

ALCORE Pilot Plant Preliminary Engineering Design Complete, Advanced Laboratory Reactor Ordered

ALCORE preliminary engineering design completed for pilot plant facility. Detailed engineering design underway

ALCORE Technology Centre site preparation underway, with contractor discussions commenced for civil and electric works

Advanced laboratory reactor ordered, with delivery anticipated in Q3 CY2023



Figure 1 – Current ALCORE laboratory-scale reactor

ABx Group (ASX: ABX) (“ABx” or “the Company”) is pleased to provide an update on its 83%-owned subsidiary ALCORE Limited (**ALCORE**), which has recently completed the preliminary engineering design phase for its rapidly advancing pilot facility and also ordered a significant laboratory reactor.

ALCORE is developing a pilot plant in NSW to recover fluorine from ‘excess bath’ (an aluminium smelter waste product) to produce hydrogen fluoride, with a later-stage commercial plant to further react the hydrogen fluoride to produce aluminium fluoride – a high-value chemical essential for aluminium smelting.

Commenting on the progress made by ALCORE, ABx Group Managing Director and CEO Mark Cooksey said:

"It is exceptionally pleasing to see progress accelerating at ALCORE. The Company has the opportunity to solve an increasing waste issue for global aluminium smelters, while also producing a necessary smelting additive, which is not only high-value but, for many countries including Australia, is subject to significant supply risks.

"The completion of the preliminary engineering design and order of a crucial laboratory bath reactor are two major milestones towards demonstrating the process at pilot scale. The pilot plant remains on track to be constructed by end CY2023"

The main purpose of the preliminary engineering design phase is to specify the major design and operating parameters for the significant components of the pilot plant.

The Company has now finalised plant capacity and general layout, comprehensive process flow, piping and instrumentation diagrams, raw material storage and waste management plans, process safety and control philosophies, and sizing of major equipment.

Its completion now permits the Company to conduct the detailed engineering design of the pilot plant, in partnership with several engineering suppliers, including specialist overseas manufacturers. Meanwhile, ALCORE is progressing site preparation works with the pilot facility to utilise space at the ALCORE Technology Centre in Berkeley Vale, Central Coast NSW.

As part of these preparatory works, ALCORE has entered discussions with contractors for civil and electric infrastructure work. Additionally, the Company is also progressing all necessary permits and approvals with local authorities.

Milestone Laboratory Reactor Order

ALCORE has further cemented its pilot plant development pathway with the order of an advanced laboratory reactor for enhanced processing of excess bath material.

The Company has been reacting sulfuric acid (oleum) with bath to recover fluorine at a laboratory-scale (Figure 1) and with initial operating conditions identified¹, the pilot plant will seek to evaluate these conditions at greater scale.

The feed materials must be intimately mixed during the reaction to maximise the consumption of feed materials and quality of final products. These are important for process economics and customer acceptance.

The earlier results at laboratory-scale were limited by extent of process mixing that could be achieved. Pleasingly, in early 2023, ALCORE identified an international supplier that could manufacture a reactor which employs state-of-the-art technology to enhance process mixing, which is critical to achieving high fluorine yield.

¹ See ASX Announcement dated 24 October 2022

Following further due diligence, the reactor technology has been determined to be highly advantageous for ALCORE with an order now placed.

Delivery at the ALCORE Technology Centre is anticipated to occur in Q3 CY2023.

Following successful delivery and installation, experiments are to be conducted on this reactor in parallel with pilot plant construction.

These experiments will include confirmatory work on ALCORE's selected range of process conditions, with the improved reactor anticipated to deliver greater yields. These results should enable tests on the pilot plant to be even more effective.

This announcement is approved for release by the board of directors.

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