

2 June 2016  
Australian Securities Exchange Announcement

## **Australian Patent lodged for new process to extract silica from plant waste/biomass**

### **Highlights**

- **Provisional Australian patent application lodged which details a method for extracting silica from organic material including agricultural waste/biomass;**
- **Some agricultural wastes, especially rice husk, contain an attractive source of silica**
- **Rice husk after silica extraction is potentially a new, large and economical biomass resource for Leaf Resources' Glycell™ process**
- **Further testing is required to determine if the extracted silica can be used in microchip manufacturing – an industry estimated to be worth over US\$300 billion a year;**
- **Preliminary testing shows the Glycell™ process works well with rice husk and straw as an input.**

Leaf Resources Ltd (ASX: LER, the 'Company') is pleased to advise that it has lodged an Australian provisional patent application (No. 2016901959) entitled "Method for extracting Silica", which details a method for extracting silica from organic material, including plant waste/biomass.

The importance for Leaf Resources of this new process is that plant material, particularly agricultural residues such as rice husk and straw, can be used as a source of silica. Once that silica is extracted, the remaining biomass can be an attractive and cheap input into Leaf Resources' Glycell™ process. Glycell™ is a separate process that turns biomass into chemicals that can replace petrochemicals.

Further testing is required to evaluate the quality of the silica extract to determine its industrial use. There are wide-ranging applications for silica, depending on its grade. The highest grade silica can be used in the manufacture of microchips – an industry that is estimated to be worth in excess of US\$300 billion a year.

Other possible uses for the silica extract, is in the manufacture of special metals and alloys, optics, pharmaceuticals, insecticides and reinforcing agents for various products.

Preliminary testing of rice husk and straw after silica extraction, has shown that it is a suitable biomass resource for the Glycell™ process. There are large quantities of rice husk available throughout the world with an estimated 770 million tonnes available in Asia alone.

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The silica extraction technology, that is the subject of the patent application, is a result of a project developed under a research agreement between Leaf Resources and a third party.

Details of that party are subject to confidentiality agreements and that party also has certain rights to the technology, separate to Leaf Resources, under the research agreement. All rights to the Glycell™ process remain with Leaf Resources.

The process is designed so that the reagents used to extract the silica could be recovered and sold as a valuable by-product. Planned further testing will include pilot scale studies to be conducted at the Andritz facility in Springfield, Ohio.

“This patent is an important step in building our pipeline of biomass resources that can be applied to projects for producing valuable products, in particular where the identified biomass is a sustainable resource,” said Leaf Resources Chief Executive Officer Ken Richards.

“This is another demonstration of Leaf Resources’ excellent science and technology innovation capabilities, demonstrating the flexibility and versatility of the Glycell™ process.”

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**About Leaf Resources Ltd (ASX: LER)**

Leaf Resources is commercialising the Glycell™ process.

The Glycell™ Process is an innovative technology that uses a low cost, recyclable, biodegradable reagent glycerol, in a simple process that breaks down plant biomass into lignin, cellulose and hemicellulose at low temperature and pressure. The cellulose is then converted to cellulosic sugars through enzymatic hydrolysis and the lignin, hemicellulose and glycerol become valuable co-products.

Cellulosic sugars are a major feedstock for green, renewable biobased chemicals, bioplastics and biofuels, products whose markets are multi \$billions and fast growing. Many biobased products can now economically replace petroleum based products.

The Glycell™ process can produce cellulosic sugars at under \$50 per tonne when co-products are included. This compares with \$220 per tonne for sugars produced from the conversion of corn starch, the cheapest alternative and \$280 per tonne for raw sugar.

By dramatically reducing the cost of the main feedstock for bio based chemicals, plastics and biofuels, the Glycell™ process has the potential to change the face of global renewable production.

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