

# Altech Green Bond Framework

1 April 2020

## Strategy and Rationale

Altech Chemicals Limited (company listed on the Frankfurt and the Australian Exchange) is aiming to become one of the world's leading suppliers of high purity alumina (HPA) through the construction and operation of a 4,500tpa HPA processing plant at Johor, Malaysia. Feedstock for the plant will be sourced from the Company's 100%-owned kaolin deposit at Meckering, Western Australia. Altech Chemicals produces HPA for the sole purpose of manufacturing LEDs and Lithium-ion batteries for electric vehicles, supporting the development of the green economy. Altech has furthermore developed a unique HPA production route and plant design enabling resource efficient sourcing, reduction of chemical waste and solid residues, and energy efficient production processes, reducing its carbon footprint significantly compared with its peers. At the same time, the quality of the HPA is exceptional (targeted quality 99.99%).

Altech Chemicals follows international recognised environmental standards and practices including the Equator Principles<sup>1</sup> and International Finance Corporation (IFC) Performance Standards on Environmental and Social Sustainability<sup>2</sup>. Altech has developed shall implement an Environmental Management System (EMS) in accordance with ISO 14001 which will be implemented upon start of construction, and includes management and monitoring programs for air emissions, waste water emissions, solid wastes, dust and noise. In addition, Altech has developed Health and Safety, and Labour management plans which follow the IFC EHS Guidelines<sup>3</sup> and International Labour Organisation (ILO) Core Labour Standards<sup>4</sup>.

As part of the Altech management team's commitment to environmental policy and management, bi-annual management reviews shall be undertaken to ensure environmental audits have been completed and actions addresses, any environmental incidents have been reported and investigated, and all monitoring and statutory reporting obligations have been completed. The management review team shall consist of the Managing Director, Operations Manager, Health & Safety Manager and Human Resources Manager.

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<sup>1</sup> <https://equator-principles.com/>

<sup>2</sup> [https://www.ifc.org/wps/wcm/connect/Topics\\_Ext\\_Content/IFC\\_External\\_Corporate\\_Site/Sustainability-At-IFC/Policies-Standards/Performance-Standards/](https://www.ifc.org/wps/wcm/connect/Topics_Ext_Content/IFC_External_Corporate_Site/Sustainability-At-IFC/Policies-Standards/Performance-Standards/)

<sup>3</sup> [https://www.ifc.org/wps/wcm/connect/Topics\\_Ext\\_Content/IFC\\_External\\_Corporate\\_Site/Sustainability-At-IFC/Policies-Standards/EHS-Guidelines/](https://www.ifc.org/wps/wcm/connect/Topics_Ext_Content/IFC_External_Corporate_Site/Sustainability-At-IFC/Policies-Standards/EHS-Guidelines/)

<sup>4</sup> <https://www.ilo.org/global/standards/introduction-to-international-labour-standards/conventions-and-recommendations/lang--en/index.htm>

The rationale behind Altech Chemicals green bond is to connect the sustainability profile of the HPA project in Malaysia with green investor funding.

## **The structure of the Green Bond framework**

The Altech Chemical Green Bond Framework meets the four pillars of the Green Bond Principles (GBP).

- Use of proceeds
- Project evaluation and selection process
- Management of proceeds
- Reporting

To ensure alignment with international standards Altech Chemicals has obtained an external review as verification.

## **Use of Proceeds**

Altech Chemicals will finance the construction of its High Purity Alumina (HPA) plant in Johor Malaysia.

### Altech Chemical patented HPA process

Altech's HPA direct process involves the extraction of high purity alumina from a kaolin (alumina silicate) ore feedstock using a hydrochloric acid leach process, rather than from expensive aluminium metal / alkoxide process favoured by existing producers. The first advantage of Altech's process is that its kaolin feedstock is much cleaner, with very low levels of iron compared to bauxite which generates large amounts of red mud waste. The second advantage is that nearly 100% of the hydrochloric acid used in the chemical process is recycled and reused in the process plant, resulting in lower volumes of neutralised waste water, reduced CO<sub>2</sub> generation, and reduced reagent consumption. The third advantage is that all fuel burning equipment in the plant use natural gas as fuel and equipment installed with high efficiency burners.

The Altech Chemicals HPA process can be broken down into the following major process steps:

- Kaolin Mining in Meckering, Western Australia
- Kaolin to Alumina Conversion Plant in Johor, Malaysia
  - Kaolin Beneficiation
  - Kaolin Calcination
  - Kaolin HCl Acid Leaching
  - Aluminium Chloride Hexahydrate (ACH) Crystallisation and Purification

- ACH and Alumina Calcination
- HPA Product Finishing

The Kaolin to HPA process offers significant reductions in CO<sub>2</sub> production and energy consumption per tonne of HPA when benchmarked against current HPA production using the alkoxide process. This is due to the CO<sub>2</sub> produced and energy demand currently required in processing of aluminium metal feedstock from bauxite via the Bayer<sup>5</sup> and Hall-Heroult<sup>6</sup> processes.

The Altech HPA Plant to be built and operated in Johor, Malaysia has been designed with sustainability and potential impact to the environment in mind. State of the art process equipment and best available techniques (BATs) for emissions management have been included in the design in order for the plant to meet and exceed both the local environmental regulations and IFC Environmental Guidelines. Energy efficiency has also been considered in overall plant and building design. LED lighting will be utilised wherever possible, variable speed drives (VSD) are installed for control of the majority of process equipment, and high efficiency natural gas burners are used in all fuel burning equipment.

## **Process for Asset Evaluation and Selection**

Altech Chemicals has selected the construction of its HPA Johor (Malaysia) plant as its eligible project. The evaluation process for development of the HPA plant included a bankable feasibility study in 2015 and subsequent Financial Investment Decision Study (FIDS) in 2018. These studies were commissioned and approved by the Altech Board of Directors, including the Non-Executive Chairman and Managing Director. Both of these studies considered the inherent environmental benefits of the HPA project, and utilisation of the Altech Meckering kaolin deposit for HPA production, when compared to the standard industry methods of HPA processing. These benefits have been summarised in an Altech White Paper on Green Credentials.

## **Management of Proceeds**

The net proceeds of Altech's Green Bonds will be exclusively used to finance Altech Chemicals HPA plant in Johor, Malaysia.

Proceeds yet to be allocated towards eligible assets will be placed in short term investment in accordance with Altech Chemical's liquidity management policy, and managed by the Chief Financial Officer (CFO) with oversight from the Altech Board

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<sup>5</sup> The principal industrial process used to refine bauxite to alumina, the majority of which is then used in the production of aluminium metal. Refer to Altech White Paper on Green Credentials for more information.

<sup>6</sup> The main industrial process used for smelting of aluminium. It most commonly involves dissolution of smelter grade alumina produced by the Bayer Process. Refer to Altech White Paper on Green Credentials for more information.

of Directors. Unallocated proceeds will not be used to finance any alternative projects or chemical production plants.

## **Reporting**

Altech Chemicals will provide a Green Investor Report on an annual basis until the maturity of the bond. Such report shall include the following:

1. Details of the project
2. Progress update
3. Unallocated proceeds (if any)
1. Impact indicators
  - CO2 reduction per annum
  - CO2 savings per annum
  - Energy consumption per tonne HPA reduced (GJ)

The methodology for retrieving the calculated impact will be disclosed in the report, and shall be reviewed by an external auditor

## **External Review**

To secure alignment with national and international guidelines Altech Chemicals has obtained an external review from an independent third party, Centre of International Climate and Environmental Research (CICERO). CICERO has awarded the Altech framework a Light Shade of Green and a governance score of Good. The document is available on Altech Chemicals' webpage.

An appropriate independent assurance provider will annually assure that the utilisation and allocation of proceeds are in accordance with Altech Chemicals Green Bond framework. The opinion of the assurance provider will be made available in the Green Investor Report.