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Further Positive Results for Enhanced FYI HPA Anode Coatings

Increased Performance from HPA Enhanced Polyolefin Separator for Lithium-ion Battery Market

Highlights

- **Electrochemical performance of the FYI enhanced HPA coated anode in lithium-ion coin cells in excess of 110 continues cycles has achieved near theoretical irreversible capacity and outperformed standard industry materials**
- **Testwork demonstrates performance increases achieved from additional concentrations of FYI's HPA combined with EcoGraf's graphite**
- **Positive results from the application FYI HPA being applied to the polyolefin separators showing a further improvement of 7.94 mAh/g reversible capacity**
- **Independent electrochemical testwork underway with partners and battery manufacturers**
- **Further advanced testwork underway pairing the enhanced HPA anode with HPA coating on polyolefin separator**

Emerging critical mineral company FYI Resources Limited (ASX: FYI) (**FYI** or the **Company**), is pleased to announce along with project partner, **Ecograf Limited** (ASX: EGR), further positive results from its enhanced High Purity Alumina (HPA) anode and separator coatings development program being conducted in the USA.

An extended, lithium-ion battery electrochemical performance test program to cover in excess of 110 continuous cycles has now been completed and reinforces our assessment of the suitability for long-term cycling performance characteristics of FYI's HPA in enhanced battery technologies.

The results have seen near theoretical capacity of 366 mAh/g at 6 to 7 % irreversible capacity loss after 110 continuous charge-discharge cycles. This is an impressive level of electrochemical performance which puts this enhanced HPA coated material into a limited cohort of super-premium anode materials.

Below is the comparation table showing the long cycle performance test compared to industry standard material.

Anode Materials	Cycle Nos	Reversible Capacity	Irreversibility Loss%
Enhanced FYI/EGR Coated Anode	110+	>360mAh/g	6-7%
Standard Industry Material	110+	340mAh/g	>6%

Summary results for the FYI and EGR 100-cycle charge/recharge testwork

The latest testwork also indicates additional concentrations of the FYI HPA dopant will lead to further improvements, however, the final optimum loading will need to be determined.

As previously reported, initial performance of the FYI HPA-doped coated anode with the reversible capacity reporting 362.7 mAh/g and the first cycle loss was 4.5% which also outperformed industry standard material (refer announcement dated 9 February 2022).

Observations from the testwork confirm the HPA is acting as a hydrophobic reductant which promotes the lithium ions chemistry with the carbon anode. This absorption characteristic ensures that the graphite particle surface is hydrophilic thus allowing all carbon anode material to participate in the lithium-ion intercalation and electrochemical process.

The innovative HPA doped carbon coating program was completed by a leading US commercial battery material research facility using EcoGraf spherical graphite and FYI's high-quality +4N HPA to produce an HPA coated graphite anode. Doping is the introduction of HPA onto the carbon coated anode material.

The Company is also pleased to report the results of FYI's HPA being applied to the polyolefin separators. Initial evaluation of an HPA enhanced polyolefin separator has shown an improvement of 7.94 mAh/g to the reversible capacity of the industry standard material when paired with the enhanced HPA polyolefin separator.

Given the positive result, the next test is to pair the FYI HPA enhanced separator with the FYI HPA-doped EcoGraf's coated anode (reversible capacity of up to 362.7 mAh/g) to determine if the reversible capacity could eventually near theoretical reversible capacity of 372 mAh/g.

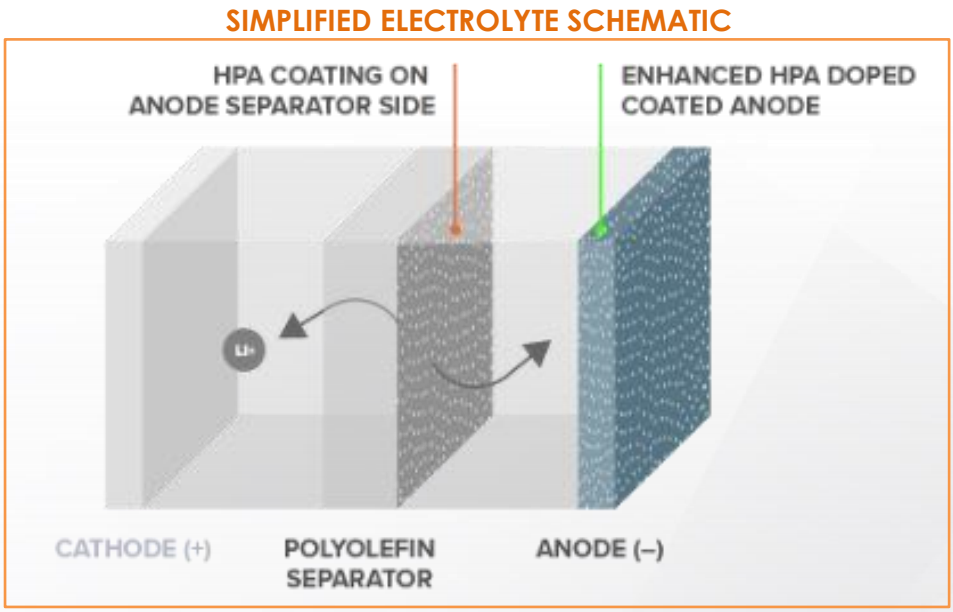

Figure: *Lithium-ion battery showing the enhanced HPA doped coated anode and HPA particles on the polyolefin separator.*

Polyolefin separators composed of polyethylene and polypropylene have emerged as the separators of choice in commercial lithium-ion batteries. Polyolefin separators play a major role to prevent physical contact between the anode and cathode, while facilitating lithium-ion transport within the cell.

FYI believe there is significant market opportunity in the US and Europe with demand expected to grow 30%pa with leading industry research group BMI Research reporting sales prices for coated anodes ranging between US$5,000 to US $10,000 per tonne with premium coated anode commanding higher prices (refer https://www.benchmarkminerals.com/).

FYI Managing Director, Mr. Roland Hill, commented "The independent testwork into proprietary enhanced FYI HPA anode and coated separator development is very exciting. The initial positive results indicate market leading responses from the FYI high quality HPA combined with the Ecograf graphite products and the ongoing testwork suggests further improvements to performance are possible. The support of the Trailblazer initiative provides a very attractive commercialisation pathway if our testwork continues in a positive direction".

This announcement is authorised for release by Roland Hill, Managing Director

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About FYI Resources Limited

FYI has developed an innovative process design for the integrated production of high quality, high purity alumina (HPA) predominantly for electric vehicles (lithium-ion batteries), sapphire glass (LED) and other broader tech applications.

FYI's is positioning itself to be a significant producer of 4N and 5N HPA in the rapidly developing high-tech product markets.

FYI applies both an ESG and economic overlay of the Company and its operations to ensure long-term sustainable and shareholder value is created via the development of the Company's innovative, high quality, ultra-pure HPA project.

HPA is increasingly becoming the primary sought-after input material for certain high-tech products principally for its unique properties, characteristics and chemical properties that address those applications high specification requirements such as LED's and other sapphire glass products.

The longer-term driver for HPA, with forecasts of >17% year on year growth (GAGR)*, is the outlook for the burgeoning electric vehicle and static energy storage markets where the primary function is in the use as a separator material between the anode and cathode in batteries to increase power, functionality and safety of the battery cells.

The foundation of the HPA strategy the Company's moderate temperature, atmospheric pressure innovative process flowsheet. The strategy's quality attributes combine resulting in world class HPA project potential.

** CRU HPA Industry Report 2021*