

refractories

WORLD FORUM

Hot Topics

Manufacturing & Performance of High-Temperature Materials

NEWSLETTER 2/2014

IMPORTANT DATES

21.07.2014 - 25.07.2014
12th JUNIOR EUROMAT
Lausanne / CH
www.dgm.de/junior-euromat/

11.09.2014 - 13.09.2014
Ankiros / Annofer / Turkcast 2014
Istanbul / TR
www.ankiros.com

21.09.2014 - 24.09.2014
12th ESG Conference
Parma / IT
www.icglass.org/

24.09.2014 - 25.09.2014
57th International Colloquium
of Refractories 2014
Aachen / DE
www.feuerfest-kolloquium.de

24.09.2014 - 26.09.2014
FundExpo 2014
Monterrey / MX
www.fundexpo2014.com

30.09.2014 - 02.10.2014
POWTECH + TechnoPharm
Nuremberg / DE
www.powtech.de

07.10.2014 - 09.10.2014
ALUMINIUM 2014
Düsseldorf / DE
www.aluminium-messe.com

21.10.2014 - 24.10.2014
glasstec
Düsseldorf / DE
www.glasstec.de

Alumina Supply and Demand Trends for Refractories

Alumina is a key ingredient in refractories in several forms. Refractories account for around 40 % of the market for calcined alumina, both directly and also indirectly through intermediate products such as white fused alumina and tabular alumina. Brown fused alumina is also a type of speciality calcined alumina that is used in refractories. However, it is produced by fusing abrasive-grade calcined bauxite, and is influenced more by demand for bauxite.

Calcined alumina producers are more positive in 2014, with more orders placed in the first half of the year. The latter half of 2013 had not met the industry's growth expectations, and in terms of demand had remained steady, particularly for refractories. However, chemical grade production figures from

the *International Aluminium Institute (IAI)* were encouraging overall for 2013 for speciality grades.

In general, refractory calcined aluminas are produced from Bayer alumina feedstock, which is reported by the IAI as either metallurgical or 'chemical' (non-metallurgical). In 2013, the IAI placed total *see page 2*

ANKIROS / ANNOFER / TURKCAST 2014!

ANKIROS 2014 – 12th International Iron-Steel and Foundry Technology, Machinery and Products Trade Fair, ANNOFER 2014 – 11th International Non-Ferrous Metals Technology, Machinery and Products Trade Fair and TURKCAST 2014 – 6th Foundry Products Trade Fair will all be organized by *Hannover-Messe Ankiros Fuarçılık A. S.* on 11–13 September at *TÜYAP Fair, Convention and Congress Center, Büyükçekmece, Istanbul/TR*.

The spectrum of the ANKIROS / ANNOFER exhibit groups range from raw materials to end products with all materials necessary for the production of steel and casting of ferrous and non-ferrous metals. Visitors will have the opportunity to view and inspect a wide display of products including, without being limited, to furnaces, refractory materials, molding lines, dust preparatories, foundry machines, laboratory and analysis machines, turnkey metallurgical facilities and rolling equipment. ANKIROS / ANNOFER 2014 offers exhibitors and visitors profitable and straightforward methods for all their needs.

TURKCAST exhibition is specific to the Turkish foundries to display their products, and capabilities to meet the demands of global casting buyers. Within the spectrum of TURKCAST, a wide ranging selection of products, primarily of interest for local and global visitors from the industries regarding automotive, heavy equipment and machinery, construction, cement, transport, agriculture machinery, energy, defense, glass and ceramics will be exhibited. This will be a showcase for the Turkish foundry industry with more than 60 leading Turkish foundries.

If you are interested in attending, exhibiting or would like additional information, visit www.ankiros.com or contact E-mail: info@ankiros.com

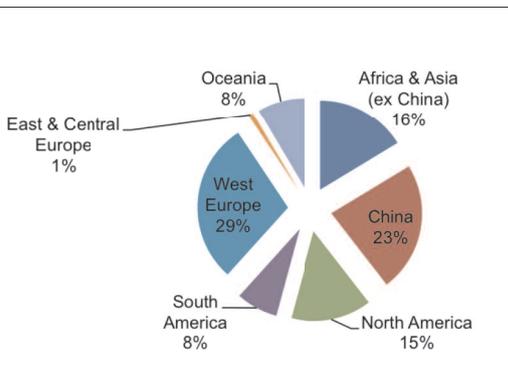


Fig. 1 Chemical grade alumina production, 2013
(Source: IAI)

alumina production at 107,1 Mt. Of this total, production of all chemical aluminas amounted to

6,1 Mt up from 5,5 Mt in 2012. The largest producing region was West Europe at 1,778 kt, followed by Africa and Asia at 995 kt, and China with 1,425 kt (Fig. 1). Chemical grade alumina production as a proportion of metallurgical grade alumina has been 6–7% over the last five years, compared with 8–9% between 2000–2005, as the rate of growth of metallurgical grade production has been faster. However, this underestimates the true picture slightly, some alumina classified as smelter grade maybe sold for other purposes, and not all alumina refineries clearly differentiate the two. Other alumina refineries have a portion of their product designated as non-metallurgical grades with more controlled soda contents and higher levels of calcining.

Roskill estimates that production of speciality calcined alumina was around 40 % out of the 6,1 Mt

chemical grade alumina market in total. The remainder is alumina trihydrate markets.

Global capacity for refractory grades of alumina is fairly balanced between Asia, Europe and North America. German-headquartered *Almatis* is one of the largest calcined alumina producers worldwide, with 700 kt/a of tubular alumina capacity in six countries. In a recent move, Almatis has become more vertically integrated with the purchase of a 500 kt/a alumina refinery located at Burnside, Louisiana, USA from *Ormet Corp* late in 2013. This could be seen as a move to secure long term supply for high quality feedstock.

(The full version of the paper will be published in refractories WOLRDFORUM 6 [3]; publication date: 20.08.2014).

USA

Germany Glass Industry Outlook 2018 – Growing Demand for Flat Glass to Foster Growth

The report titled “Germany Glass Industry Outlook 2018 – Growing Demand for Flat Glass to Foster Growth” provides a detailed analysis of the glass industry in Germany covering various aspects related to market size in terms of revenue and market segmentation on the basis of major types of glass such as flat glass, container glass, tableware glass, glass fiber, utility and special glass. The report also includes competitive analysis and profiles of all the major players operating in the industry. The future projections are also included in the report to provide an insight of future prospects for the German glass industry.

The German glass industry performed well in sectors such as optics, pharmaceutical packaging, medical equipments and others catering to the elderly population. It has been observed that there has been a significant increase in demand from the optical glass sector which is used for making lenses and eye wear. Additionally, there has been an increase in the demand for medicines due to increased number of ailments, thus increasing the demand for packaging glass used to store medicines and chemicals.

The German glass industry is in a transition phase, where the focus of glass as a packaging and storage product is shifting to more advanced and innovative glass products. There have been fluctuations in the total revenue generated by the glass industry. The impact of euro crisis was clearly visible on this industry with fall in production and revenues. Germany is overcoming from euro crisis with the help of continuous efforts made by the government.

The total revenue of the Germany glass industry recorded a growth from 2009 to 2012.

Over the years, flat glass has been one of the dominating segments in terms of revenue generation followed closely by container glass, which recorded a growth since 2010–2012. Major advancement in the field of technology and production of innovative glass products has set a path of growth for the Germany glass industry in the coming years. The contribution of container glass industry on the other hand declined in 2011 from 23,2% in 2009 to 19,2% in 2011. This decline in the production can be attributed to the availability of alternative packaging materials such as plastics; mainly PET (polyethylene terephthalate), metal, steel, aluminum and laminated cartons.

The German glass industry is a highly fragmented market with more than 400 domestic and international players in the market. Some of the major players that exist in the market include *Ardagh Group*, *Osram Licht AG*, *Schott AG*, *Gerresheimer*, *Saint Gobain*, *Wiegand Glas*, *Heinz-Glas GmbH*, *Pilkington Deutschland AG* and others.

The future of German glass industry is expected to be favorable as the use of glass as a specialized material in various industries has gained continuous momentum. Changing needs and advanced technology has opened doors for alternate usage of glass and not just for decorative and storage purpose. The improving economy of Germany and other European countries has led to increase in the demand for glass from various related industries. The revenue generated by the glass industry of Germany is projected to be USD 12,4 billion in 2014 which is expected to further increase to USD billion in 2015 witnessing a growth rate of %. The CAGR from the year 2013–2018 is projected to be 4,3%, recording total revenue of USD billion by 2018.

<http://www.researchmoz.us/glass-market-reports-155.html>

USA

Global and Chinese High Purity Alumina Industry Report 2014

The Global and Chinese High Purity Alumina Industry Report 2014 is a professional and in-depth study on the current state of the global high purity alumina industry with a focus on the Chinese situation.

The report provides a basic overview of the high purity alumina industry including definitions, applications, industry development and industry chain structure. Manufacture technology and processes are discussed looking at raw materials and equipment. High purity alumina (Al_2O_3 99,99 % 4N or above 4N purity) production, sales, supply and demand figures and market status and forecast margins are also provided. The report introduces 14 Chinese industry players as well as seven global manufactures providing information such as selling price, cost, gross margin and production value and also gives related research conclusions and development trend analysis of the Chinese high purity alumina industry. Finally the feasibility of a new 2000 t/a investment projects is assessed and overall research conclusions offered. With 120 tables and figures the report provides key statistics on the state of the industry and is a valuable source of guidance and direction for companies and individuals interested in the market.

Europe

Overview of the European Glass Manufacturers Market

Plimsoll Publishing's GLASS MANUFACTURERS (European) Analysis provides a detailed overview

of the European glass manufacturers market and delivers a comprehensive individual analysis on the top 500 companies, including *AGC AUTOMOTIVE ITALIA S.r.l.*, *AHLSTROM HOLDING GmbH* and *ARDAGH GLASS Ltd.*

The report, compiled in English, includes a wealth of information on the financial trends over the past four years. Plimsoll Publishing's latest GLASS MANUFACTURERS (European) analysis comprises the market leaders, identifies companies heading for failure, and gives an analysis of the industry trends. Using Plimsoll's methodology, a quick glance of the report shows that 121 companies have a declining Plimsoll financial rating, while 63 have shown good sales growth. Each of the largest 500 companies is scrutinised in an one-page individual assessment and is analysed using the most up-to-date and current financial data. Every business is examined on the following features: the Plimsoll Chart: a graphical assessment of a company's financial performance; four year assessment of the profit/loss and balance sheet; as well as a written summary highlighting key performance issues.

Worldwide

worldsteel Short Range Outlook 2014-2015

The *World Steel Association (worldsteel)* released its Short Range Outlook (SRO) for 2014 and 2015. worldsteel forecasts that global apparent steel use will increase by 3,1 % to 1527 Mt in 2014 following growth of 3,6 % in 2013.

In 2015, it is forecast that world steel demand will grow further by 3,3 % and will reach 1576 Mt. After growth of 6,1 % in 2013 with support from government infrastructure investment, apparent steel use in China is expected to slow to 3 % growth in 2014 to 721,2 Mt as the Chinese government's efforts to rebalance the economy continues to restrain investment activities. In 2015, steel demand growth is expected to further decelerate to 2,7 %. In India, steel demand is expected to grow by 3,3 % to 76,2 Mt in 2014, following 1,8 % growth in 2013, due to an improved outlook for the construction and manufacturing sectors, even though this will be constrained by high inflation and structural problems. Despite uncertainties relating to the impact of upcoming elections steel demand is projected to grow by 4,5 % in 2015 supported by the expectation that structural reforms will be implemented.

Following a 2 % increase in 2013, because of the moderate GDP recovery as a result of "Abenomics", apparent steel use in Japan is expected to contract by -1 % to 64,6 Mt in 2014 due to the consumption tax hike affecting the construction and automotive sectors negatively. In 2015, steel demand is expected to increase by 0,5 %. In USA, after a decrease of -0,6 % in apparent steel use in 2013,

years 2014-2015 are expected to deliver a return to growth and recovery. Apparent steel use will grow by 4 % to 99,4 Mt in 2014 and by 3,7 % in 2015. The impact of the Federal Reserve Bank tapering programme on the US economy has been contained so far, but future actions still remain a risk. Apparent steel use in Mexico is expected to grow

by 3,4 % to 19,2 Mt in 2014 and to grow further by 3,9 % in 2015. In Central and South America, apparent steel use is projected to grow by 3,4 % to 50,9 Mt in 2014 down from 4,3 % in 2013.

This is forecast to slow further to 2,7 % in 2015 due to contraction in Argentina and a sharp slowdown in Chile. In Brazil, steel demand growth will slow to 3 % to 27,2 Mt in 2014 and 3,2 % in 2015 as high inflation and interest rates continues to restrain economic growth. After a contraction of -0,2 % in 2013, apparent steel use in the EU (28) is expected to grow by 3,1 % in 2014 to 143,3 Mt with help of the construction sector which is gradually bottoming out. Underlying trends at national level will continue to differ, but it appears that Southern Europe has passed its lowest point. Apparent steel use in Germany is expected to increase by 4,5 % in 2014, Italy by 2,6 %, France by 1 % and Spain by 3 %. A steady transition to a broader and more durable recovery will result in steel demand growth of 3 % in the EU (28) in 2015.

Apparent steel use in the CIS region is projected to grow by only 1,1 % reaching 59,5 Mt in 2014 due to slow investment, but will grow by 3,7 % in 2015 with Russian steel demand accelerating to 4,4 % growth. Steel demand in Ukraine will continue to contract in 2014 but the fall will be limited to -3 % to 54 Mt due to financial assistance from the International Monetary Fund. In the MENA region, steel demand is expected to grow by 6,1 % to 66,7 Mt in 2014 after a 0,9 % increase in 2013. Growth in the region is strengthening as political uncertainties moderate. Strength in the non-oil sector in the GCC (Gulf Cooperation Council) countries is expected to stretch into 2014 and the Egyptian economy as well as the rest of the region will continue to recover. In 2015, steel demand in the region is expected to grow by 9,4 %.

Overall apparent steel use growth in the developed economies will be above 2 % in 2014 and 2015, however the developing and emerging economies will continue to grow faster than the developed economies despite their more subdued performances.

Austria

RHI Confirms Results 2013

At its meeting on 4 April 2014, the RHI Supervisory Board approved the annual financial statements 2013 of RHI AG and the consolidated financial statements 2013.

During the financial year 2013, the Group pushed ahead several issues and had to cope with setbacks. The acquisition of a 69,6 % share in the Indian company *Orient Refractories Ltd.* and the termination of the US Chapter 11 Proceedings had a particularly positive impact. In contrast, the site in Duisburg/DE was closed which had become necessary due to the declining steel production in Europe; in addition, unexpected difficulties in the fusion plant in Norway occurred, which placed a massive burden on the results of the year 2013. In the current financial year the focus is on eliminating these difficulties. The acquisition in India fits in perfectly with the strategy of the RHI Group which intends to double the company's revenues in the medium term by participating in the growth of the Indian refractories market and by tapping sales synergies within the Group. After eleven years, the US Chapter 11 Proceedings were terminated definitively and with legal security. With the completion of the reorganization proceedings of the US companies, which had been deconsolidated as of 31 December 2001, all present and future asbestos-related claims were transferred to the trust funds. In addition to the important legal security, the RHI Group now is completely free in developing the US refractories market again and can pursue all strategic options to strengthen its market position. RHI also received a payment of USD 40 million from the former owner of one of the US companies. While steel output in the European Union totaled some 210 Mt in the year 2007, it amounted to only 166 Mt in the past financial year, thus falling more than 20 % short of the pre-crisis level. As RHI does not assume that the volume produced within the European Union will reach the level of 2007 again in the future and expects lower growth rates in the European steel industry in the coming years, it was

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necessary to adjust the refractory production capacities of the RHI Group. Therefore, the Supervisory Board of RHI AG approved the closure of the plant in Duisburg which primarily produced magnesia-carbon bricks for the steel industry. The weak economy and the associated difficult market environment caused a decline in sales volume of RHI's Steel and Industrial Divisions and led to weak capacity utilization at the production facilities. Utilization totaled only approximately 76 % and consequently fixed costs were not covered. With sales volume amounting to roughly 1739 Mt in the year 2013, the decline in comparison with the pre-crisis level of 2007 was slightly more than 13 %. In the implementation of the backward integration strategy, setbacks were recorded in the past financial year.

After a series of technical defects including fire damage and the clogging of a connecting pipe had delayed the start-up phase of the fusion plant in Porsgrunn/NO, it became evident in the 4th quarter of 2013 that the costs budgeted in the original business plan would not be attainable in the medium term. The production capacity for fused magnesia installed in Norway is an important element in the RHI Group's raw material supply security. In addition to independence of Chinese suppliers, the high quality provides for a unique selling proposition among the customers of the steel segment.

In the year 2013, RHI generated 57 % of its revenues in the emerging markets; in the year 2020, this share may already amount to roughly 70 %. RHI strives to participate in the further catching-up process of the emerging markets and to grow together with its customers in these markets. While the number of motor vehicles per 1000 inhabitants in China and India ranks in the low double-digit range, more than 800 vehicles per 1000 inhabitants are registered in the USA, according to data of the *World Bank*. Per capita steel consumption in India is in the medium double-digit kilogram range, while figures significantly exceeding 300 kilograms per capita are realized in Europe, the USA or even China. This results in enormous growth potential, which RHI intends to increasingly benefit from in the years to come.

France

Kerneos Shareholder Change

On 26 March 2014, *Materis* finalised the sale of *Kerneos* to the French investment fund *Astorg Partners*. *Kerneos*' history, as part of a major industrial group with *Lafarge* and since 2001 with *Materis*, stretches over a century. Thanks to the support they offered, *Kerneos* gradually built up its success and established its identity: a mid-sized company with a strong industrial and social culture, and a world leader in a specialist business, calcium aluminate

cement technology with unique properties (including resistance to high temperatures and rapid setting) for use in the formulations of its customers and in particular within the refractories and building chemistry industries. During the last 13 years as part of the *Materis* Group, *Kerneos* has been able to expand internationally, into China in particular, to intensify its R&D effort to bring new products to market and to secure its supplies of raw materials through acquisition of a majority stake in Greek bauxite producer *Elmin*. *Kerneos* is now a global company with 1300 employees representing over 20 nationalities and operating 11 plants and 20 sales subsidiaries around the world, with annual sales of over EUR 360 million in 100 countries (half in Europe, a quarter in Asia and a quarter in the Americas).

Inauguration of the Kerneos Research Centre Asia (KRCA)

In the continuous effort to bring innovative solutions to its customers, *Kerneos* announced the extension of its global R&D network with the new *Kerneos Research Centre Asia (KRCA)* which started operating in May, 2014.

The opening ceremony of the *Kerneos Research Centre Asia (KRCA)* took place the 15th of May in the presence of *Jean-Marc Bianchi*, CEO of *Kerneos*, and *Lang Dong*, Deputy Director of *Teda Government*. This event was followed on 16 May by a seminar with experts of the industry to exchange on the challenges and developments of the market.

This new R&D Centre is located next to *Kerneos*' production site in Tianjin-Teda/CN. The *Kerneos Research Centre Asia (KRCA)* is part of the *Kerneos* strategy to serve customers around the globe with value added innovative products based on aluminate technologies. *KRCA* will strongly support local and international customers in the rapid growing construction and refractory markets in China and Asia.

In close coordination with the central *Kerneos Research and Technology Centre in France (KRTC)* it will also focus on innovations for the Construction market segments within Asia as well as the global Refractory market. For this purpose the *Kerneos Research Centre Asia (KRCA)* has been equipped with specific high temperature testing facilities.

The new building represented a multi-million euro investment and has a total surface area of more than 1700 m². The structure has laboratories dedicated to the different market segments as well as specific environmental rooms to simulate summer and winter conditions. In addition there a showroom to demonstrate the use of *Kerneos* products in their applications as well as a room in which customer seminars and training sessions can be held. For more information: www.kerneos.com

refractories WORLDFORUM

Manufacturing & Performance of High-Temperature Materials

preview of issue 3/2014 (extract)

Technology Trends

- The Value of Additives in Refractory Castables – Part 1: Castables Without Silica Fume (Almatis/DE)
- Future Research in Refractories: A Roadmap Approach (TU Ilmenau/DE)
- The Accelerated Drying of Refractory Concrete (Palmer Technologies/AU)

Reports

- 50th ACerS Meeting, St. Louis/US
- 18th Int. Conf. on Refractories + HITHERM 2014, Prague/CZ
- 1st Joint Meeting DGG – ACerS GOMD, Aachen/DE
- 4th Refractories Conference Upper Tatra
- Int. Conference for Refractory Experts in Moscow
- 10th Anniversary Almatis

Economy & Markets

- Refractory Alumina Supply/Demand (Roskill/GB)

Company Profiles / Interviews

- MOTIM/HU; CERAMITEC-Messe München/DE: Kerneos/FR

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