OF EXPLORATION RESULTS

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings. The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	Not Applicable.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	Not Applicable.
Geology	Deposit type, geological setting and style of mineralisation.	Not Applicable.
Drill hole Information	A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: <ul style="list-style-type: none"> o easting and northing of the drill hole collar o elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar o dip and azimuth of the hole o down hole length and interception depth o hole length. o If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the 	Not Applicable.

Criteria	JORC Code explanation	Commentary
	<i>understanding of the report, the Competent Person should clearly explain why this is the case.</i>	
<i>Data aggregation methods</i>	<i>In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.</i>	Not Applicable.
	<i>Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.</i>	Not Applicable.
	<i>The assumptions used for any reporting of metal equivalent values should be clearly stated.</i>	Not Applicable.
<i>Relationship between mineralisation widths and intercept lengths</i>	<i>These relationships are particularly important in the reporting of Exploration Results. If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported. If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').</i>	Not Applicable.
<i>Diagrams</i>	<i>Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.</i>	Not Applicable.
<i>Balanced reporting</i>	<i>Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.</i>	Reports on previous metallurgical and study results can be found in ASX Releases that are available on our website, including announcements 1 April 2010, 15 July 2010, 9 November 2010, 8 February 2012, 21 April 2017, 21 August 2017, 9 October 2017, 4 December 2017, 30 January 2018, 27 February 2018, 21 March 2018, 25 June 2018, 23 July 2018, 15 October 2018, 19 November 2018, 18 January 2019, 1 March 2019, 21 March 2019, 22 March 2019, 9 May 2019, 7 June 2019, 27 September 2019, 26 November 2019, 6 December 2019, 22 January 2020, 24 March 2020, 23 April 2020, 13 May 2020, 17 June 2020, 7 September 2020 and 13 October 2020, 11 November 2020, 19 November 2020, 26 November 2020 and 15 December 2020.
<i>Other substantive exploration data</i>	<i>Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.</i>	Not Applicable.
<i>Further work</i>	<i>The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling). Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</i>	Further metallurgical tests are planned to produce HPA by the Company's process.