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MRL Corporation Limited

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ASX Symbol MRF, MRFOA

MRL graphite to be tested for premium-priced graphene

Results could provide significant boost to the already-robust economics of MRL's high-grade Sri Lankan graphite projects

MRL Corporation (ASX: MRF) is pleased to advise it has entered into a contract with Adelaide Research & Innovation Pty Ltd, the commercial development company of the University of Adelaide, to test its Sri Lankan graphite and its properties for scalable graphene production.

The tests will seek to determine the yield and quality of isolated graphene within MRL's graphite.

Graphene sells for a substantial premium to conventional graphite and therefore the tests are potentially highly significant to the economics of the Company's projects. Graphene is currently produced from composited graphite and lower grade graphite. This makes the ultrahigh grade Sri Lankan graphite an exciting prospect.

These graphene tests, involving a range of different processes to determine the potential production and quality of graphene from MRL's graphite ore, will be conducted by the University of Adelaide's School of Chemical Engineering graphene research group, led by Professor Dusan Losic.

Recent tests have already established that MRL's graphite is suitable for use in high-technology batteries. Should the impending round of tests demonstrate graphene properties, the Company will be in a position to supply products to various markets ranging from traditional graphite customers to the next generation of high-end technology users.

About Graphene

Graphene, the well-publicised and now famous two-dimensional carbon allotrope, is as versatile a material as any discovered on Earth. Its amazing properties as the lightest and strongest material, compared with its ability to conduct heat and electricity better than anything else, mean it can be integrated into a huge number of applications. Initially this will mean graphene is used to help improve the performance and efficiency of current materials and substances, but in the future it will also be developed in conjunction with other two-dimensional (2D) crystals to create some even more amazing compounds to suit an even wider range of applications.

One area of research which is being very highly studied is energy storage. Currently, scientists are working on enhancing the capabilities of lithium ion batteries (by incorporating graphene as an anode) to offer much higher storage capacities with much better longevity and charge rate. Also, graphene is being studied and developed to be used in the manufacture of supercapacitors which are able to be charged very quickly, yet also be able to store a large amount of electricity.



About MRL Corporation Ltd (ASX: MRF)

MRL is aiming to develop an underground mining operation to extract high-grade, crystalline vein graphite, which is unique to Sri Lanka. The Company holds exclusive rights to exploration licenses covering approximately 6,300 hectares in area, with historical workings located within nearly all license grids.

About Graphite

Natural graphite occurs in three forms: amorphous graphite, flake graphite and the most rare and highest quality form being crystalline vein graphite. Sri Lanka is famed for being the only commercial producer of crystalline vein graphite (lump or Ceylon graphite), the highest quality of naturally occurring material in the world. The quality of vein graphite produced in the country has a purity level in excess of 90% TGC (Carbon as graphite) which means little upgrading and processing is required to make a high quality saleable product.

Amorphous (micro crystalline) graphite is the least pure form of naturally occurring graphite and commercial deposits usually have a carbon content of 70-85%, and are found as lenses or lumps with flat fracture cleavages. It is normally formed by metamorphism of previously existing anthracite coal seams.

Flake (crystalline) graphite is the more common form of graphite and typically has carbon content in the range of 80-99%, and is usually formed in metamorphic rock in concentrations of 5%-12% of the ore body. Mining and processing of these deposits is similar to open pit gold or copper mines, requiring 'large scale' mining and processing to extract the graphite. Large-scale mining and processing plants typically equates to high capital expenditures and relatively high operating costs.

Vein (crystalline) graphite is the purest form of graphite with TGC grades typically >90%, with some grade as high as 99.5% TGC. Mining vein graphite may be considered analogous to high-grade gold vein mining, requiring considerably less capital expenditure when compared to large-scale open pit mining. That is, development, mining equipment and processing plants will be of a significantly smaller scale. Operating unit costs will also be lower than those for typical large-scale open pit mining.

Nature of vein graphite

Sri Lankan graphite deposition model is best described from the 'bottom up': tension fractures formed in the metamorphic sediments, caused by the folding of the sediments, creating 'conduits' for the hydrothermal deposition of high quality vein graphite. Historically, mining of these veins has found the veins generally increase in thickness and grade quality with increasing depth. Graphite veins generally dip steeply at -70° to near vertical, enabling 'narrow vein' extraction mining techniques similar to those used on narrow vein, high-grade gold deposits. The method commonly used is an overhead retreat stoping technique where the high-grade vein graphite is mined and hauled to surface without contamination. The graphite selvages, in contact with the surrounding waste, is hauled to surface and stockpiled for upgrading. The balance of the waste is used to fill the floor of the stope.

Due to the nature of the vein graphite, it is anticipated vein widths of ~25cm, using narrow vein mining techniques can be economically extracted from underground operations.

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