

## EU funding of EUR 5.9 million for Alumina Project

EU's Horizon 2020 program has granted EUR 5.9 million in funding for continued development of the patented alumina technology owned by Nordic Mining and Institute for Energy Technology (IFE). The technology is currently patented in Norway, USA, Russia, Denmark and Greenland, and approved by the EPO (European Patent Office) with pending validation in additional European countries and pending in Canada.



### The AISiCal project

The AISiCal project is an ambitious research and innovation project established to assess and develop the patented Aranda-Mastin Technology (AM Technology) with the purpose of making the minerals and metals industry more sustainable and environmentally sound. The AM Technology, which is owned by Nordic Mining and IFE, enables the co-production of three essential raw materials; alumina, silica and precipitated calcium carbonate (PCC), by using new resources with no bauxite residue and using carbon dioxide (CO<sub>2</sub>) during production. The AISiCal project will innovate and develop the AM Technology towards zero CO<sub>2</sub> emission from production.

The AISiCal project consortium comprises 16 international partners from 9 countries and is led by IFE in Norway. The partners represent the full value chain in the minerals and metals industry: research and technology, mining and mineral exploration, technology development, end users, business developers and international industry organizations. In addition to Nordic Mining and IFE, the consortium includes, among others, Elkem, Herøya Industry Park and the European Aluminium Association.

The aim of the AISiCal project is to further develop and assess the AM Technology for industrial scale production. A techno-economical study will be conducted, and the patented technology will also be assessed in terms of societal and environmental factors.

Nordic Mining's CEO, Ivar S. Fossum comments: "We are pleased that the technology can now be further developed with funding from the EU's Horizon 2020 research and innovation programme. We believe that this is an exceptional opportunity to combine green technology, metallurgical competence and minerals to develop new environmentally friendly industry on a global scale".

### Technology background

The patented AM Technology has been developed in cooperation between IFE and Nordic Mining. Parts of the technology have successfully been demonstrated in a small-scale pilot reactor at Herøya Industry Park in Norway.

Production of alumina is today mainly based on bauxite resources which are processed through the Bayer process that is linked with environmental and social challenges due to extensive land use and tailings deposition of large amounts of bauxite residue. The new technology aims at minimizing waste with maximal utilization of the bed rock, whilst achieving zero CO<sub>2</sub> emission from production.

The AM Technology is based on leaching of alumina-rich anorthosite rock with hydrochloric acid at moderate temperature and pressure. Silica is collected from the leaching process and processed as a by-product. Aluminium chloride is extracted through a sparging process and subsequently calcined to form alumina. Precipitated calcium carbonate (PCC) is produced at the acid regeneration process-step, by integrated CO<sub>2</sub> utilization. PCC is a commodity used as filler in paper, plastics and paint, and silica is used as filler in tires and plastics, and in the production of cement.

The project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 820911.

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Nordic Mining ASA

*Nordic Mining ASA ([www.nordicmining.com](http://www.nordicmining.com))*

*Nordic Mining ASA ("Nordic Mining" or the "Company") is a resource company with focus on high-end industrial minerals and metals. The Company's project portfolio is of high international standard and holds significant economic potential. The Company's assets are*

*in the Nordic region.*

*Nordic Mining is undertaking a large-scale project development at Engebø on the west coast of Norway where the Company has rights and permits to a substantial eclogite deposit with rutile and garnet. Nordic Mining also holds 18.5% of the shares in Keliber Oy, which is developing a lithium project in Finland to become the first European producer of battery grade lithium hydroxide.*

*In addition, Nordic Mining holds interests in other initiatives at various stages of development. This includes patented rights for a new technology for production of alumina which are jointly owned with the Institute for Energy Technology. The Group has also taken initiatives related to seabed mineral exploration in Norway and participates in the MarMine research project. Further, the Group is investigating a high-quality quartz deposit in Kvinnherad in western Norway and holds exploration rights for nickel and PGE in a prospective geologic province in Reinfjord in northern Norway.*

*Nordic Mining is listed on Oslo Axess with ticker symbol "NOM".*