9 FEBRUARY 2022 ASX ANNOUNCEMENT **ASX: EGR**

Outstanding Result for Enhanced HPA Anode Coatings

HPA Anode has Outperformed Industry Market Material

Diversified battery anode materials company **EcoGraf Limited** (**EcoGraf** or the **Company**) (ASX: **EGR**; FSE: **FMK**; OTCQX: **ECGFF**) is pleased to announce with FYI Resources Ltd (ASX:FYI) the results of its Enhanced High Purity Alumina (HPA) anode coatings development program.

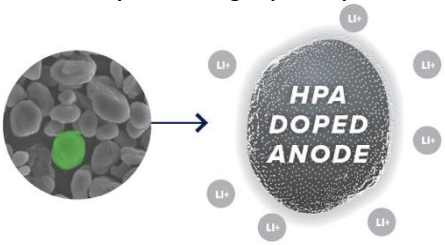
Key Highlights

- **Program successfully produced coated spherical graphite and FYI enhanced HPA-doped coated spherical graphite that has met the technical specifications required by leading battery manufacturers**
- **Electrochemical performance of the FYI enhanced HPA-doped coated anode in lithium-ion coin cells has achieved higher first charge capacity, reduced first cycle loss and increased battery charge efficiency which has outperformed industry standard material**
- **Independent evaluation process commenced with partners and battery manufacturers on product samples produced**
- **Significant value proposition and market opportunity in US and Europe with demand expected to grow 30%pa with sales price reported by BMI for coated anode ranges between US$5,000 to US $10,000 per tonne with premium coated anode commanding higher prices**

EcoGraf is pleased to provide the results of its enhanced HPA anode coating which is a significant result for the joint program with FYI Resources.

The innovative technical program is being undertaken in a leading US commercial battery material research facility using EcoGraf™ HFfree spherical graphite (hdBAM) and FYI's innovative ultrafine 4N HPA to generate a HPA-doped coated spherical graphite. Doping is the introduction of HPA onto the carbon coatings.

The program commenced with surface coating EcoGraf spherical graphite with carbon material via a proprietary impregnation technique and heat treatment process to produce carbon coated spherical graphite as a product. This material was then surface doped with a fine dispersion spray of FYI's ultrafine 4N HPA to produce an enhanced HPA-doped carbon coated spherical graphite product.



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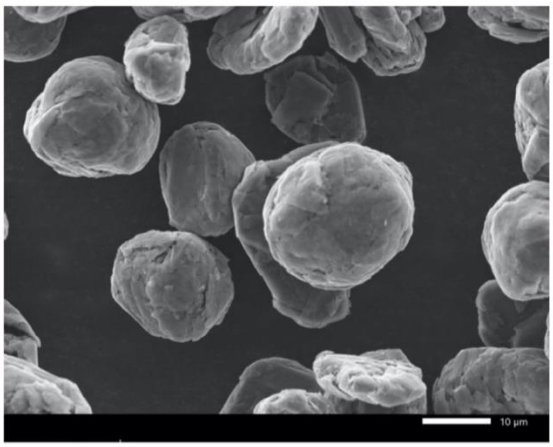
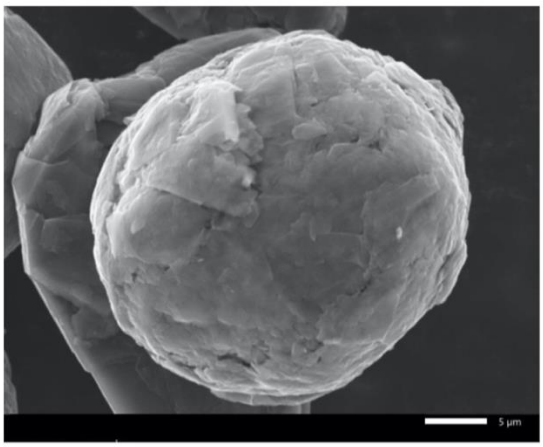
The process flowsheet for the anode program is shown above.

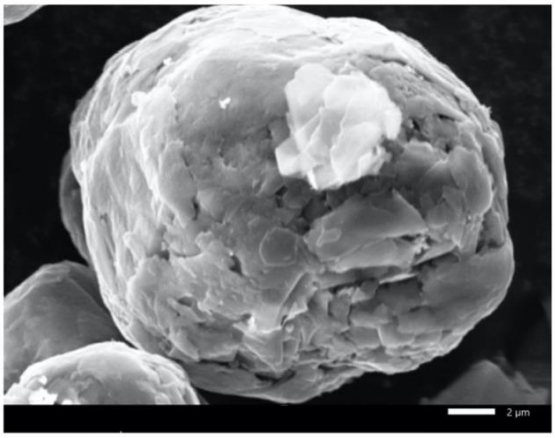
Physical analysis of the coated spherical graphite material and FYI HPA-doped coated spherical graphite material was completed and met the specifications required by leading battery manufacturers.

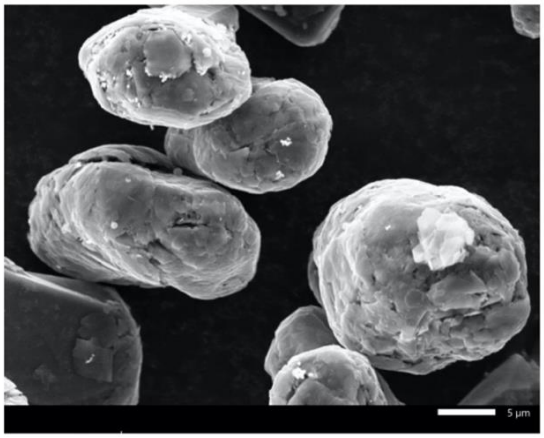
Scanning electron microscopy of carbon-coated purified spherical graphite.



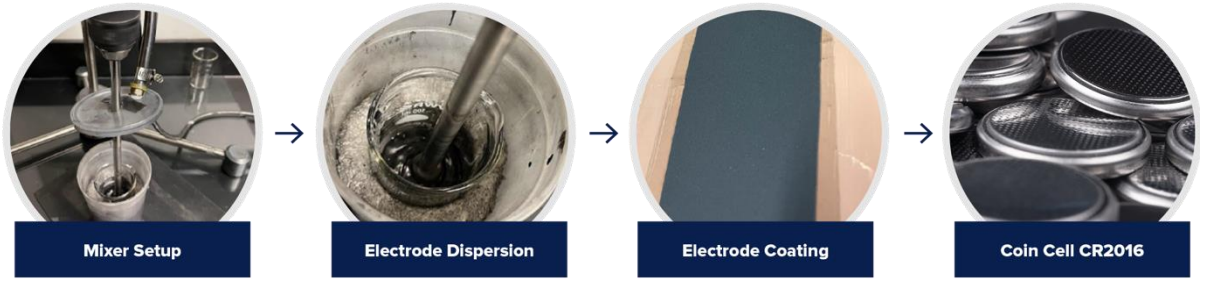


Scanning electron microscopy of high purity alumina doped coated spherical graphite.





The electrode coating process involved the material under controlled conditions applied to the copper sheet to achieve uniform electrode coating for application in lithium-ion coin cell.



Electrochemical performance of the coated spherical graphite (coated anode) and HPA-doped coated spherical graphite (HPA-doped coated anode) was undertaken in an industry standard coin cell (CR2016) to determine the performance in a lithium-ion cell which are used to power EV's.

The following table presents the coin cell electrochemical performance results benchmarked against current industry anode material from China.

	Coated Anode	HPA-Doped Coated Anode	Industry Market Anode
Reversible capacity (mAh/g)	353.4	362.7	355
First cycle loss (%)	5.2%	4.5%	7.0%
First Charge efficiency (%)	94.8%	95.5%	93.0%

First cycle charge-discharge curves were developed for both materials achieving higher first charge capacity, reduced first cycle loss and increased charge efficiency.

The coated anode has a reversible capacity in the order of 353.4 mAh/g (milliampere hours per gram) with irreversible first cycle loss amounting to merely 5.2% These are excellent results and makes EcoGraf and FYI coated anode as superior performing Lithium-ion anode material.

The performance of the HPA-doped coated anode was outstanding and better than the coated anode. Specifically, the reversible capacity was measured at 362.7 mAh/g and the first cycle loss was 4.5%. The HPA-doped coated spherical graphite outperformed current industry standard material from China.

Optimisation will continue for the loading of HPA onto the battery anode as well as variable size specification of HPA used as the dopant. Performing the long-term cycling (100 cycles and above) of HPA-doped coated anode is ongoing.

The results are very positive delivering a better performing material that will improve, performance, durability, and safety.

EcoGraf and FYI are very pleased with the results and providing product samples to partners and battery manufacturers. The objective program is to develop a commercial innovative active anode material (AAM) in Western Australia from further value adding its materials for the Lithium-Ion battery market.

Demand is forecast to increase 30%pa driven by the transition to low carbon emission technologies with sales price reported by leading industry research group BMI Research for coated anode ranges between US$5,000 to US $10,000 per tonne with premium coated anode commanding higher prices.

This announcement is authorised for release by Andrew Spinks, Managing Director.

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ENGINEERING CLEAN ENERGY

About EcoGraf

EcoGraf is building a diversified battery anode material business to produce high purity graphite products for the lithium-ion battery and advanced manufacturing markets. Over US$30 million has been invested to date to create two highly attractive, development ready graphite businesses.

The first new state-of-the-art **EcoGraf** processing facility in Western Australia will manufacture spherical graphite products for export to Asia, Europe and North America using a superior, environmentally responsible HF*free* purification technology to provide customers with sustainably produced high performance battery anode material. Subsequently, the battery graphite production base will be expanded to include additional processing facilities in Europe and North America to support the global transition to clean, renewable energy in the coming decade and the rapid growth in battery materials.

In addition, the Company's breakthrough recovery of carbon anode material from recycled batteries using its EcoGraf™ process will enable the recycling industry to reduce battery waste and use recycled carbon anode material to improve battery lifecycle efficiency.

To complement these battery graphite operations, the Company is also advancing the **TanzGraphite** natural flake graphite business, with development of the Epanko Graphite Project, which will supply additional feedstock for the battery anode material facilities and provide customers with a long term supply of high quality graphite products for industrial applications such as refractories, recarburisers and lubricants.

A video fly-through of this new facility is available online at the following link:

https://www.ecograf.com.au/#home-video

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