



AUSTRALIAN **BAUXITE** LIMITED

**ASX ANNOUNCEMENT**

**24 January 2020**

ASX: ABX

**ALCORE** Limited

AIF<sub>3</sub> for Aluminium smelters & Lithium ion batteries

## **CSIRO Senior Principal Research Leader Appointed Alcore General Manager**

Australian Bauxite Limited (ASX: ABX) is pleased to advise that Dr Mark Cooksey has been appointed General Manager of ALCORE Limited (**Alcore**). The appointment commences 1 February 2020 for a six-month engagement.

- Mark Cooksey appointed General Manager of Australian Bauxite Limited's 90%-owned subsidiary, Alcore
- Dr Cooksey has been granted 6 months leave from CSIRO to assist Alcore to commercialise development of aluminium fluoride (AlF<sub>3</sub>) production (see Figures 1 to 3)

Dr. Cooksey comes to Alcore with an impressive history in research, engineering and commercialising new developments in the Aluminium industry since 1997.

Mark commenced his professional career as a Research Engineer in aluminium smelting with Comalco (now Rio Tinto Alcan) in 1997 and became senior research engineer in 2000 before achieving six sigma black belt at Gladstone, Queensland in 2002.

He joined the CSIRO in 2004 as Senior Research Engineer and became Senior Principal Research Leader at the CSIRO in 2016.



Dr Mark Cooksey

Mark Cooksey holds a PhD (Chemicals & Materials Engineering), Bachelor of Engineering (Materials – First Class Honours) and Bachelor of Science (Information Technology and Applied Mathematics). He has worked closely with the aluminium and other metal industries and his significant experience in commercialising new technologies and processes will be a solid base for Alcore to expand into the next phase of development.

Welcoming Dr Cooksey, Ian Levy, Australian Bauxite's CEO and Managing Director, commented:

"Mark joins Alcore at an opportune time as Alcore develops from laboratory research to large scale production. Alcore needs the highly skilled and experienced leadership that Mark can provide.

"These are exciting times for Australian Bauxite as our bauxite team has begun the approval and development process for our flagship bauxite mine at Binjour in QLD and our technology subsidiary, Alcore develops the Alcore refining process to make aluminium fluoride (AlF<sub>3</sub>) for sale to aluminium smelters."

This announcement has been approved for release by the Board of Australian Bauxite.

**For further information please contact:**

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**Figure 1: \$2.5 million Alcore laboratory built**

Alcore operates a sophisticated laboratory in Berkeley Vale, central coast NSW. It is uniquely licensed for high-technology chemical experiments under strictest safety and environmental control systems.

## ALCORE Refining & Co-products



**Bauxite, Dross (+/- Coal) + F-Acids + H<sub>2</sub>O**

1. Minerals/dross dissolve rapidly
2. Hydrocarbon → “Corethane”
3. Metal fluorides precipitate
4. AlF<sub>3</sub> and co-products are saleable



**\$50/t Bauxite + Alcore → US\$800/t**



Silica Fume

Iron Oxide Pigment

TiO<sub>2</sub> Pigment

AlF<sub>3</sub>

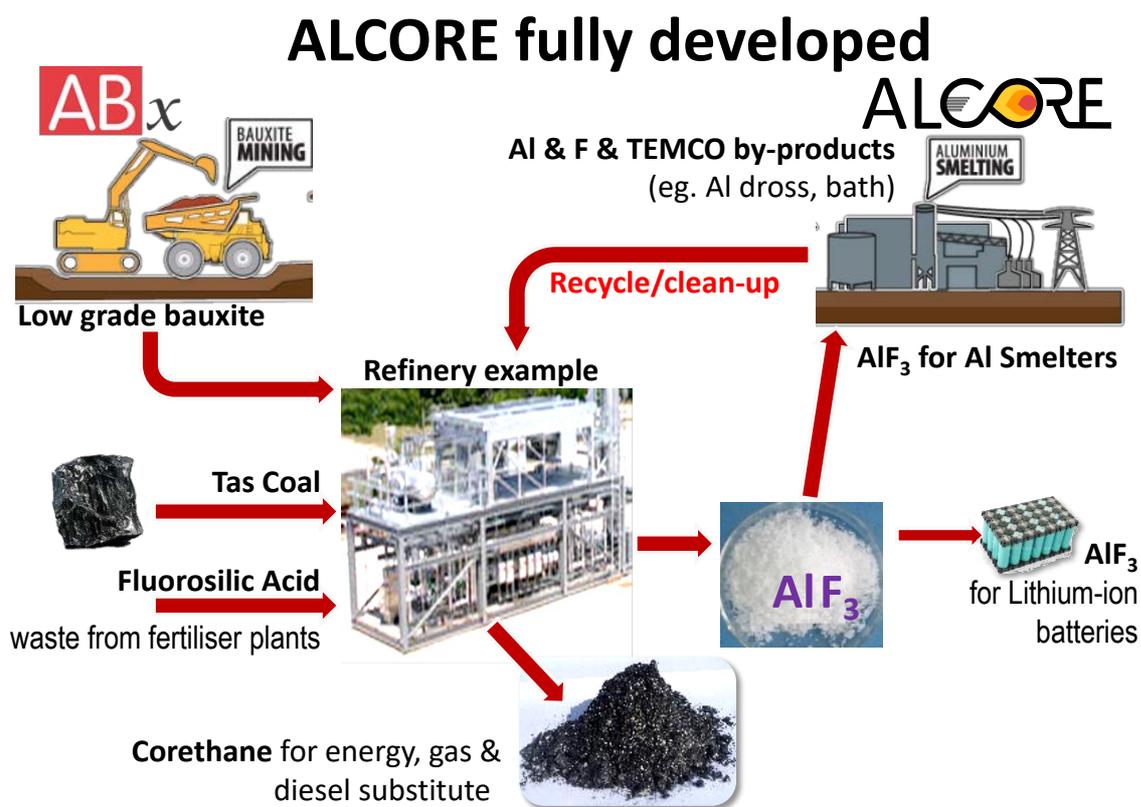
**Figure 2**

### The full Alcore refining process

Alcore plans to commence production using a “Refine & Recycle” strategy which simplifies the refining process into two steps:

1. Digestion of Al and F-rich by-products from Aluminium smelters
2. Heating to dehydrate the produced AlF<sub>3</sub> into the form required by smelters

Production of co-products will increase profitability when the full Alcore refining process plant is developed



**Figure 3: the fully developed Alcore business plan**

Alcore can expand its business over time towards the fully developed Alcore business plan as summarized above.

- Bauxite is abundantly available and is a cheap source of extra aluminium.
- Should gas prices and/or electricity prices remain high in Australia, Alcore can increase its production of Corethane to provide low-emissions heating and/or gas-turbine electricity.
- Production of high-purity alumina “HPA” which is for making sapphire glass can also be developed by Alcore at the right time.

**About Australian Bauxite Limited**

**ASX Code ABX**

**Web: [www.australianbauxite.com.au](http://www.australianbauxite.com.au)**

Australian Bauxite Limited (ABx) has its first bauxite mine in Tasmania & holds the core of the Eastern Australian Bauxite Province. ABx's 12 bauxite tenements in Queensland, New South Wales & Tasmania totalled 719 km<sup>2</sup> & were selected for (1) good quality bauxite; (2) near infrastructure connected to export ports; & (3) free of socio-environmental constraints. All tenements are 100% owned, unencumbered & free of third-party royalties. The Company's bauxite is high quality gibbsite trihydrate (THA) bauxite that can be processed into alumina at low temperature.

ABx has committed a large proportion of its expenditure into Research and Development to find ways to capitalise on the main strengths of its bauxite type, mainly highly clean, free of all deleterious elements and partitioned into layers, nodules, particles and grains of different qualities that can be separated into different product streams using physical, chemical and geophysical methods. ABx has declared large Mineral Resources in northern NSW, southern NSW, Binjour in central QLD & in Tasmania where ABx's first mine commenced at Bald Hill near Campbell Town, Tasmania in December 2014 – the first new Australian bauxite mine for more than 35 years.

ABx has created significant bauxite developments in 3 states - Queensland, New South Wales and Tasmania. Its bauxite deposits are favourably located for direct shipping of bauxite to both domestic and export customers.

**ABx endorses best practices on agricultural land, strives to leave land and environment better than we find it. We only operate where welcomed.**

**About ALCORE Limited**

Australian Bauxite Limited (ABx) has incorporated ALCORE Limited as a wholly-owned subsidiary to manage the ALCORE Project leading to the construction of an ALCORE Production Plant to produce Aluminium Fluoride (AlF<sub>3</sub>) and valuable co-products, using patent (pending) new technology. ALCORE is planning to convert low grade bauxite worth \$50 per tonne into a suite of valuable products worth more than \$800 per tonne. Stage 1 of the ALCORE project commenced on 1 July as planned at ALCORE's pre-approved Pilot Plant site in Berkeley Vale, Central Coast NSW.

Stage 1 is designed to produce AlF<sub>3</sub> test samples for pre-qualified aluminium smelter customers & then produce Corethane, which is pure hydrocarbon powder refined from low-value coals and has been used to provide thermal and electrical power with low CO<sub>2</sub> emissions when used as a gas-substitute to fuel large gas turbines. Corethane has also been used as a diesel substitute for fuel security purposes and is ideally suited for use as a sulphur-free bunker fuel.

**Directors of ABx**

Paul Lennon	Chairman
Ian Levy	CEO & MD
Ken Boundy	Director
Henry Kinstlinger	Company Secretary

**Officers**

Leon Hawker	Chief Operating Officer
Jacob Rebek	Chief Geologist
Paul Glover	Marketing, Exploration & Relationships