

## Almatis – 100<sup>th</sup> Anniversary of Speciality Aluminas

In March 2004, Alcoa announced the divestiture of its speciality chemicals business. The global business was purchased by a private equity firm that showed tremendous interest in supporting our growth with capital expansion dollars. With the new *Almatis* name and a solid investment strategy, the business was set for a bright future. The Almatis product portfolio comprises a wide range of alumina, calcium aluminate cements, calcium hexa-aluminates, alumina and magnesia-rich spinels, for the manufacture of refractories, ceramics, polishing products, and a host of other applications. 1910 is considered as the beginning of Almatis specialty alumina chemicals business, as Almatis (former Alcoa) started selling for the first time calcined aluminas for non metallurgical applications usages. Almatis had a major impact on the development of the non-metallurgical grade alumina market (NMG), which today is about 5,8 Mt. Almatis focus is on 'the specialty or premium alumina market' which accounts for 3 Mt including calcined aluminas for refractory and ceramic applications, high alumina based aggregates like tabular and white fused alumina for refractory and abrasives industry as well as fine hydrates for flame retardants and fillers. The remaining portion of that non-metallurgical market approx 2,8 Mt is commodity hydrates mainly used for production of aluminium sulphate and aluminium fluoride. Today, Almatis is present globally with nine operating facilities in six countries: Japan, China, India, Germany, the Netherlands and the USA. Almatis has 850 employees, who are based in 18 countries. In the following interview, *Remco de Jong (RJ)*, Almatis CEO, comments on the current situation and prospects for Almatis.

**rwf:** Premium alumina products suffered from the global recession. Almatis reacted by pursuing balance sheet restructuring and has filed for cases under Chapter 11 of the United States Code to implement an agreed plan of reorganization for certain subsidiaries. As this US bankruptcy case is by no means the same as liquidation proceedings, what guarantees can Almatis give to vendors and customers today?

**RJ:** Almatis was well prepared for entering the Chapter 11 process and we will do everything

in our power to complete this process as quickly as possible. Our business is fundamentally sound as consistently demonstrated over the last year. We will emerge from Chapter 11 as a stronger company, and shall continue to serve as an excellent distribution channel for our vendors and provide the highest quality products and superior service to customers. The restructuring will result in a significant reduction in the level of financial indebtedness and prepare the company for any future volatility in its marketplace. The actions we are taking today will benefit suppliers and customers over the longer term, supporting our future growth and long-standing customer relationships.

**rwf:** The utilization of Almatis manufacturing capacities had to be reorganized in the difficult



**Fig. 1** Remco de Jong

year 2009. Are you now in a position to operate your production sites on a regular basis?

**RJ:** The business has recovered to allow a return to stable operation. We have returned to healthy capacity utilization at all of our plants and product lines.

We, like many other companies, struggled with the recovery of the market. We have, however, returned to properly managing our working capital and supply chain and are running at increased utilization at all our sites.

**rwf:** What were the lessons to learn from the global crisis with regard to investments and business development strategies for the next three years?

**RJ:** During the global crisis Almatis continued to keep its eye on the future. The implementation timeline for our longer term investments changed, but our commitment to growth remained steady. We were optimistic that a recovery would eventually happen and we wanted to be prepared for when that time came. Fortunately for all of us, the recovery came quicker than originally anticipated. As soon as our balance sheet is restructured, we intend to proceed with our investment plans, which include further expansion of our presence in Asia.

**rwf:** What is the lifetime of the key products at Almatis, what share of turnover has been created with new products launched in the last two years?

**RJ:** The demand for synthetic alumina such as ours continues to grow. Almatis tabular alumina, which was introduced in 1936, is still our

Almatis BV  
Botlek - Rotterdam  
The Netherlands  
www.almatis.com

## Speciality aluminas: back to their roots

The roots of *Almatis'* business go back to 1903 when the *Alumina Pittsburgh Reduction Company* (as Alcoa was then called) started up operation of its first commercial alumina plant in East St Louis, Illinois. Based on the Bayer process, invented by *Karl Joseph Bayer* in 1887, a reliable process providing a cost-effective source of alumina in high volumes was set up on an industrial scale, delivering high-quality materials to customers in the US and Europe. This year the 100<sup>th</sup> anniversary of speciality alumina



Fig. 2 R+D lab East St Louis in 1923

for non-metallurgical applications can be celebrated, as in 1910 the first calcined alumina product was used to make fused alumina abrasives. Fig. 3 outlines the milestones in the product development of speciality aluminas under the roof of *Alcoa/Almatis* since that date.

Certainly credit is due to the R&D labs set up in East St Louis in 1923 (Fig. 2), as a branch of the *Aluminum Company of America Laboratories* founded back in 1918. They conducted R&D into alumina applications and purification processes, paving the way for new business segments (e.g. 1933: industrial speciality production of hard-burned calcined aluminas for use in ceramics and refractories, 1936: development of low-soda calcined aluminas and tabular alumina). This centre was moved outside Pittsburgh in the mid-1970s and renamed the *Alcoa Technical Centre*. Being the central lab of the largest producer of bauxite-derived products for metallurgical and non-metallurgical applications (approx. 8 %) the R&D work took advantage of the analytical equipment that had been bought for the core business (metallurgical applications) and the desire and prospects for expanding activities into advanced materials (high-performance ceramics and others).

With the "fever" in the ceramics sector in the late 1970s to gain more market shares by replacing metal-based components in high-temperature applications (automotive, aerospace, energy), understandably tremendous headroom was given for budgets in these research activities at the Alcoa Technical Centre. Today we have learned that the ceramic engine promoted in this period was to be only a dream. But today advanced ceramics are the drivers for further material development in different applications, which also call for ever improved premium alumina products. The philosophy already conceived in the very early days was based on building up close relationships with potential customers. The R&D findings were shared by working in the customer labs or by bringing customers to the Alcoa Technical Centre to involve them in the projects in progress there.

Almatis can take advantage of this incredibly comprehensive knowledge base of fundamental and applied research today. This expertise not only comprises material knowledge, but also processing know-how. Global competition makes it extremely important to offer competitive prices, which of course have to reflect the material performance of premium qualities. The Almatis technology is also applied in all new operations (India and China) worldwide. The specific processing know-how enables Almatis to run the capacities installed at high performance, delivering the range of products demanded by the markets in ceramics, refractories and polishing (global market volume 2,5 to 3 Mt/a) sectors. The unique characteristics of the Almatis business are the interweaving of process and material knowledge as a solid source for further fine-tuning of the existing product portfolio. Technical sales and service teams bring this knowledge to the customers and try to find the best fit for their specific needs.

Maintaining technology and performance leadership in the next decades is certainly one target set by the Almatis management. This will enable the user sectors to enhance their components, but also to launch smart new product ranges to enter new business fields.

highest growth product today. The situation is similar for many of our calcined aluminas. With the growing steel industry in China and India, we anticipate this trend to continue for years to come. Regarding our new product introductions, they typically work hand in hand with our current portfolio, so sales of our new innovative products have been historically accompanied by more sales of our baseline products. The global recession has made us fully aware that in spite of the long lifetime of our key products, it is essential to increase our efforts to develop uniquely performing products and

to understand the needs of different end-markets in order to keep adding new products.

**rwf:** *What are the most promising market trends at present to lead Almatis into a successful future through implementation of its extraordinary technical know-how in high-value speciality alumina products?*

**RJ:** It is our contention that the demand for synthetic aluminas will continue to grow in particular in refractory applications as customers upgrade formulations by moving away from natural minerals, which owing to their consistency and quality fluctuations do limit

certain end-users. This is particularly true for the China and Indian markets. Our local technical teams work closely with the customers to share our alumina expertise on product selection and application knowledge. We have strengthened our technical support team both in China and India in order to assist our clients with the development of more value-adding products. Major growth drivers for the alumina ceramic applications are the environmental legislation for the automotive industry and the needs of critical and demanding applications in thermal power plants and mineral process-

<b>P R O D U C T M I L E S T O N E S</b>	2007	<b>CA 470 Ti</b> – a new temperature independent refractory cement
	2006	<b>Premium reactive and very low soda alumina</b> for advanced ceramics
	2004	<b>E-SY 1000/2000</b> – premium reactive aluminas deliver unmatched performance in refractory castables
	2002	Introduction of <b>Bonite</b> – a calcium hexa-aluminate aggregate
	1997	Introduction of <b>SLA 92</b> – a super light weight aggregate
	1996	Development of <b>New Reactive and Dispersing Aluminas</b> for refractory castables
	1992	Developed and introduced <b>Alphabond</b> , an alumina bonding agent for high performance refractory castables
	1991	commercialized <b>sintered magnesia-aluminate spinels</b>
	1987	Development of <b>70 % calcium aluminate cement</b>
	1985	Introduction of a new low soda <b>high performance calcined aluminas</b> for advanced ceramic applications
	1984	A new sintering facility started in Ludwigshafen to produce <b>alumina aggregates for ceramic and refractory markets</b>
	1983	Start up operations of the new chemicals plant for <b>special catalytic and adsorbent aluminas</b> at Vidalia, Louisiana
	1971	<b>Reactive alumina</b> facility started in Arkansas
	1952	Production of <b>high purity, high temperature calcium aluminate cement</b> in Bauxite, Arkansas
	1936	Development of <b>low-soda calcined aluminas</b> and <b>Tabular alumina</b> for use in high alumina ceramics
1933	First dedicated specialty plant for <b>hard burned calcined aluminas</b> for us in ceramic and refractory applications	
1910	First sales <b>calcined alumina</b> for production of fused alumina	

**Fig. 3** Technological highlights of speciality alumina

ing, electrical and electronic industries. Key success factors in this industry are cost and technology.

**rwf:** *China, India and Brazil are the market regions that have succeeded in quickly overcoming the global crisis. What are the opportunities for the premium aluminium products that Almatiss is offering in these market regions?*

**RJ:** In these regions, we offer the same portfolio that we offer throughout the world. As we don't have our full line of production capabilities in the BRIC region yet, we support the market with imports from our plants around the world, while adding local capacity parallel. Our strongest year-on-year growth comes from these regions. The opportunities are very promising. One opportunity for us is the major steel-related market growth that is taking place mainly in Asia (China and India) and requires locally based production in this region, so more investment is needed in that highly competitive environment. The global steel industry will look different after the recession with capacity being shifted to BRIC countries

and out of the Western hemisphere. Given the technology shift within those regions to more high-quality steel and our knowledge centring round high-performance refractory products for premium steel, we are planning for significant growth in Asia, not just with the standard products already established there, but also growth with real high-performance speciality products. We are strengthening our technical application support and R & D for that region in order to continue developing new products, which will help them grow with China's refractory industry.

**rwf:** *What are the most important user sectors?*

**RJ:** The steel sector is what drives our business in China, India and Brazil. Our refractory customers in these regions are full line producers, so our products go into the typical applications. In China and India we recognize a strong technological development in different technical ceramic applications, which is increasing the demand mainly for our calcined and reactive aluminas.

**rwf:** *Will you adapt your global manufacturing capacities to these needs?*

**RJ:** We are very fortunate that we already have a global footprint with a strong presence in Asia but our intent is certainly to ensure strong growth of this presence in the next few years. This will allow us to be very competitive within those markets.

**rwf:** *The speciality alumina portfolio led to high-performance premium alumina products – Almatiss' core competence. Do you expect that an even higher specialization of products is needed in applications for the refractories and the technical ceramics sector?*

**RJ:** To keep our technical market leadership we shall continue to drive innovation and continuously develop new products to enable our customers to lead the technology in their markets. We recognize that the increasing demands our customers are faced with require from us products that are tailored to their end-user but yet remain consistent, have a high quality level and are part of a reliable supply chain.

**rwf:** *Are there high-end market niches in times where raw material prices are already a big issue – or are "commodities" the preferred products? Can you argue high performance / product lifetime to get the right price for high value?*

**RJ:** Customers expect increasingly sophisticated products which continue to drive process and product development with our customers and supply chain. There is and will continue to be a need for (raw) material supply and development regardless of general material pricing. The market dictates the price within certain applications and regions. Our synthetic raw materials have significant benefits for our clients over naturally occurring raw materials. We not only have a global operational presence, our feedstock is a globally present feedstock and not controlled by only a few parties. This not only secures our feedstock, it also makes us a reliable supplier.

**rwf:** *Do you see a general trend for the replacement of calcined bauxite and brown fused alumina by synthetic high-alumina grades in the refractories sector?*

**RJ:** As stated earlier, we believe that synthetic aluminas will replace a portion of the natural mineral business over time. The shorter term drive will be due to availability of these products in the western world, while the longer term drive will be for formulation upgrades in the developing world.

**rwf:** Thank you for talking to us. KS