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ASX ANNOUNCEMENT

EcoGrafi Achievement

Purification of low value fines achieves high purity 99.97% carbon providing ability to generate additional revenue for downstream business case

Highlights

- Kibaran's proprietary **EcoGrafi** non-hydrofluoric purification process successfully applied to low value fines (considered a by-product) achieves 99.97% carbon
- Testwork provides opportunity to pursue higher value markets for fines
- European graphite demand emerging with German Government announcement on 18 September that plans to develop a lithium-ion battery production facility (Gigafactory) in Germany
- European product qualification program attracting significant interest and discussions in progress with several groups about collaboration and partnership on **EcoGrafi** business
- Finalising agreement with trading partners to secure long-term supply of standard grade graphite (minus 100 mesh at 94% carbon) as feedstock to support stand-alone downstream business
- German pilot plant program to optimise **EcoGrafi** purification to be completed late October

Kibaran Resources Limited (Kibaran or the Company) (ASX: KNL) is pleased to announce that the Company has achieved 99.97% carbon for its fines which is a by-product from the production of battery (spherical) graphite for the lithium-ion battery market.

This is a significant achievement as the micronising and mechanical shaping processes to produce battery (spherical) graphite typically yields 50% fines. The fines are usually considered to be of low value and the Company now has the ability to pursue higher value markets and derive increased product revenues. The results were achieved using the **EcoGrafi** purification process, which provides an eco-friendly, cost-efficient method of purification to achieve very high purity carbon for the lithium-ion battery and other high value markets.

The German Government has announced on 18 September that it will develop lithium-ion battery manufacturing (Gigafactory) capability in Germany, providing a critical source of additional battery supply to complement existing Asian battery production. German Chancellor Angela Merkel stated that "As part of our strategic capabilities, we should also work together with other European countries on our own battery cell production." This positive development is consistent with Kibaran's strategy to become a long-term supplier of graphite products outside of China, with a special focus on German industry.

Kibaran has recently experienced this growing demand first-hand, hosting a tour to the major electric vehicle (EV) manufacturers in Germany (Daimler, BMW and Volkswagen). The feedback during the visit was consistent among all EV manufacturers, that lithium-ion batteries are expected to be in strong demand for the next 10-20 years, with graphite being the largest raw material component.

At present European EV manufacturers source battery cells from Asia and the German Government is increasingly focussed on the over-reliance upon Asian suppliers, so is moving to provide both a national and European solution to meet its future demand for batteries.

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This is significant news given following EV statistics:

- 1 billion electric vehicles on road by 2050 (Morgan Stanley)
- EU Commission has reported that lithium-ion battery market will be worth 250 billion Euro by 2025
- Roskill forecast's battery (spherical) graphite demand to increase 700% during the next 7 years, to over 800,000t per annum

As previously reported (refer ASX Announcement 4 July 2018) Kibaran has been undertaking an optimisation testwork program at its pilot plant in Germany. The Company expects this study, using its proprietary **EcoGrafi** purification process, to be completed in late October.

The **EcoGrafi** product qualification and phased commercialisation program is attracting strong interest from European industrial organisations and discussions are in progress on potential collaboration. An agreement is also being finalised to secure the feedstock for the downstream processing business, typically minus 100 mesh sizing, with 94% carbon content, which is readily available from a range of existing graphite producers. Kibaran has successfully applied its new eco-friendly purification process to these potential feedstocks, enabling it to move forward with plans to establish a stand-alone battery (spherical) graphite business for the lithium-ion battery market.



Figure: Electric vehicle car manufacturing by Volkswagen in Dresden, Germany (Source: www.volkswagenag.com)

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