

25 September 2018

## SUCCESSFUL COMPLETION OF TENOVA/MINTEK TESTWORK PROGRAM

### HIGHLIGHTS

- Confirmation of feasibility of producing a marketable cast steel product at Agbaja
- Mintek testwork proves low phosphorus / low sulphur cast steel processing route
- Tenova finalises Process Flow Sheet

Kogi Iron Limited (ASX: KFE, “Kogi”, “the Company”) is pleased to announce the successful completion of the Mintek testwork program.

The completion of the extensive and successful testwork program to produce a saleable cast steel product and to develop a flowsheet for the processing of its Agbaja iron ore into cast steel suitable for billet making represents a major step forward for Kogi. This flowsheet and testwork are critical parts of Kogi’s engineering and Definitive Feasibility Study (“DFS”).

### TENOVA TESTWORK SUMMARY

Tenova South Africa (Pty) Ltd (“Tenova”), on behalf of Kogi, contracted Mintek to perform smelting and refining test work on a pilot scale. The primary objectives of the test work were:

- Demonstrate the technical feasibility of smelting beneficiated Agbaja iron ore in a pilot scale electric arc furnace to produce a crude pig iron;
- Generate enough process information to assist with design and construction of the process on a commercial scale;
- Demonstrate refining of the pig iron to produce a cast steel suitable for billet steel making; and
- Generate 50 kg of ‘on-spec’ cast steel for marketing purposes.

Approximately 58 tonnes of Agbaja iron ore was delivered to Mintek for testwork. The material was first characterised by the Minerals Processing Division to establish a beneficiation flowsheet. Subsequently, about 10 tonnes of the ore were beneficiated through the established beneficiation flowsheet to prepare feed stock for the pilot smelting testwork.

Approximately 4.2 tonnes of iron ore concentrate were smelted in a 200 kVA DC arc furnace to produce 2 tonnes of pig iron metal. Selected pig iron ingots were collected and prepared for refining test work in a 50 kg capacity 80 kW induction coil furnace.

<b>KFE Capital Summary</b> Ordinary Shares: 651,343,370 Share price: \$0.145 Market capitalisation: \$94m	<b>Board of Directors</b> Dr Ian Burston – <i>Non Executive Chairman</i> Mr Martin Wood – <i>Chief Executive Officer</i> Mr Don Carroll – <i>Non-Executive Director</i> Mr Michael Tilley – <i>Non-Executive Director</i> Mr Michael Arnett – <i>Non-Executive Director</i>	<b>Contact</b> Unit 23, 4 Ventnor Avenue, West Perth WA 6005 Tel : +61 8 9200 3456 Email: <a href="mailto:info@kogiiron.com">info@kogiiron.com</a> W: <a href="http://www.kogiiron.com">www.kogiiron.com</a>
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The smelting testwork processed feed recipe batches with an overall carbon and limestone addition of 22% and 18% of ore feed respectively. The campaign had an overall throughput of 603 kg of ore/day and it was operated at an average power of 200 kW with heat losses averaging 165 kW.

The smelting process had an overall calculated Specific Energy Requirement (“SER”) of 0.96 kWh/kg which was in agreement with a theoretically estimated SER of 0.993 kWh/kg. The smelting campaign achieved an overall iron recovery of approximately 90% with a corresponding overall FeO concentration of 7% in the slag.

Optimum refining conditions were then established and demonstrated through powder refining, particularly with the method of simultaneous dephosphorization and desulphurization. The testwork aimed to establish optimum refining conditions to demonstrate effective removal of impurities like carbon, phosphorus, sulphur, silicon and manganese by molten state oxidation of the pig iron.

The Mintek test work successfully demonstrates a process route to produce a low phosphorus / low sulphur cast steel product suitable for billet steelmaking with specifications of: Fe >99%, C <0.31%, Si <0.30%, Mn <1.10%, P <0.045%, and S <0.045%. The application of a suitable reagent addition ratio, low reaction temperatures, and a high slag basicity were identified as key process parameters to establish optimum refining condition for removal of impurities.

A conceptual process flow sheet for the Agbaja Cast Steel Project (Source – Tenova) is provided on the last page of this announcement showing the quantum of inputs required to deliver 100 tonnes of cast steel product. The flow sheet also includes data and results from Kogi’s definitive metallurgical testwork program. The optimal sizing of the processing facilities will be determined as part of the DFS.



Figure 1: Pictures of sectioned final crude steel disc and cast ingots (Source: Tenova)

The pilot smelting testwork successfully demonstrated that it is feasible to process beneficiated Agbaja iron ore in an electric arc furnace to produce a cast steel product.

Kogi will provide further information of the additional elements of the test programme as they are provided by Tenova. Further information on the Kogi Project is available on the Company’s website at [www.kogiiron.com](http://www.kogiiron.com) or please contact:

Kogi Iron Limited

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#### About Kogi Iron (ASX: KFE)

Kogi Iron Limited is a Perth-based company with the objective of becoming a producer of cast steel product that can be sold to manufacturers of steel products through the development of its 100% owned Agbaja Cast Steel project located in Kogi State, Republic of Nigeria, West Africa (“Agbaja” or “Agbaja Project”).

Nigeria has substantial domestic demand for steel products, which is currently met largely through imports. The Agbaja project, located on the Agbaja plateau approximately 15km northwest of Lokoja city in Kogi State and approximately 200km southwest of Abuja, the capital city of Nigeria, opens the opportunity for domestic production of steel billets.

The Company holds a land position which covers a large part of the Agbaja Plateau. The Agbaja Plateau hosts an extensive, shallow, flat-lying channel iron deposit with an Indicated and Inferred Mineral Resource of 586 million tonnes with an in-situ iron grade of 41.3% reported in accordance with the JORC Code (2012). This mineral resource covers approximately 20% of the prospective plateau area within ML24606 and ML24607.

Table 1 – Summary Grade Tonnage for Laterite (Zone A) and Oolitic (Zone B) Horizons (20% Fe lower cut off is applied) Refer ASX announcement 10 December 2013.

Classification	Tonnes (Mt)	Fe (%)
<b>Zone A (Laterite Mineralisation)</b>		
Indicated	147.5	33.2
Inferred	33.9	31.7
Total Indicated + Inferred (Zone A)	181.4	32.9
<b>Zone B (Oolitic Mineralisation)</b>		
Indicated	318.7	45.2
Inferred	86.3	44.7
Total Indicated + Inferred (Zone B)	405.0	45.1
<b>Combined Zone A and Zone B</b>		
Total Indicated	466.2	41.4
Total Inferred	120.1	41.1
Total Indicated + Inferred	586.3	41.3

The Company confirms that it is not aware of any information or data that materially affects the information included in the original market announcements and, in the case of estimated Mineral Resources, which all material assumptions and technical parameters underpinning the estimates in the relevant market announcements continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person’s findings are presented have not been materially modified from the original market announcements.

# KOGI IRON CONCEPTUAL PROCESS FLOW SHEET

