CEO CFO

ORBITE

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With Canada being the Third Largest Producer of Aluminum in the World and China Tightening its Grip On the Aluminum Market, Orbite Aluminae Inc. is in The Right Place at The Right Time with their Property in Quebec and Pilot Facility with a New Technology that will Produce a Significant Amount of High Purity and Smelter Grade Alumina

Resources
Aluminum
(ORT-TSX)

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Richard Boudreault
M. Eng., MBA, Adm. A.
President and CEO

BIO:
Serving as President since 2007, Richard Boudreault came to Orbite with an impressive list of accomplishments with start-up and growth companies in the new materials sector. He holds a Master of Engineering degree from Cornell University, an MBA from Université de Sherbrooke, and is a Fellow of the Canadian Academy of Engineering. Over the years he has worked in technology-related positions for numerous companies, including Sofinov (at the time a subsidiary of the Caisse de dépôt et placement du Québec) as venture capitalist in material, energy and industrial technology and Oerlikon Aerospace.

Company Profile:
Orbite (pronounced Orbit) owns 100% of the exclusive mining rights on a 6,441-hectare Grande-Vallée property, the site of an aluminous clay deposit located 32 km northeast of Murdochville, and a 28,000 sq. ft. at pilot facility in Cap Chat, both in the Gaspé region, Quebec. The NI 43-101 and amended reports issued have identified an Indicated Resource of about 1 billion tonnes of aluminous clay in part of the deposit. The Company also owns the intellectual property rights to a unique Canada and U.S. patented process for extracting alumina from aluminous ores and for which patents are pending in other countries.

Interview conducted by:
Lynn Fosse, Senior Editor
CEOCFOinterviews.com

CEOCFO: Mr. Boudreault, what attracted you to Orbit?
Mr. Boudreault: I have always been involved in material technology, either as an executive, financier, or scientist. A while ago, a group of people who were prospecting in the Gaspé area in Quebec, identified a reasonably large area of aluminous clay, a material that could be transformed into alumina. It was not a very large deposit, certainly not as large as it is today, but it seemed to have potential to become very significant. They approached me and asked what they could do with it and, at the time, I did not think we could do much about it, because the price of alumina was quite low, about $250 a ton at the time. In addition, there was only one processing technique available at the time, named the Bayer process, which although extremely polluting and extremely expensive, had worked well since the latter 1800. It was very hard to imagine that one could produce alumina at the time that would be cost effective. Therefore, I told him I was not interested at this time, but then the problem dawned on me. As a matter of fact, it woke me up at night; maybe three nights in a row. I was thinking there was something I was missing and that I was not capturing an opportunity. Then I thought; what if we were to develop a process that would take this material and transform it into specialty alumina, high purity alumina, an alumina that is used throughout the semiconductor world, which I came from. It is also used in the biopharma sector, not in the pharmaceutical per se, but rather as a biocompatible material to make artificial knees and hips. This material was at the time worth about $15 a kilogram. I considered that if we were to develop a new process that would cost a few hundred dollars to a thousand dollars a tonne, then we would have quite a bit of room to play between something like $15 a kilogram, which winds up to be $15,000 a tonne and the cost of about $1,000 per

tonne. So I thought there was now an opportunity to do something with the aluminous clay found in the Gaspé region and to enable its transformation into something new and valuable.

We went about opening my chemistry books and deriving a new process to transform this aluminous clay into high purity alumina. The high purity alumina came about after a year or so of lab work and another year was then needed to make it environmentally friendly. The first pilot was located in a college laboratory, we processed with it a significant amount of high purity aluminous clay. When we did so, we did talk to the aluminum companies around Quebec, which is the third largest producer of aluminum in the world after Russia and China. These people were saying, "We really love your project, because alumina is part of the aluminum industry as far as we are concerned. However, one thing we could use is a ready amount of alumina near us because the alumina market, the smelter grade alumina business, is becoming very tight as China is taking most of the alumina in the world to produce aluminum in Asia. We are getting supplied sparsely and the problem is that we cannot stop one of these aluminum plants". They cannot stop because if they stop they freeze the metal in the electrolytic cell which then need to be replaced. So they cannot stop the operations to wait for a new shipment of alumina. "These aluminum plants supply in alumina has to be constant and occasionally we run out of material, so sometimes they just do not arrive on time. We would like a mound of material that we can go and pick up. Can you help us with that? You do not have to produce smelter grade aluminum, but it would be great if you could help us with a quantity of material that we can come and pick up in case of emergency." Therefore, we started thinking about that and we downgraded the lab process a little bit, to go from high purity alumina to a lower purity alumina, smelter grade aluminum. We went from 4 to 5 nines of purity, which is 99.99% 99.999% pure, to some 99%, which was pretty close to what they were using, which is between 96 and 98% pure alumina.

CEOCFO: Would you tell us a bit about the technology and what are you doing at Orbite that is different from what has been done before?

Mr. Boudreault: The method generally used previously consisted in taking an aluminous ore, mostly Bauxite, that has aluminum and placing it into a very strong base, which is the inverse of an acidic solution. You degrade all the materials and they all settle down. Then you have to figure out a way by removing fluids, cleaning fluid, re-evaporating and re-acidifying the materials to get to a pure or even just a very good quality alumina, which is simply aluminum oxide. That is essentially the Bayer process, developed in the 1880's. That process has not really changed since then and that is what most people use to produce alumina nowadays. Inversely, we went about producing a high purity alumina. From the onset, what we want to do is try to pick up each atom in the ore separately. The ore contains a wide variety of different atoms, we wanted to sort out each atom of aluminum specifically, and try to precipitate it to the bottom of the processing reactor so we could then remove it and extract it directly in the form of an oxyde. That is what in summary is called the Orbite process. As opposed to the Bayer process, the Orbite, starts with an acid. The grounded resource material goes into an acid and degrades and we select the acidity so fine that the material is deposited finely at the bottom; not all the material at the same time, but the aluminum. We take this aluminum at that point and we transform it into a hydroxide, which forms in alumina when heated. Therefore, the Orbite is much simpler, using a lot less energy and steps than the Bayer, the amount of equipment is much less and it is extremely environmentally friendly. It has many advantages over the Bayer.

CEOCFO: Would you tell us about the aluminum producers and the market for aluminum?

Mr. Boudreault: The aluminum producers came to us and asked us if we could produce a certain amount of it, so we derived a way to be able to do so from the same Orbite process. We came about with two types of markets, the SGA market (Smelter Grade Aluminum) market, and the High Purity Alumina market. The high purity alumina market modified in time, it went from a substrate for semiconductor and a biocompatible material for artificial surgical implants, and a material for electro-optical surfaces and now has many more commercial and technological applications. It is the kernel material that you need to produce LED lights, which are found everywhere nowadays, in household and into cars for example; it is used to produce the sapphire substrate supporting the LED-working semiconductor. The LED lights are presently only a few percent of the world illumination market; however, it is widely expected to grow to become a 50% market share of the illumination market by 2020. These LED lights need a substrate of either diamond or sapphire

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or highly pure alumina to provide structure and principally to allow the proper evacuation of the heat produced by each of the light emitting diodes. Without them, they would burnout. Since highly pure carbon-4 or diamond is very expensive, most people like to have it somewhere else than in their light bulbs, usually on a ring. Sapphire, which is essentially alumina that is very compressed, is used instead of the diamond. This substrate is essential to every LED light. That has increased the size of the market by an enormous amount so while I told you it was worth $15 a kilogram before, in the middle of last decade; that would be about $7 a pound. This LED uptake has driven up the cost of the product. It has to be highly pure because if it is not pure, it will inject impurities into the semiconductor and damage it. Therefore, high purity alumina that was at $15 a kilogram, it is now sold on the market at an average of $400 a kilogram. It varies between about one hundred dollars a kilogram to about a thousand dollars a kilogram depending on the quality. So there is quite a wide range of value. LED light business is far from going away because the LED lights are there to stay. It is very low power; it has a very long lifetime, it has low power intake and it does not pollute. Even car manufacturers are adopting it, you have them on commercial illumination and housing nowadays, and that is driving up the market. We are focus on this market niche, which is growing rapidly and we expect to initiate production of our high purity alumina (HPA) in the middle of next year (mid 2012).

CEOCFO: Where is Orbite in the production process?
Mr. Boudreault: We have essentially one production process, but there are two different products coming out of it. The first is the High Purity and the second is the smelter-grade alumina for the aluminum industry. Both are in the pre-commercial stage and will be initially located in the Gaspé region. We foresee also significant potential for licensing of this technology overseas.

CEOCFO: Are you producing today?
Mr. Boudreault: We are in a pilot facility and we are producing quite a bit of material. As a matter of fact we recently issued a press release this morning saying that we had produced about 70 tonnes combined for both types of product materials. We are producing, but we are producing in an experimental setting until we start the commercial production, which on the HPA is meant to be mid 2012. On the SGA side it will be mid to late 2013.

CEOCFO: Would you tell us about the Orbite facility?
Mr. Boudreault: We have developed a 28,000 square foot production pilot facility in the Gaspé region of the Quebec Province in Canada. It is at scale, fully dimensioned for the HPA business and nearly at scale for the SGA. It has only two lines of production as opposed to fifty to a hundred lines like those that we are going to be seeing in the larger SGA facility. That facility is operating now and has been operating since January last year and February in terms of production. We have been producing quite a bit of material to validate the product and the process, and have produced with the support of research centers an ingot of aluminum with some of the SGA test product. Our objective is to transform the facility from currently the production pilot, into the commercial high purity alumina production facility in 2012. That facility will focus on generating high purity alumina mainly for the need of the LED and sapphire industries.

CEOCFO: Have you funded the facility?
Mr. Boudreault: Yes, it is fully funded and we are now ensuring ourselves to obtain all the right permits required to operate.

CEOCFO: I know Quebec is very mining friendly, does that extend here as well?
Mr. Boudreault: Yes it does. It is very mining friendly, and we are in a location where people are quite interested in what we have to offer, so we have a lot of support. The tax rates are generally beneficial, although they have been increasing lately. Therefore, it is a nice place from which to operate.

CEOCFO: What is the financial picture for Orbite today?
Mr. Boudreault: We did our last round of financing in the midst of the present economic crisis last July. We raised the equivalent of around $106 million, which is spread between equity and warrants. We are now well positioned financially to undertake the next steps towards commercialization. We have more than enough money to allow us to go to the next step, which is the high purity alumina facility. It allows us also to initiate all the design and the permitting process for the SGA plan, which is the smelter grade aluminum plant that we hope to have in operation in 2013. That plant will be able to serve the extended Quebec aluminum industry, which is ten of the largest aluminum plants in the world and is the third largest in the world after Russia and China. In addition to those, there are two additional smelters in the upper New York state side of the US border, which is nearby.

CEOCFO: Would you tell us about ownership rights to your property; is it 100%?
Mr. Boudreault: It is a government property, but we own all of the mining rights to the property.

CEOCFO: Would you be at some point be licensing the technology to others?
Mr. Boudreault: Yes. We expect the price of transportation to be a constraint on alumina. It is going to be a constraint because the price of transportation is obviously related to the price of fuel or petroleum, and as the price of petrol fuel increases, the price of transportation is bound to increase in turns. Actually the price of fuel represents between 15% and 30% of the price of alumina. The transportation, at least to Quebec, represents therefore a very large amount of the price of alumina which impacts the bottom lines of smelters. We expect this price to increase to a point where it is going to be less economically viable to import alumina from long distances, so we expect alumina to become over the next decade more and more a local production, near the smelters. It is going to be located more towards the regions of low cost of energy. Those

regions of low cost of energy are found nearby sizeable hydroelectric energy plants and are generally located closer to the poles on both sides of the planet than the equator. As you get closer to the pole, there is a lot more water that flows and therefore you have a large capacity for hydro electrical energy, and this energy can be cheap enough to produce a high quality aluminum at low cost. However, the bauxite regions of the world are located near the equatorial belt, so essentially you have a situation where the alumina from the bauxite is created at opposite's corners of the planet from where the cheaper electricity is generated. Therefore, you have to spend a lot of time and energy transporting this alumina back and forth. We want to democratize the access to alumina to the smelters by bringing its production closer to the aluminum plants, which are themselves by necessity closer to the hydro power plants. We want to eventually be able to produce locally alumina for each smelter, therefore, reducing the overall economic cost of aluminum. Aluminum is widely perceived as a "miracle" material, because it is extremely light. Therefore, it costs less to transport, less to build buildings and it is completely recyclable. You need only 5% of the original energy requirement used in the production of the aluminum to recycle it, so it is essentially infinitely recyclable and it has all sorts of very fine environmental values apart from saving a lot of money in cost of transportation. So we expect aluminum is going to go up in use as a mega trend. We also expect alumina will, with our technology, be produced more locally at a fraction of the cost. In addition, our technology has a very low ecological footprint, inversely to the Bayer process that was developed in the 1880's, when environmental friendliness was perceived to be an important factor. At Orbite, we have developed a process where the environmental impact is a foremost consideration. This feature of our technology also allows us to consider positioning alumina facilities nearby the aluminum plants, just like the aluminum plants tend to group nearby available hydroelectric power and transportation nodes.

CEOCFO: In closing, why should potential investors be paying attention to Orbite Aluminae, and why you are moving to the TSX exchange?

Mr. Boudreault: We recently moved to the TSX this week and we are going to be playing in the big boys courtyard. People should be interested in Orbite because we have a disruptive technology and we are about to change how the world produces alumina and likely how it will impact the aluminum industry. We expect that a user of our alumina for example in Quebec will get an additional 5 to 6% on their bottom line. Therefore, we expect to have a significant economic impact on the economy. We also expect to be of interest to different firms in the industry. Large aluminum companies around the world about licensing our technology have already approached us. In the next few years, one could see our technology competing nose to nose with the Bayer technology and maybe eventually over time displace the Bayer technology. I think we are something to watch for.

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