refractories WORLDFORUM
Hot Topics
Manufacturing & Performance of High-Temperature Materials
NEWSLETTER 1/2015

IMPORTANT DATES

19.03.2015 - 20.03.2015
ICRM 2015: International Conference on Refractory and Metallurgy
Moscow / RU
www.kom.misis.ru

25.03.2015 - 26.03.2015
ACerS St. Louis Section and Refractory Ceramics Division Joint Meeting
St. Louis / US
www.ceramic.org/meetings/acers-meeting

29.03.2015 - 31.03.2015
3rd China International Refractory Production and Application Conference
Shanghai / CN
www.refractorychina.cn

04.05.2015 - 06.05.2015
1st Int. Conf. on Advanced Ceramics & 10th Congress of the Iranian Ceramic Society
Tehran / IR
www.icers2015.ir

04.05.2015 - 07.05.2015
AISTech 2015
Cleveland / US
www.aist.org

Global Cement Review 2015

In recent years the global cement industry has undergone significant changes in size, ownership and in technology and this is far from over, so that some of the information reported in this review will change within a very short time span and details become superseded, although trends are likely to remain valid. The global capacity for cement production is enormous and currently estimated at up to 4 billion t/a. It is suggested however that this figure can only be an approximation simply because of the daunting task of assembling verifiable statistics in a dynamic ever changing and evolving market. It is also extremely important to differentiate between capacity and production as it is believed that only about 70 % cement plant production utilisation is achieved globally if China is excluded and about 60 % in the entire world if China is included since about half of the world's cement making capacity is in China and it is thought to be operating at about 50 % capacity at present.

see page 2

GIFA, METEC, THERMPROCESS and NEWCAST

The four metallurgy trade fairs GIFA, METEC, THERMPROCESS and NEWCAST are coming closer and closer and it is apparent that the events from 16 – 20 June 2015 with the motto "The Bright World of Metals" will once again be providing a complete picture of the international market in these fields.
All four of the trade fairs are the key events in their industry and will have an extremely international focus. They concentrate on metals and the complex, innovative methods used to process them. All in all, almost 2000 exhibitors will be presenting the latest technology and cutting-edge innovations in 12 halls on the Düsseldorf exhibition site.
Minimisation of energy consumption and resource input is vital in the energy-intensive industries that are covered by GIFA, METEC, THERMPROCESS and NEWCAST. This is why Messe Düsseldorf in 2011 launched the ecoMetals campaign, in which companies participate that have made a particular name for themselves in these topics.
www.messe-duesseldorf.de

Tab. 1 Worlds top ranking cement producers by company
(Source: Global Cement Magazine)

Ranking	Company	Country	Capacity [Mt/a]	No. of Plants
1	Anhui Conch	China	217	26
2	Lafarge	France	205	134
3	Holcim	Switzerland	174	117
4	CNBM	China	128	80
5	Heidelberg Cement	Germany	90	100
6	Italcementi	Italy	80	60
7	Cemex	Mexico	76	55
8	Taiwan Cement Corp	Taiwan	64	6
9	China Resources	China	59	17
10	Sinoma	China	53	4

Tab. 2 Worlds top ranking cement producers by country
(Source: USGS Mineral Programme Reports 2012 and 2013)

Ranking	Country	2011 Production [Mt/a]	2012 Production [Mt/a]
1	China	2100	2150
2	India	240	250
3	USA	68,6	74
4	Brazil	64,1	70
5	Iran	61	65
6	Vietnam	59	65
7	Turkey	63,4	60
8	Russia	55,6	60
9	Japan	51,2	53
10	Saudi Arabia	48,4	43

International cement industry

While it is almost certain that the global production of cement has expanded by up to 3 % per annum in the last five years this masks enormous volatility within different regions, countries and even companies and individual plants. Several sources provide detailed overall surveys which focus either on countries or on companies (Tab. 1–2).

The pace of change is such however that these surveys which are revised on an annual or sometimes more long term basis find it almost impossible to be completely up to date and there are daily updates available to subscribers who need the most current data as circumstances change. The volatility in this huge market is caused mainly by the supply and demand situation but many other factors impact significantly on it also.

At the end of 2014 Mika cement in Armenia reported that it would cease production for about 3 months due to overcapacity while the entire Iranian cement industry ceased clinker production for at least one month around the same time and for the same reason. Angola has currently banned imports to protect its local market and keep its own plants running. This is in contrast to it having experienced double digit growth in the cement market for some years after the cessation of the civil war in 2003.

At the time of compiling this report Heidelberg Cement in Ukraine have closed one of their three plants due to political and civil unrest and sadly this situation may become very much worse. Eastern Cement in Yemen also ceased production due to serious security issues in the area. Dangote Cement of Nigeria has delayed production in its Sierra Leone plant due to the Ebola outbreak but it is to be hoped that this is not a long term issue. It can be seen therefore that there are many issues at many levels.

In terms of cement production by the main regions and major countries of the world Asia accounts for almost 68 % of world production, Europe about 12 %, The Americas 8 %, India about 6 %, Africa 5 % and the rest of the world the balance of about 1 %. While cement capacity is forecast to continue to grow the actual cement production in Europe and India has plateaued while Chinese production in total including both domestic and overseas has continued to increase.

*(The full version of this paper will come up in refractories WOLRDFORUM **7** (2015) [2]. Publication date: 04.05.2015)*

Worldwide

World Refractories Association: F. Wanecq Elected Inaugural President

At a time when economic pressures call for stronger networks, the refractory industry is embracing increased global cooperation. To this end, the major refractory industry associations and multinational companies have joined together to create the World Refractories Association – WRA.

The WRA constitutes a forum to debate regulatory issues affecting global trade, circulate aggregated industry statistics, promote the interests of the worldwide refractory industry, and act as a counterpart to other world industry organisations such as the World Steel Association. The newly formed World Refractories Association is composed of continental associations including Europe (PRE), Latin America (ALAFAR) and North America (TRI) as well as national associations from China (ACRI), India (IRMA) and Japan (JRA). The multinational companies Magnesita Refratários S.A., RHI AG and Vesuvius plc are also direct members.

François Wanecq, Chief Executive of Vesuvius plc and President of PRE, has been elected the inaugural President of the World Refractories Association. François Wanecq joined Vesuvius in 2005. He was previously Chief Executive of Arjo Wiggins from 1996 – 2004, and Head of the Technical Ceramics Division at Saint-Gobain from 1985 – 1995. He graduated at École Polytechnique and École des Mines in Paris.

Following a successful meeting in London on 6 November 2014, the World Refractories Association will continue the positive momentum with a General Assembly in 2015.

Worldwide

Increased Research Efforts to Speed up Commercialisation of Carbon Fibres, Finds Frost & Sullivan

Although the adoption and commercialisation of carbon fibre is poised to escalate across industries due to its unique benefits and attributes, the high costs of raw materials, manufacturing, and integration in end-user sectors remains a challenge. Research activities, along with strategic and research partnerships between the research community and the industry as well as funding from both government and private agencies will be crucial to spearhead the sustainable use of carbon fibre.

New analysis from Frost & Sullivan on Carbon Fibres Technology–finds that end-user industries such as the automotive and aerospace sectors are also contributing to funding along with carbon fibre manufacturers, highlighting the intent towards wider adoption. The increasing emphasis on reducing fossil fuel consumption and hence addressing the issue of global warming is underlining the business case for carbon fibre. To ensure large-scale uptake in more industries, manufacturers must design an eco-friendly and economical recycling method to prevent accumulation of carbon fibre waste. The high defect ratio and rising costs also deter key stakeholders from mass producing products using carbon fibre. Investing in R&D and strategic partnerships with research communities combined with the successful scaling up of new technologies can address these challenges effectively. In addition, collaborating with end-user industries will enable carbon fibre manufacturers to deliver customised solutions.

For further information please visit:
www.technicalinsights.frost.com

Germany

CARBON 2015

The German Carbon Group (AKK) invites everybody interested in scientific and industrial topics related to carbon materials to attend the Annual World Conference on Carbon – CARBON 2015 in Dresden. The conference provides the platform for researchers to present recent results, for discussions and the exchange of information from the various fields of carbon. Particular emphasis will be given to an intensified exchange between academia and industry. CARBON 2015 starts with a welcome reception on 12 July 2015, at the Conference Center. AKK is also happy to invite you to the conference dinner on 16 July and to a "Day of Science" on 17 July as an opportunity to meet and discuss with researchers from Dresden University's Institute of Lightweight Engineering and Polymer Technology (www.tu-dresden.de/mw/ilk), Fraunhofer-Institut für Keramische Technologien und Systeme, IKTS Dresden (www.ikts.fraunhofer.de), and the Leibniz Institute of Polymer Research Dresden (www.ipfdd.de). The "Day of Science" will start with a panel discussion about the World Carbon Council.
www.carbon2015.org

France/Greece

KERNEOS and ELMIN are Expanding in Greece

KERNEOS S.A. and ELMIN S.A. announced in February the acquisition of 100 % of the shares of EUROPEAN BAUXITES, S&B INDUSTRIAL MINERALS S.A.'s bauxite operations in Greece.

S&B Greek bauxite operation commenced in 1934, and has since evolved in the extraction, processing and distribution of high quality bauxite to the metallurgical and construction industries for applications such as, alumina and steel production, Portland cement, mineral wool and calcium aluminate cements. Its annual sales volume represents roughly 1 Mt and its reserves stand at several tens of millions of tons.

Following its majority investment in ELMIN in 2012, KERNEOS is bolstering its position as a reference supplier able to satisfy its customers' needs in the building chemicals and refractories industries by securing long-term access to one of the key raw materials required for part of its range of calcium aluminates.

The contemplated merger of ELMIN and EUROPEAN BAUXITES will be undertaken, in the spirit of continuing servicing existing customers and further developing exports to the metallurgical and constructions industries, while implementing operational synergies.

The management teams of KERNEOS, ELMIN and EUROPEAN BAUXITES believe that this new structure will contribute to the long term sustainable development of Greek bauxite for the benefit its customers, its employees, the local communities and the Greek economy.

Worldwide

SNL Metals & Mining Releases Annual World Exploration Trends 2015

The latest „World Exploration Trends" report from SNL Metals & Mining reveals mining companies responded to the poor market conditions with a sharp reduction in their exploration activity. The result was a 26 % decline in worldwide nonferrous metals exploration budgets in 2014, compared with the previous year.

In the 25th edition of its Corporate Exploration Strategies (CES) report, SNL Metals & Mining calculated that the mining industry's total budget for nonferrous metals exploration was USD 11,4 billion in 2014. This contrasts with the USD 15,2 billion allocated in 2013 and the record USD 21,5 billion budgeted in 2012. The steep plunge in exploration budgets was due to a combination of investor wariness of the junior sector, which made it difficult for most companies to raise funds, and a strong pullback by producing companies on capital and exploration spending to improve their margins.

SNL's 2014 exploration estimate was based on information collected from more than 3500 mining and exploration companies worldwide, of which almost 2000 had exploration budgets reported in the CES study. These companies (each budgeting at least USD 100 000) together allocated USD 10,74 billion for nonferrous exploration, which SNL estimates covers 95 % of worldwide commercially-oriented nonferrous exploration spending. Adding estimates of budgets that SNL could not obtain, the 2014 worldwide total exploration budget reached USD 11,36 billion.

For the full report detailing additional exploration trends, please contact:
Christina Twomey (ctwomey@snl.com)

India

IREFCON 2016: Value Enhancement through Refractories

IREFCON 2016 (India International Refractories Congress 2016) is the 11th in the series of biannual international conferences providing an important interface between the India and International manufacturers and consumers of refractories. IREFCON is scheduled to be organized from 2O–22 January 2016 at Hyderabad. In addition to producers and users of refractories, suppliers of refractory raw materials, equipment and machineries, testing apparatus, R&D institutions, design and consultancy organizations, consultants and academicians will also be closely involved at this conference.

IREFCON-2O16 technical sessions will cover refractories developments and applications for:

1. Coke and Ironmaking
2. Steelmaking
3. Secondary Refining
4. Flow Control
5. Cement and Glass
6. Nonferrous Products
7. Petrochemicals
8. Monolithic Refractories
9. Natural and Synthetic Raw Materials
10. Nanoengineered Refractories
11. Environment and Pollution Control

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Aschmattstraße 8
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Editorial Department
Karin Scharrer (Editor-in-Chief)
Phone: +49 (0) 7221-502-241
E-mail: k.scharrer@goeller-verlag.de

Advertising Department
Corinna Zepter (Advertising Manager)
Phone: +49 (0) 7221-502-237
E-mail: c.zepter@goeller-verlag.de

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www.irmaindia.org/irefcon/

Qatar

QU Research Seeks to Replace Cement with Aluminium Slag in Concrete

Initiated under the auspices of the Centre for Advanced Materials (CAM) at Qatar University, the project aims to partially replace cement which is expensive and environmentally pollutant, with aluminium slags which are discarded in landfills and are not environmentally friendly either.
The mix design specified in the research will reduce the concrete final setting time by 48 %. It will also, reduce the corrosion of the reinforcement steel by more than 50 % which will positively affect the durability of structures.
Because of the expanding properties of aluminium slag, the mixture can be used in building subfloors, blocks and pre-moulded panels. Applying this idea it will contribute in reducing the cost of concrete, time needed for it to be cured, pollution caused by cement production and the pollution that results from throwing the dross into the landfill.
The cement industry is faced with economic, energy and environmental problems, such as 7 % of total worldwide carbon dioxide emissions. For sustainable development, major international concerns have been raised over how to reduce carbon dioxide emissions and given rise to a growing interest in the development of materials and technologies to reduce the impact of cement.

Turkey

5th Global Cement Refractories and Maintenance Conference and Exhibition

The event will be held on 12 –13 May 2015 in Istanbul/TR. For 14 May 2015 a field trip to Akçansa Büyükçekmece has been confirmed. Global Refractories & Maintenance (GRM) will bring cement and lime producers together in one place with suppliers and service providers for technical exchange, business and networking. Main topics are: refractories for cement and lime, wear and abrasion resistance, maintenance.

www.globalcement.com/conferences

Europe

Stainless Steel Production up in Year 2014

The International Stainless Steel Forum (ISSF) has released figures for the first nine months of 2014 showing that stainless steel melt shop production increased by 8,9 % year-on-year to 30,9 Mt. Production increased in all regions except for Central and Eastern Europe.
Further information at:
www.worldstainless.org/statistics

USA

CARBO Ceramics Responds to Decline in Ceramic Proppants

CARBO Ceramics Inc. announced in March that it has decided to mothball its proppant manufacturing facility in McIntyre, Georgia/US.
CARBO began slowing production earlier this year to assist in managing cash and inventory levels. The company's actions were in direct response to a depressed commodity price for oil and the resulting negative impact on industry activity levels, which is having a negative impact on demand for ceramic proppant. As the company has not seen improvement in demand for ceramic proppant, nor any change in the near term can be anticipated CARBO has decided to mothball its facility in McIntyre, Georgia until such time as market conditions warrant bringing it back online. In addition CARBO continues to manage the collective output of their other proppant facilities, which includes slowing down and idling production as deemed necessary.
CARBO is an oilfield services technology company providing product enhancement and environmental services.

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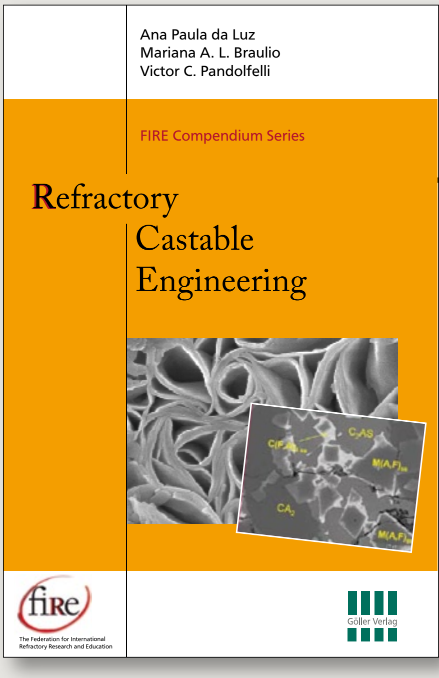

Further information:
Göller Verlag GmbH
Petra Blank
Phone: +49 (0) 7221-502-210
p.blank@goeller-verlag.de

Details and order form also on:
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preview of issue 2/2015 (extract)

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- Showcase: GIFA – METEC – THERMPROCESS

Economy & Markets
- A Review of the Zirconia Market (Roskill/GB)
- A Review of the Cement Market (Jarvis/GB)
- World Steel Production 2014 (worldsteel/BE)

Reports
- TARJ Raw Materials Workshop/JP
- 5th Freiberg Refractories Forum/DE

Technology Trends
- Focus on 4000 °F (Steuler KCH/DE)
- A Review of Refractory Bond Systems for Monolithic Refractories (Kerneos/FR)
- The Importance of Test Piece Preparation of Unshaped Refractory Products for the Characterisation of Physical Properties According to EN ISO Standards (Calderys/FR)
- Gunning Robots for Improved Hot Repair in Steel Plants (Velco/DE)

Papers
- Coarse-Grained Ceramic Heat Shields Made by Pressure Slip Casting (TU Freiberg/DE)
- MgO–C Bricks Containing Nano Boron Carbide (UFSCar/BR)
- The Hydration Behaviour of $MgO–SiO_2–H_2O$ Gel-Bonded MgO Castables (ELKEM/NO)

Special Circulation at:
- MagMin Conference Athen/GR, 18 – 20 May 2015
- ACHEMA Frankfurt/DE, 15 – 20 June 2015
- GIFA – METEC – THERMPROCESS – NEWCAST Düsseldorf/DE, 16 – 20 June 2015
- CARBON 2015 Dresden/DE, 12 – 16 July 2015

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Please contact:
Corinna Zepter, Advertising Manager
Phone: +49 (0) 7221-502-237
E-mail: c.zepter@goeller-verlag.de

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