

refractories

WORLD FORUM

Hot Topics

Manufacturing & Performance of High-Temperature Materials

NEWSLETTER 1/2014

IMPORTANT DATES

25.03.2014 - 27.03.2014

St. Louis Section/RCD

50th Annual Symposium, St. Louis / US

www.ceramics.org

01.04.2014 - 03.04.2014

Aluminium Brazil 2014

Sao Paulo / BR

www.aluminium-brazil.com

03.04.2014 - 04.04.2014

Int. Conference for Refractory Experts
and Metallurgists

Moscow / RU

i.sorkin@imet.ru

04.04.2014 - 06.04.2014

Aluminium China 2014

Shanghai / CN

www.aluminiumchina.com

05.05.2014 - 09.05.2014

IFAT 2014

Munich / DE

www.ifat.de

13.05.2014 - 14.05.2014

18th Int. Conference on Refractories

+ HITHERM 2014

Prague / CZ

www.silikaweb.cz

21.05.2014 - 24.05.2014

Glass South America

Sao Paulo / BR

www.glassexpo.com.br/en/

25.05.2014 - 30.05.2014

1st Joint Meeting of DGG – ACerS GOMD

Aachen / DE

www.dgg-gomd.org

The Global Flat Glass Market in 2014

Glass in general and flat glass in particular has made great advances resulting in a huge growth market especially since the commercial development of the float process. The rise in production has faltered slightly in the last five years and there has been some reorganisation but the market growth seems now again to show signs of recovery.

Today the global production of flat glass of all types is thought to total over 52 Mt although the full world capacity may be slightly in excess of this figure. Globally, it is said that there are over 380 float lines are in operation, currently under construction, or planned, with a forecast output of about 1 Mt of glass per week. While the glass market overall has been expanding at a rate of about 2,5 % per annum for a number of years there has been a temporary

pause in growth especially in flat glass due to the weak economic situation in many countries.

Within the total production of flat glass are a number of sectors such as flat glass for architectural and building applications, automotive glass, decorative rolled glass and glass for solar panels. A very rough estimate puts glass for buildings at about 80 %, automotive glass at about 15 % and glass for solar panels at about 5 % of the total.

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AISTech 2014

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AIST cordially invites you to join more than 5000 industry professionals from around the world at **AISTech 2014 – The Iron and Steel Technology Conference and Exposition**, held **5–8 May 2014** in Indianapolis/US. With more than 450 technical presentations at the conference, you'll gain a command of cutting-edge, process-specific steel-related technologies and discover dynamic solutions to everyday business challenges. In conjunction with the Technology Conference, the 2014 Exposition is forecast to be the largest yet, with over 26 310 m² of exhibit space and more than 500 exhibitors.

Highlights of the 2014 event will include:

- **President's Award Breakfast, 6 May** – A breakfast program consisting of prestigious association-level awards, followed by a keynote presentation by *Mark D. Millett*, President and CEO, Steel Dynamics Inc.
- **Town Hall Forum, 7 May** – A one-of-a-kind moderated panel discussion including the following industry leaders: *John C. Farris*, Nucor Steel-Texas; *Dieter Hoeppli*, Deutsche Bank Securities; *Douglas R. Matthews*, United States Steel Corporation; *S.S. Mohanty*, Steel Authority of India Ltd.; *Tracy L. Porter*, CMC Americas; *Michael Rippey*, ArcelorMittal USA; and *P. Kelly Tompkins*, Cliffs Natural Resources.

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Looked at another way, it is estimated that high quality float glass accounts for about 29 Mt/a, lower quality float glass about 18 Mt/a, automotive glass at about 3 Mt/a and other flat glass also at about 3 Mt/a. The market sectors for all of the above vary widely from country to country and fluctuate depending on market trends such as the demand for solar panels, which are in turn affected by factors such as government subsidies in some main markets such as Germany.

Around the world there are approximately 260 float glass plants of different capacities currently in operation in over thirty countries. These plants in aggregate typically produce over 100 000 t of product per day which is equivalent to a ribbon of glass almost 15 km long, 3 m wide and between 0,5 mm and 25 mm thick (Fig. 1).

As might possibly be expected, approximately 50 % of the flat glass produced comes from China, while Europe produces almost 16 % and North America about 8 %. This is closely followed by other South East Asian countries being at 7 %, Japan at nearly 5 %, South America and the Russia at 4 % each, and the rest of the world accounting for another 6 %. In Europe there are 66 furnaces located in sixteen countries producing 12,5 Mt of float glass and employing over 17 000 people. More than 75 % of this production arises in only seven countries – Germany, France, Italy, Belgium, Great Britain, Spain and Poland.

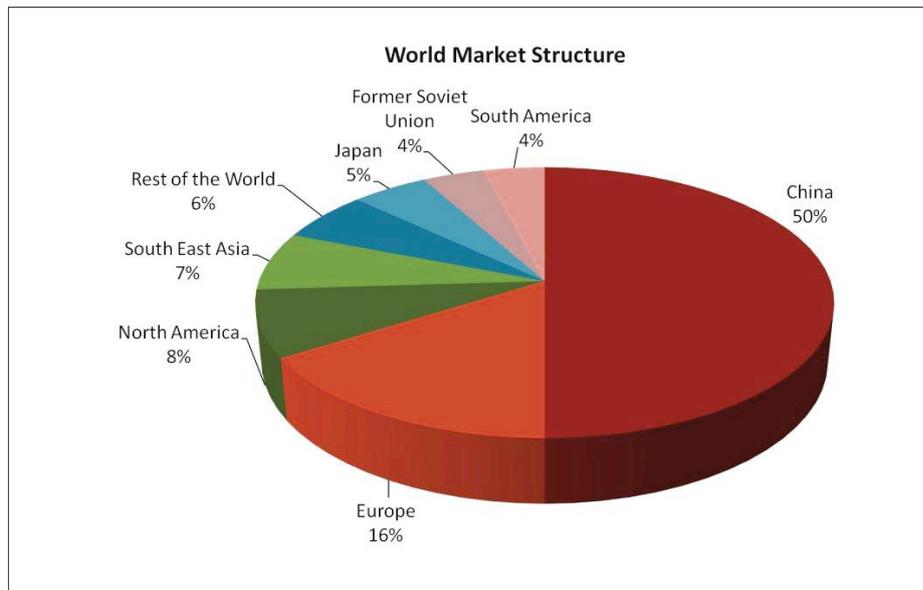


Fig. 1 Glass world market structure
(source: Glass of Europe)

Globally, over 380 float lines are in operation, under construction or planned, with a combined output of about 1 Mt of glass per week. The world flat glass industry is dominated by four multinational firms, all of which manufacture both float glass and other glass products.

These giant companies currently produce enough flat glass to satisfy the major share of global de-

mand. Flat glass and especially float glass are finding new uses to extend its potential and to provide strong support for the future growth of this important product range around the world.

More details will be published in the next issue of refractories WOLRDFORUM 6 [2] (publication date: 23.04.2014).

Netherlands

Gouda Refractories Opened Tunnel Kiln and New Facility

Gouda Refractories has officially brought its 3rd tunnel kiln and production facility into service. With the accomplishment of this step, the production capacity will be increased by 60 %. This expansion, with a 125-m long tunnel kiln, is the equivalent to building a new factory. The 3rd tunnel kiln has an impact on the production process, necessitating the expansion and up scaling of the entire manufacturing process. The project was kicked off early 2011, supported by the parent company *Andus Group BV*, with the purchase and development of an adjacent 2,3 ha lot on the Kromme Gouwe industrial estate in Gouda.

In the presence of many top clients, project partners, employees and other guests, *Marcus Schuchmann*, Managing Director of Gouda, and *Tom van Rijn*, CEO of the holding company *Andus Group*, appreciated the performance of the new plant as well as the professional cooperation with *LINGL/DE* from project planning to completion.

The new kiln is equipped with the LINGL roof technology allowing for a significantly quicker adaptation of the firing curves in case of frequent product

changes. In comparison to suspended roofs, thermal losses are considerably reduced as this roof no longer requires metal stays or ceramic suspension systems with high thermal conductivity. As to investment costs, a considerable reduction is due to the fact that cooling air fans and piping are no longer required and the roof beam system is of more lightweight design. The new LINGL robot setting installation equipped with the LINGL 3D setting pattern program has been commissioned, too.

Germany

Refratechnik Group: Changes in Company Management

Since January 1, 2014, *Dr Stefan Puntke* has taken over as new Technical Director of *Refratechnik Cement GmbH* in Göttingen. He is responsible for the departments Production, Quality Assurance, and Strategy / Strategic Projects.

He started working for *Refratechnik Holding GmbH* in Munich in 2009 as Manager for Strategic Projects, and moved to *Refratechnik Cement GmbH* in Göttingen in July 2013, as Plant Group Leader.

Simultaneously, *Dr Thomas Reimer* resigned as Technical Director of *Refratechnik Cement GmbH* in Göttingen, in order to concentrate on his new tasks as

sole Managing Director of *Refratechnik Ceramics GmbH* (locations in Melle/DE and Hungary).

Founded in 1950 and with more than 1500 employees, the *Refratechnik Group* is the world's largest family-run business in the refractory sector, and belongs to the most dynamic medium-sized companies in Germany. The *Refratechnik Group* consists of 14 companies and 19 locations on four continents. Fired, shaped, and unshaped refractory products are produced at 10 of the locations. In addition, the Group has access to the purest deposit of magnesite in the Western Hemisphere.

With its companies *Refratechnik Cement GmbH* in Göttingen, and *Refratechnik Asia Ltd.* in Hong Kong, the *Refratechnik Group* is the world's leading supplier of high-quality refractory linings for furnace installations in the cement industry, and a reliable partner in the lime industry.

Refratechnik Steel GmbH in Düsseldorf is the Group's successful international link to the metal producing and metal processing industries. New to the Group is *Refratechnik Ceramics GmbH* – world leader in refractory products for the ceramics industry. Magnesite ore, a primary raw material e.g. for the refractory industry, is mined and processed by *Baymag Inc.*, headquartered in Calgary/CA – a

100 % subsidiary company of Refratechnik Holding GmbH.

USA

ArcelorMittal Acquires ThyssenKrupp Steel USA with Nippon Steel and Sumitomo Metal Corporation

ArcelorMittal entered into a 50/50 joint venture partnership with *Nippon Steel* and *Sumitomo Metal Corporation (NSSMC)* to acquire 100 % of *ThyssenKrupp Steel USA (TK Steel USA)* from *ThyssenKrupp* for an agreed price of USD 1550 million.

TK Steel USA is a steel processing plant situated in Calvert with a total capacity of 5,3 Mt including hot rolling, cold rolling, coating and finishing lines. The transaction – which is expected to deliver USD 60 million of annual synergies – is financed through a combination of equity and debt at the joint venture level. The transaction includes a six-year agreement to purchase 2 Mt of slab annually from *TK CSA*, an integrated steel mill complex located in Rio de Janeiro/BR, using a market-based price formula. TK CSA has an option to extend the agreement for an additional three years at more favourable terms to the JV, compared with the initial time period. The remaining slab balance will be sourced from ArcelorMittal plants in the USA, Brazil and Mexico. ArcelorMittal will be responsible for marketing the product on behalf of the JV. The price ArcelorMittal will receive for its slabs will be determined by the volume, price and cost performance of the JV.

The automotive market is an identified franchise business for ArcelorMittal and the Calvert facility will complement ArcelorMittal's existing auto business in USA. The company's current facilities for the auto segment in USA are at high levels of capacity utilisation and the NAFTA automotive market is expected to show an increase in vehicle production of approximately 15 % over the next decade.

This acquisition will also strengthen ArcelorMittal's position in supplying the NAFTA energy industry, which is expected to demonstrate growing demand for energy pipe and tube products due to increases in oil and natural gas exploration and production. ArcelorMittal and NSSMC have a proven track record of successful collaboration for the auto industry in North America through the *I/N Tek* and *Kote* joint ventures, which were established in 1987 and are located in New Carlisle.

Following completion of the sale, ThyssenKrupp is now concentrating fully on further operating improvements at the Brazilian plant, where clear progress has already been made in technical performance and efficiency. ThyssenKrupp CSA will remain in the Steel Americas business area. ThyssenKrupp has around 157 000 employees in

just under 80 countries working with passion and expertise to develop solutions for sustainable progress. In fiscal year 2012/2013 Thyssen-Krupp generated sales of around EUR 39 billion.

Iran

Khuzestan Steel Plans Production Increase by 2016

Khuzestan Steel Company (KSC) plans to increase steel production capacity to 5 Mt/a by 2016, said the Managing Director of the company. This will be achieved by establishing new plants and generating new jobs. The company could only produce 2,2 Mt steel, while the figure reached 3,5 Mt in the last Iranian year (ended 20 March 2013). During 21 March – 22 September, steel ingot production grew by 7 % and pellet output by 14 % compared with the corresponding period of last year. As Iran's biggest steel ingot producer, KSC has produced 1,857 Mt of ingots in the first half of 2013. The company's share in the stock exchange amounts to USD 33,333 billion.

The company is Iran's first steel and iron production plant that uses direct reduction method. It became operational in 1988 and in less than a decade, its nominal production capacity reached 1,5 Mt/a. The company has three major units for producing and distributing middle and final products. Iran's main steel mills are located in the Isfahan and Khuzestan provinces.

The major raw steel producers of Iran are *Mobarakeh Steel Mill* with approximately 47 % of the market share, KSC with about 23 %, *Isfahan Steel Mill* with about 20 % and the *Iran National Steel Industries Group* with approximately 10 % of the market share.

Qatar

FLSmidth to Supply Cement Production Line in Qatar

FLSmidth/DK has received an order worth DKK 515 million for Qatari cement producer *Al Khalij Cement* covering supply of a complete cement production line for the customer's plant in Umm Bab, approximately 100 km east of Doha.

The production line will be a duplicate of the existing line, which was supplied by FLSmidth in 2007. The order covers all main equipment for the production line: conveyor transport systems, mills, complete pyro line, electrical and automation systems as well as filters.

The production line is being supplied in cooperation with *CNBM International Engineering*, which is part of *China National Building Materials (CNBM)* – the largest building materials group in China and a global supplier of integrated EPC (Engineering, Procurement and Construction) projects. FLSmidth's role in the cooperation is to engineer the plant and supply the main equipment. CNBM is

the turnkey contractor and received the order from Al Khalij Cement in cooperation with FLSmidth.

Germany/France

Trimet Acquires Aluminum Plants in France

Trimet Aluminium SE/DE has acquired two production plants in France from *Rio Tinto Alcan*. Last July, Trimet made a binding offer to take over and continue production at the aluminum plants in Saint-Jean-de-Maurienne and Castelsarrasin. The acquisition has been approved by the national and European regulatory authorities. Alongside the main shareholder, Trimet Aluminium SE, the French energy provider *EDF* holds a minority stake in *Trimet France SAS*. At both locations, some 500 employees produce high-quality aluminum wire, which is processed into electrical lines for the energy sector, among other uses, and into connectors for the automotive industry.

By entering into this product segment, Trimet is expanding its product portfolio, consistently advancing the growth of recent years. *Dr Martin Iffert*, CEO of Trimet Aluminium SE, will manage the fortunes of Trimet France SAS as President of the company. As an innovative medium-sized company, Trimet Aluminium SE develops, produces, recycles, casts, and sells with 2400 employees modern light-metal products made of aluminum.

USA

New Chairman and CEO at ANH Refractories

ANH Refractories Company, North America's largest refractory manufacturer has named *Stephen M. Delo* as Chairman and Chief Executive Officer, succeeding *Gabriel Faimann*, the company's former Interim CEO who has left to pursue other career opportunities.

St. M. Delo most recently served as Director – Integrated Supply Chain for *Honeywell International's*

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Performance, Materials and Technologies business and has held senior leadership roles of increasing responsibility during his 34 year tenure with Honeywell.

He began his career with Honeywell (formerly *Allied Chemical*) after receiving his Bachelor of Science degree in Chemical Engineering at *Louisiana State University*, where he also later earned his Masters' degree in Business Administration. ANH Refractories is one of the world's largest and most respected suppliers of refractory materials and applications solutions with lineage that dates back over 100 years. ANH operates more than 17 production facilities spread over three continents and manufactures materials under the world recognized brands of *A.P. Green*, *North American Refractories Company*, and *Harbison-Walker Refractories Company*.

Nigeria

FLSmidth Wins Large Operation and Maintenance Contracts in Nigeria

FLSmidth/DK and its affiliated companies have signed a number of contracts with the Nigerian cement producer *Dangote Cement PLC (Dangote)* for operation and maintenance of certain production lines at their cement plants in Nigeria for a period of five years. The parties have agreed not to disclose the value of the contracts. FLSmidth has had a business history with Dangote Cement PLC which includes the supply of two of the four production lines at Dangote Cement PLC's plant at Obajana, Kogi State. The contracts, which together constitute the largest operation and maintenance contract awarded to FLSmidth up until now, is for the operation and maintenance of the plant from crusher to packaging, including full upgrade of the automation control systems. FLSmidth will start the operation and maintenance at one of the plants in about six month's time while the operation and maintenance of the other lines will follow subsequently. Dangote Cement PLC is the largest cement producer in Nigeria with over 60 % market share and the fastest growing cement producer in Africa having an annual production capacity projected at about 50 Mt of cement in the coming years.

USA

Unifrax Launched 3-m-length Hot Gas Filter

Part of the *Unifrax* range of products is the high temperature candle filter element or hot gas filter (HGF). Manufactured from both, refractory ceramic and low bio-persistent fibres, they are typically used in industrial applications for removing particulate, dioxins, furans and heavy metals, such as mercury from the flue gases where temperatures exceed that of traditional bag filters, or where a benefit can be made from recovering the high temperature gas stream.

January 2014 saw Unifrax launch its 3 m length filter element. With a 150 mm diameter, these elements are currently the largest available both within our range and on the market. They have a surface filtration area of 1,35 m². Specifically designed for larger projects such as glass applications, or simply where footprint is an issue, these lightweight filters can be manufactured in any of the Unifrax range of fibres and are designed to fit into a filter house design similar to that of a traditional bag house.

Benefits of the hot gas filter elements include self-supporting and rigid, unlike traditional bag filters there is no need for cages; they are temperature resistant up to 1100 °C and non-flammable with highly efficient emissions reduction. The elements have a controlled uniform permeability and minimal pressure drop offering lower plant power consumption and simpler operation. Final filter systems do not require cyclones, dilution air, spark arrestment etc.

Unifrax hot gas filter elements have been utilised worldwide in a diverse range of successful applications, including product recovery, Incineration and both primary and secondary metals smelting. A reputation for providing durable, high performance filters elements has also led to an ever increasing utilization in the waste to energy arena – particularly in the innovative fields of gasification and pyrolysis. As a manufacturer of elements, Unifrax works closely alongside both filter system builders and distributors.

Germany/Italy

Further Optimization of Production Facilities – SGL Group Closes Plant in Narni

SGL Group – The Carbon Company announced the closure of its Italian graphite electrodes plant in Narni (Umbria) and of the related administration office in Lainate. The closure is a component of the Company's global realignment strategy and the SGL2015 cost savings program.

The market for graphite electrodes, which are used in the recycling of scrap steel, has come under pressure due to unfavorable price developments and weak demand in particular. Discussions with the unions about a redundancy scheme will be initiated and the wind-down of the site, which is home to approximately 120 jobs, will begin.

Following the closure of the graphite electrodes plant in Lachute/CA, SGL Group has now taken a further step towards optimizing its capacities across the Company, strengthening the Group's competitiveness and securing its cost position. SGL's global production network is committed to ensuring that the high quality of SGL's products and services will be maintained during the closure phase.

The implementation of the SGL2015 cost savings program, which was launched in August 2013,

is progressing according to plan. The Company has announced and, in many cases, already implemented numerous measures for the streamlining of its global production network and organizational structure as well as the optimization of its portfolio. As a result, SGL Group is confident that it will achieve its planned cost savings target of around EUR 150 million in total by the end of 2015.

refractories **WORLDFORUM**

Manufacturing & Performance of High-Temperature Materials

preview of issue 3/2014 (extract)

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- The Accelerated Drying of Refractory Concrete (Palmer Technologies/AU)
- Investments in Industrial Tools to Improve Quality (Imerys Refractory Minerals/FR)

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- 1st Joint Meeting DGG – ACeS GOMD, Aachen/DE

Economy & Markets

- Refractory Alumina Supply/Demand (Roskill/GB)

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