

ASX Release  
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## ULTRACHARGE TECHNOLOGY UPDATE – END USER DISCUSSIONS UNDERWAY

### Highlights

- UltraCharge has made considerable progress with the technology central to the development of its world-class nanotube anode.
- Company has successfully:
  - Transferred technology to its Israel based research facility
  - Optimised raw material components central to anode development and production
  - Produced anode material at the new Israeli facility
  - Advanced end user discussions

UltraCharge Limited (UTR or the **Company**) wishes to provide an update on its technology and commercial activities, which it believes will yield significant positive results in the near term.

### The Technology

The company has acquired exclusive rights to patented technology from the Nanyang Technology University in Singapore (NTU). The technology will replace graphite in anodes (negative pole) with a nanotube gel material made from titanium dioxide, in lithium batteries. This has the potential to revolutionise the market for lithium batteries by producing a battery that is safe, has a longer lifetime and is fast charging.

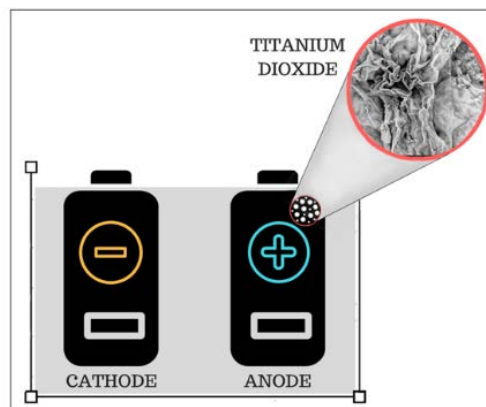


Figure1: Lithium battery graphic with titanium dioxide anode fibres

### Establishment of Israel facility and technology transfer

In late 2016 the Company established a laboratory facility in Israel capable of conducting nanotube synthesis and the fabrication of the nanotube anodes. The research facility has state of the art equipment facilitating development, analysis and testing, to fast track development and production.

In conjunction with the establishment of this facility the Company expanded its research team with Chemical Engineer to support the nanotube synthesis scale up and an Electro Chemical Research Engineer to lead the full cell development and optimisation.



The Company successfully transferred the patented technology from NTU to the new facility, yielding positive results.

The establishment of this facility and the successful transfer of the technology allowed UltraCharge to optimise the use of raw material components and initiate production via a pilot manufacturing facility.

#### **Production of anodes from the Israeli facility**

UltraCharge commenced independent production of anode material earlier this year, which is aimed at supplying anode material to end users for their evaluation. In this time the Company has produced 50 grams of anode material from its Israel based facility. This is in line with the Company's plan and expectation at this time.

As a result, UltraCharge has commenced discussions with a number of end users across a range of industries, regarding the provision of anode material for testing, and will update the market on future developments as they are formalised.

The testing of the anode materials, to ensure suitability to end user requirements, is key to the securing of binding supply agreements.

#### **End user discussions and reactor expansion**

The Company has received considerable interest in its product from potential end users. A key milestone in the advancement of these discussions has been the production of anode material, from its Israel facility.

As a result of the anode production from its pilot facility reactor and the positive interest from potential end users UltraCharge is evaluating an expansion of its manufacturing capability.

The Company is in advanced evaluation of a new, much larger reactor, capable of producing anode material 10 times more than the current production capacity of 50 grams per day, which would easily meet end user requirements for testing the product, which are typically in batch sizes of 100 grams.

Commenting on the recent technological and operational achievements of the Company, UltraCharge CEO, Mr Kobi Ben-Shabat, said, *"UltraCharge is an energy storage company, producing safe, smart and efficient alternate energy options initially for the lithium battery industry. Our recent achievements in acquiring world class patented technology, testing the technology and reproducing consistent results in our own newly developed state of the art facilities, have us well placed to discuss supply options with end users, in line with our business strategy "*.

**-Ends-**

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## Annexure 1

# ULTRACHARGE

Full spectrum of material being produced at UltraCharge's Israeli facility:



(L-R)  $\text{TiO}_2$  Raw material >  $\text{TiO}_2$ -NT Powder >  $\text{TiO}_2$ -NT Gel >  $\text{TiO}_2$ -NT as anode >  $\text{TiO}_2$ -NT anode in coin cell & pouch cell

- $\text{TiO}_2$  Raw material:
  - Ceramic material; inorganic, non-metallic and crystalline oxide
  - Titanium dioxide, also known as titanium oxide or Titania.
  - The main usage of  $\text{TiO}_2$  is mainly as white pigment to be used with range of applications, like white paint, sunscreen, and various food colouring (E171).
- $\text{TiO}_2$ -NT Powder:
  - UltraCharge  $\text{TiO}_2$  as nanotube production by unique and exclusive process as dry powder gel
- $\text{TiO}_2$ -NT Gel:
  - UltraCharge  $\text{TiO}_2$  as nanotube production by unique and exclusive process as gel after synthesis
- $\text{TiO}_2$ -NT as anode:
  - $\text{TiO}_2$  -NT combine in anode to replace the graphite in lithium battery
- $\text{TiO}_2$ -NT anode in coin cell:
  - Small scale and standard way to test prototype materials for batteries. The coin cell is safely sealed and can be tested on standard test apparatuses. In this prototype we can test in fast way different material, electrolyte, cathodes, etc.
- $\text{TiO}_2$ -NT anode in pouch cell:
  - Experimental modal analysis of lithium-ion in small scale in pouch. This method for testing large capacity cell to integrate the cathode electrolyte for long term commercialisation