

# ASX Announcement

26 April 2021

## Energy Collaborator Program Creates Commercialisation Pathway for AnteoX

### Highlights

- ❖ Initial assessment of AnteoX completed by Collaborator 8 confirms AnteoTech's results of electrochemical performance enhancement.
- ❖ Collaborator 8 and AnteoTech move into a new phase of collaboration focused on customer trials and supply agreement.
- ❖ AnteoX assessment undertaken by Collaborators 5 and 6 reveals untapped potential of using AnteoX as a binder additive.
- ❖ Increased focus on commercialisation of AnteoX combined with commonly available binder products.

AnteoTech Ltd (ASX: ADO) ("AnteoTech" or "the Company") is pleased to report that evaluation work conducted by AnteoTech's Collaborators, focusing on the application of AnteoX, has proven very successful. The collaborative work and results have strengthened partnerships and created a pathway to commercialisation of AnteoX.

The results of the recent collaborations are summarized below.

**Collaborator 8** - *(A very large northern Asian diversified electronics manufacturer with global operations.)*

AnteoTech has received confirmation from Collaborator 8 of the enhanced electrochemical performance resulting from the application of AnteoX (AnteoTech's Cross-Linker Additive) in a high silicon content lithium-ion anode. The results mirror those achieved by AnteoTech when using Collaborator 8's binder in testing with silicon anodes as reported in the Quarterly Activities Report for period ending 31 December 2020.

The study by Collaborator 8 focused on evaluating AnteoX with anode designs and chemistries that have a near-term commercial application in the market containing SiO<sub>x</sub> (silicon oxides), as the silicon containing active material in quantities of 5-30%, blended with graphite in the anode coating.

Collaborator 8's half-cell results showed a ~130mAh/g or ~18% improvement in the anode's specific capacity, pushing the starting capacity to close to 870mAh/g, when compared to a control without AnteoX. This level of improvement is seen as substantial for this type of anode chemistry and was described in the official report from Collaborator 8 to AnteoTech as "good performance".

The results prompted an immediate commercialisation discussion with Collaborator 8 and in recent meetings it has been agreed that Collaborator 8 will enter discussions with their battery component

manufacturer customers to conduct trials utilising the combination of their binder and AnteoX within the customer's preferred silicon anode design. If these trials prove successful, Collaborator 8 has indicated they will seek to establish a supply arrangement with AnteoTech to enable them to supply the combined offering directly to their customers who include battery manufacturers and device and automotive OEMs.

The trial program has been designed and agreed. It includes several gated milestones based on testing results and will run from now until late 2021.

**Collaborator 5** - *(A large central European silicon focused chemical company developing anode active materials.)*

Collaborator 5 has developed a high energy anode design, which requires capacity limitation of the anode to reduce stresses during the lithiation (charging) of the silicon, to promote an increase in cycle life capacity. Using this approach Collaborator 5 undertook several tests of binder formulations using AnteoX as an additive. The results from the first set of tests indicated that the addition of AnteoX to Collaborator 5's high energy anode design demonstrated an up to 16% improvement in cycle life, when tested in full cells against commercial cathode materials. The result suggests that the effectiveness of AnteoX is much more prominent if the anode coating is placed under greater stress caused by higher levels of silicon lithiation leading to higher anode utilisation and consequently energy capacity (Wh).

To test this theory AnteoTech obtained electrodes fabricated by Collaborator 5 and tested these under full lithiation conditions. Results demonstrated a close to 500mAh/g increase in starting capacity of the AnteoX containing anodes compared to Collaborator 5's controls, evidencing AnteoX's ability to create more stable electrode coating networks even for very high anode loading and energy designs.

These findings are being communicated back to Collaborator 5 in anticipation of further discussions and the development of new joint work packages. Our expectation is that Collaborator 5 has the opportunity to better utilise silicon in the anode via AnteoX subject to an adjustment in their test protocols allowing for higher levels of anode utilisation and consequently higher levels of energy that can be obtained.

**Collaborator 9** - *(A large northern Asian battery manufacturer focusing on supply of lithium-ion batteries in the portable electronics market).*

AnteoX was evaluated by Collaborator 9, using a unique anode coating composition, exclusively used for the screening of different binder chemistries. This particular anode chemistry was found to perform stably in half cells, however further studies with a more carefully selected anode composition are required.

Being a battery manufacturer for portable electronics, future discussions with Collaborator 9, will focus on the use of AnteoX with commercially relevant high energy anode designs and components.

## Near Term Steps Toward Commercialisation

Following the results and feedback from our Collaborators, AnteoTech has increased confidence to begin the process of preparing and finalising AnteoX as a marketable product.

The initial commercialisation work will focus on successfully completing customer trials facilitated by Collaborator 8. The trials are expected to lead to process integration and subsequent adoption of AnteoX alongside Collaborator 8's binder product. If successful, this process will conclude with the sale of AnteoX to Collaborator 8's customers via a supply agreement between AnteoTech and Collaborator 8.

In parallel, AnteoTech has commenced planning activity to formalise the development of a standalone product offering by combining commonly used and available binder products combined with AnteoX for use in a number of silicon active material anode designs. We believe this initiative will facilitate a market position that enables broad use of AnteoX in the lithium-ion battery component manufacturer market.

AnteoTech CEO Derek Thomson commented: "We are very pleased to be progressing our commercialisation of AnteoX. The AnteoTech Energy team's dedication and focus on experimentation with AnteoX to discover the optimal configurations of active material, binder and cross-linker that make a real difference in enhancing electrochemical performance will stand us in good stead as we take this product to market. I commend Manuel Wieser and the Energy team on this important development as we look forward to bringing cross-linking electrochemical performance enhancement to a broader set of lithium-ion battery component suppliers".

It is expected that the program development will require focused effort and will run until late 2021.

Further details of this program will be detailed in future updates.

This announcement has been authorised for release by the Board.

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### **ABOUT ANTEO GROUP – AnteoTech Ltd (ASX:ADO)**

AnteoTech is a surface chemistry company with Intellectual Property ("IP") in its core technology product groups AnteoCoat™, AnteoBind™ and AnteoRelease™. The Company's purpose is to create shareholder value by identifying and solving important global industry problems by providing unique value-add solutions for its customers. Customers operate in the life sciences, diagnostics, energy and medical devices markets.

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