

The carbon anode market – a global viewpoint

## “The two millionth tonne of anode exports was an important milestone for us”

*Interview with Michael Wrotniak, CEO of Aminco Resources*

In the area of material consumables used in the electrolytic reduction of aluminium, carbon anodes play a key role. One major company in this field, Aminco Anodes, since 1986 has been supplying innovative carbon technology solutions and new processes to global customers in the aluminium and steel industries. The company's management, in partnership with a team of Swiss carbon-technical experts – R&D Carbon Ltd, Carbon Systems, Inc. and Mannweiler Consulting – drive the production of high-quality carbon anodes, cost-effectively, and support customers in optimising product application.

Aminco operates five manufacturing facilities in China for the production of high-quality carbon anodes. In the late 1990s, the company strategically positioned itself in China, where low sulphur and low metal green petroleum coke is available and suitable for calcining and carbon anode manufacturing. With this background, Aminco has significant expertise regarding the availability, quality and sourcing of Chinese green coke, the custom blending of which is the key to successful production of high-quality calcined coke and carbon anodes.

Combining proven expertise in raw material sourcing, innovative engineering, customised manufacturing and comprehensive logistical support, Aminco reached a prominent world position as a leading preferred outsourcer of carbon anodes.

The Aminco management team brings decades of experience working together at all stages of carbon anode production complemented by its partners, a team of world-renowned innovators and specialists in carbon and aluminium – in technology, manufacturing, operations, processes, quality control and in the optimisation of raw materials. This team not only ensures the high-quality stand-

ards of Aminco anodes but also provides the intellectual capital and technical support to assist the company's exclusive suppliers and customers.

Aminco's headquarters in New York and other main offices in Zurich and Beijing – together with an extensive worldwide network of agents – support product supply and deliver customer service to global standards on a local basis.

carbon raw materials and products to the primary aluminium and steel industries. Aminco is a trading company and so we rely on production partners, supply contracts and tolling agreements to guarantee our supply of materials. We have, however, in the past owned carbon production facilities and we continue to have an interest in own carbon capacity.

In the mid-1990s, Aminco pioneered the export of baked carbon anodes from China

to western smelters. This is an activity we developed in partnership with R&D Carbon of Sierre, Switzerland, and in 2013 our partnership exported its two millionth tonne of anodes to the marketplace. Our anode customers located globally rely on Aminco and R&D Carbon to produce world class quality anodes that are energy-efficient during consumption and are extremely productive in the pots. This helps our customers reduce their cost of aluminium

production and this level of performance requires that Aminco and R&D Carbon provide anodes with very low anode quality variations. Our ability to squeeze two sigma is our competitive advantage.

**ALUMINIUM:** What do you see as the major market challenges at present?

**Wrotniak:** Our largest customer base is the primary aluminium industry. The challenges that the aluminium industry faces are well documented and suffice to say that when your customer base is by and large not making money, the suppliers to that industry are usually struggling as well. So you can say that despite the growth in the production of aluminium globally, there are demand side problems although we think we have passed the bottom of the cycle. In addition, we see supply side problems, in that carbon product suppliers have also increased capacity at a level that is not sustainable, resulting in competi-



Carbon anodes – strapped for shipment

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**Aminco's CEO Michael Wrotniak, responsible for the company's overall carbon manufacturing and trading activities, has focused specifically on expanding manufacturing opportunities in emerging markets since 1990. With all this accumulated expertise and knowledge of the carbon anode business he is ideally positioned to comment on the global situation, possible changes and trends in this key sector. ALUMINIUM recently took the opportunity to speak with him.**

**ALUMINIUM:** Mr Wrotniak, could you tell us about your company's background, inception, areas of work and your key industry objectives?

**Michael Wrotniak:** Aminco Resources is a New York-based company that focuses on supplying raw materials to basic industries. Further to that we have a core focus on supplying

tion that focuses inordinately on price and less on quality and innovation.

Please don't misunderstand me, Aminco prides itself of being an ultra-competitive supplier of carbon materials; however, we make a distinction between the lowest unit cost supplier and the lowest total cost supplier. More often than not the lowest unit cost supplier is usually a very expensive choice when the cost to consume the material is taken into account. In the aluminium industry, a poor performing carbon material can cost a smelter more than upwards of USD100 per tonne of metal produced in consumption costs compared with using a high quality carbon product. Helping our customers to see this consumption cost differential is Aminco's greatest challenge as well as our key opportunity. When we assist our customers in reducing costs by lowering their carbon consumption and outsized carbon performance, we have a sustainable business model.

**ALUMINIUM:** How do you view the benefit to your organisation in having a Swiss engineering technology base?

**Wrotniak:** R&D Carbon is a carbon technology-centred company that earns its reputation by the day for being the global technical authority on carbon consumed by the aluminium industry. The key to R&D Carbon's success in the market and its value to the aluminium industry begins with its firm commitment to innovation through research and development. Since its inception, R&D Carbon has continuously earmarked a very significant and always expanding budget for carbon research. This focus provides a solid platform to generate continuing cost-saving innovations.

Aminco is very fortunate to have R&D Carbon as a partner for our anode business. This partnership allows Aminco to guarantee our customers a consistent supply of world class quality carbon. As I mentioned earlier, this is Aminco's competitive advantage. Keep in mind that the anode production capacity in China is largely a batch process technology, and while over the years the level of automation has improved, many production variables exist that impact not



Molten cast iron is poured in the annular spacing between the steel stubs and anode stub holes

only average quality parameters for anodes, but also the variability with a production batch. As such, R&D's commitment to Aminco's anode production begins with a qualification period for each particular anode plant. This is what I would call production expertise technology transfer, a process which last approximately 15 months. Equally important however, R&D's technical support continues during all commercial anode production campaigns at each of our plants. This is where R&D Carbon can exploit its extensive knowledge base to optimise the anode production

process and improve anode quality through innovation. For us this has meant focusing on reducing the variability of key anode quality specifications. Finally, once Aminco anodes have been delivered to our customers, R&D Carbon along with Aminco's in house technicians work closely with the consuming smelter to enhance anode performance in the pots.

**ALUMINIUM:** What provides Aminco with an industry and market advantage?

**Wrotniak:** The merchant anode customer is dependent on its suppliers to provide carbon on time and in spec. Typically the anode plant meeting the carbon needs of a smelter is located on the other side of the world or at least a sea journey away, as opposed to a smelter that is supplied anodes from a carbon plant that is integrated into the smelter.

Disruption of carbon supply is therefore magnified when the supply chain has this length, therefore the importance of counter party supplier risk is paramount. Again Aminco's partnership with R&D Carbon minimises operational problems as does our company's multi plant production strategy. From an operational perspective, one of Aminco's prime goals is to provide each of our customers with a supply of merchant anodes that is more secure than a supply of carbon from an in house anode plant, whether that plant be theoretical or actual. Aminco has done its job successfully when our anodes are on time, in spec and delivery to the rod shop is seamless. I am quite proud of our track record in this regard.

**ALUMINIUM:** How do you view the impor-



Anode baking furnace

tance and benefits of partnering strategically with Aminco?

**Wrotniak:** When two or more parties with different perspectives can find common ground on which to cooperate, a partnership is born and the potential for good things to happen is very high. Combining complementary assets to create a better product, to lower a cost structure, or safeguard a delivery are a few of the goals that we look for when we are meeting in the global marketplace. For certain we are quite interested in linking strategically with carbon consumers as our natural long is well suited to a natural short, but this is a path that most every supplier is on and so the space is crowded. We have to look beyond this to create a value chain that makes us more attractive and therefore sustainable. Again,

our partnership with R&D Carbon is a very importance factor, but going beyond that, logistics including freight and warehousing is important. Financing is another vital consideration, particularly at a time when cash flow is such a priority to our customer base. We have worked closely with our banks so that we are able to offer inventory financing to smelter customers. Specific to the anode business, there is also

the issue of anode butt return. As we do not use butts in our production recipe, there is a need in many cases to find good markets for this carbon material and we look to some of our relationships outside the aluminium industry to help us to trade anode butts efficiently into alternative markets. In summary, we cannot be all things to everyone, but through the use of partnerships, we have created a solid value chain.

**ALUMINIUM:** What is the extent of the company's geographical market reach?

**Wrotniak:** As we know, the production of aluminium is essentially global and we are very honoured to have delivered carbon to every major aluminium producing region in the world including Asia, the Middle East, Australia, India, Europe as well as the Americas. Our customers range from smelters that have their own anode plants but have a deficit between internal anode production and demand (for instance a short term refurbishment of a

carbon plant) to customers that do not have an in house anode plant and thus have long term needs for merchant anodes. Each type of customer brings a somewhat unique set of issues that have to be handled and often times the location of the smelter brings with it a particular set of circumstances. Frankly speaking this makes this business interesting. How fortunate are we to spend time visiting countries and working with customers in certain regions of the world where temperatures can exceed +40 °C for many months and then others who face -40 °C. Each environment brings challenges that require specific solutions.

**ALUMINIUM:** In the last few months the company celebrated its latest anode production level of some two million tonnes – how big a milestone is this for Aminco?



Spent carbon anodes cooling

**Wrotniak:** For Aminco and R&D Carbon, the two millionth tonne of anode exports was an important milestone. It was a marker which you could say validates our business model of competing on quality and innovation as well as our goal of delivering the lowest cost carbon when consumption is taken into account. In this regard, we are quite thankful for all of our customers. That said, in the world of aluminium with global primary metal production now at 50 million tonnes per year, Aminco's carbon market share is of course small. We take pride in knowing that aluminium produced with Aminco anodes is very efficiently produced and very likely to be high purity metal.

**ALUMINIUM:** What are the company's future plans in terms of, for example, expansions and general market penetration?

**Wrotniak:** We have a positive track record for owning carbon assets and with markets a bit depressed we remain on the lookout for

asset-based opportunities. Looking forward, the supply of raw materials is likely to be the largest threat to the aluminium industry and so any asset-based investment that we make will likely require a strategic supply of raw material, be it in green coke or otherwise. In addition, the current structure of the anode industry in China vis-à-vis the raw material suppliers and customers is not sustainable. For example, there are just over 60 merchant anode plants in China and while there are approximately 80 aluminium smelters, some 50% of them have in-house carbon plants. This means there are 60 anode suppliers servicing 40 customers. With the export market taking approximately 20% of Chinese anode capacity, there is some relief in exporting, but it is clear to Aminco that the industry is in need

of restructuring. We have a goal to participate in the efforts to rationalise the anode supplier base.

**ALUMINIUM:** How does Aminco see the future of the global aluminium industry, its markets and technologies. And what does this mean for carbon anodes?

**Wrotniak:** I recently learned that since 1888, over one billion tonnes of primary aluminium have been produced, with approximately

75% of the metal still in use today. Clearly this illustrates the almost infinite recyclability of the light metal, just one of the many of its excellent attributes. We think that the future of aluminium is actually upon us and we applaud the efforts of the industry to combine the positive recycling story with a commitment to develop new uses and applications for aluminium. As the price of aluminium is under-performing relative to other base metals, this price advantage will help the aluminium industry to introduce innovative products. In the near term, it is not easy to predict when the supply – demand balance will shift to demand, but it feels like we are not that far off on that, and by this I mean 18 to 24 months. We do believe that the metal, along with the companies in this space, will begin to outperform the market and it is our privilege to be a supplier to this great industry.

**ALUMINIUM:** Mr Wrotniak, many thanks for this discussion. ■