

**Alcore's Strategically Important Pilot Plant Construction Underway**

- Based on engineering designs developed in August-September, Alcore has commenced construction of its pilot plant to produce precursor chemicals required for the recovery of fluorine from 'excess bath', an aluminium smelter waste
- Fabrication of the reactors in the Berkeley Vale industrial park, Central Coast NSW near the Alcore Research Centre was completed on schedule and within budget
- Alcore is collaborating on reactor designs with BFluor Chemicals, an originally South African consulting service and fluorochemical equipment manufacturing company with extensive experience in technology implementation across the entire global fluorochemical value chain
- Alcore's other international process engineers are thermodynamically modelling the process for recovery of fluorine from excess bath and Alcore has conducted confirmatory testwork
- Aluminium industry forecasts suggest that the amount of excess bath will increase, with Alcore believed to be the only party actively developing a process to transform excess bath into high value products, including aluminium fluoride (AlF<sub>3</sub>).
- The Alcore process is new technology, proprietary to Alcore and will deliver significant economic and environmental benefits.

ABx Group (ASX: ABX) (**ABx**) is pleased to confirm that its 87%-owned subsidiary ALCORE Limited (**Alcore**) has commenced construction of its strategically important pilot plant facility, at its research centre on the NSW Central Coast, to recover fluorine from 'excess bath', an aluminium smelter waste.

The commercialisation of Alcore's proprietary technology and development of Australia's first production plant would provide much-needed security of supply for Australian aluminium smelters. Alcore has engaged BFluor Chemicals (BFluor), an originally South African consulting service and fluorochemical equipment manufacturing company with extensive experience in technology implementation across the entire global fluorochemical value chain, from process conceptualisation through to full-scale plant commissioning. Alcore and BFluor engineers are collaborating closely to design the pilot scale reactor to recover fluorine from excess bath.

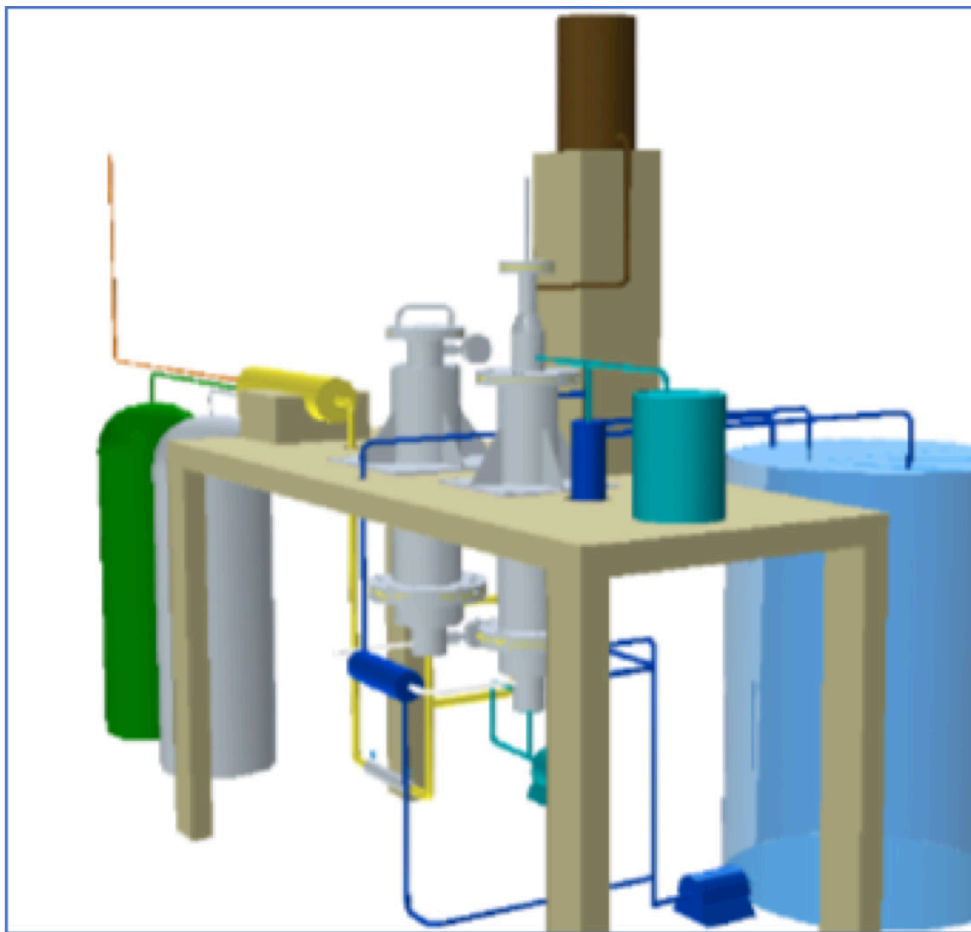
The Alcore process involves precursor chemicals to be produced inside the aluminium fluoride (AlF<sub>3</sub>) refinery. BFluor and Alcore have designed pilot scale reactors to produce these chemicals. Alcore has constructed the reactors and is now assembling the chemical production plant at its research centre. This will produce enough of the chemical to supply the pilot plant for the recovery of fluorine from excess bath, which will also be located at the research centre.

Alcore has engaged another international process engineering company to model the process. The combination of experimental and modelling results enables Alcore to scale-up the process to commercial production as quickly as possible, whilst minimising risk.

Alcore CEO Dr Mark Cooksey said: *"It is exciting to have moved to the pilot plant stage. The opportunity to recover fluorine from excess bath is compelling because excess bath is becoming more of a waste challenge and there is significant demand for fluorine. We aim to demonstrate the technical feasibility at pilot scale as quickly as possible."*

### **Recovery of Fluorine from Excess Bath**

Based on forecasts by the International Aluminium Institute and industry experts, it is expected that the amount of excess bath will increase over future years. The global aluminium industry is focusing more attention on options for managing this waste. It is believed that Alcore is the only party actively developing a process to transform excess bath into high value products in the lucrative fluorochemical value chain, including aluminium fluoride (AlF<sub>3</sub>). This will deliver significant economic and environmental benefits.



**Figure 1: 3D plan of pilot scale reactors for production of precursor chemicals**



**Figure 2: Pilot scale reactors for production of precursor chemicals**

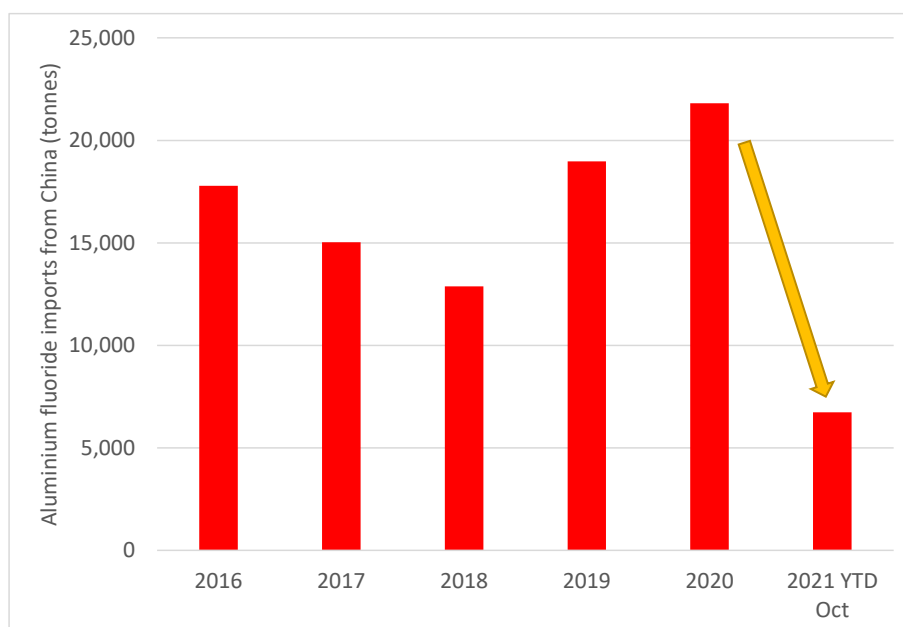


**Figure 3: Pilot scale reactors being assembled in pilot plant facility**

## Market for Aluminium Fluoride

AlF<sub>3</sub> is a strategically important mineral that is an essential ingredient for aluminium smelting and is being investigated for advanced lithium-ion batteries. Australian aluminium smelters rely entirely on imported AlF<sub>3</sub>, typically more than 70% from China, but this proportion has reduced by more than 60% in 2021, illustrating the supply risks (see Figure 3).

Australia is the largest producer of primary aluminium metal without its own domestic AlF<sub>3</sub> production. Alcore is working to become the first and only producer of AlF<sub>3</sub> in Australasia.



**Figure 4: Imports of AlF<sub>3</sub> from China into Australia have contracted substantially in 2021**

Source: BACI, CCS

This announcement is authorised by the Board of Australian Bauxite Limited.

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