

# Orbite turns toxic waste into real value

On May 16, Orbite Aluminae ('Orbite', TSX: ORT | OTCQX: EORBF) presented its quarterly results. Some of the highlights that were mentioned included the start of non-commercial operations of the High Purity



Alumina (HPA) plant and the delivery of first commercial HPA samples with a purity of 99.99%, the exclusive worldwide agreement with Veolia, the issuance of patents in China and Russia. Orbite also announced that Mr. Glenn R. Kelly will join Orbite as the new Vice-President and Chief Operating Officer (COO), starting on May 21, 2013. Interestingly, all management will report to Mr. Kelly. As with all new technologies, especially those that start to come on line in a difficult market, companies such as Orbite can generate rather passionate debates.

Analysts remain divided with those such as Luisa Moreno from Euro Pacific Canada who present the bullish case based on Orbite's large growth potential, interest from large firms such as Veolia and patent backed technology, making the Company an interesting takeover target. The bears, captained by Jon Hykawy at Byron Capital Markets are concerned by overly optimistic REE prices, the difficulty in obtaining low cost energy sources and underestimated costs. At the risk of being too optimistic, the safer bet, in the medium to long term, is on the bulls. REE prices cannot stay low for much longer as global market realities are changing and there is no disagreement that the demand for REE intense technology will only go up in the near and far future. As valid as costs estimate concerns may be, Orbite's technology addresses an

important environmental problem and proposes to offer a valid and much cleaner method of producing alumina.

### **Why the bulls have the stronger case: the value of Orbite's technology**

Orbite has developed a new process to recycle red mud. Orbite can therefore play an important role processing this very toxic effluent that is a by-product from the refining of aluminum ore. Orbite has formed a partnership with Veolia Environmental, a France based multinational (global presence and 300,000+ employees) specializing in waste management for the treatment and recycling of the 'red mud' and for the construction of a facility to treat red sludge treatment process by Orbite. The strategy is then for both companies to offer this service to the aluminum industry. The floods that hit Hungary in 2010 drew public attention to the ecological disaster that red mud creates. Red Mud is the result of the Bayer Process or the method used to refine bauxite to produce aluminum oxide that has been used since it was invented in 1887, the Bayer process for the production of aluminum and until now no process has been developed to replace it.

The red sludge, or red mud, that results from the process contains very difficult to treat and very toxic effluents. Current purification processes based on acid are complex and inefficient; the result is that the sludge is often stored, which only increases the risk of accidents and spillage. In 2011, about 100 million tons of red mud produced, only 5% were reused. Orbite has set itself a very useful goal and it has developed the technology to address a very real and difficult problem by extracting alumina from aluminous clays. Alumina is then used to manufacture aluminum. Orbite says the method also allows for the extraction of rare earths such as cerium, scandium and gallium and other related byproducts of value.

The commercial advantage comes from the fact that this technology can be sold to producers wishing to reduce their

environmental impact – a factor that prevents many industrial projects from ever being completed – as well as operational costs. The technique developed by Orbite can not only recover about 30% of alumina which is still in the red mud, but also to extract the rare earths (such as scandium, gallium, and cerium) and residues of metals. For manufacturing companies, the Orbite process relieves management from having to deal with complex, risky and financially burdening toxic sludge. Moreover, as sustainability risks and concerns have become an ever more important risk factor in investment analysis, companies using the method will be able to promote a very good environmental image. As for the Orbite-Veolia partnership, their investment in treatment plants is amortized in the resale of the recovered alumina, metals and rare earths.

The environmental benefits alone, regardless of what values or purity, adequate or not, are a sufficient reason to pursue the technology. In a sense Orbite has proposed a new way of mining, which has become ever more scientific, combining efforts with other disciplines such as chemistry to maximize yields, grades, purities while reducing environmental impact. As for the costs so often cited by 'grouchy bears', the costs involved in bringing a mining project to production have made it rather more desirable to develop multiple, rather than single, commodities, which is what Orbite proposes to do.

Marc Johnson of Orbite said in a very recent conversation that Orbite-Veolia are looking for the ideal location to build the first Red Mud remediation plant, which will then be replicated by Orbite in several countries where it has operations. There are several ideal locations, given the value of the service being offered. The plant could be set up in Europe to address the German market in particular and those of countries further east such as Hungary, Poland; however, very large markets can be found in the United States, Canada, Australia or China – several plants would be needed to meet demand in the latter. The first plant's location should be

determined by the end of 2013.