

# refractories

## WORLD FORUM

Hot Topics

Manufacturing & Performance of High-Temperature Materials

NEWSLETTER 3/2013



Fig. 1  
Audience of the ITPS Conference held in July 2013 in Düsseldorf  
(photo: Messe Düsseldorf) see page 1



Fig. 2  
TECHnoDAYS in Illzach/FR at the  
HAVER subsidiary company  
NEWTEC BAG PALLETIZING see page 3

Elkem welcomes you at:  
UNITECR 2013  
Victoria/CA, 10-13 September  
Booth 10

Colloquium on  
Refractories 2013  
Aachen/DE, 25-26 September  
Booth 19

## ITPS 2013: International Thermprocess Summit

The *ITPS* – International Thermprocess Summit – proved to be a tremendous success, when it was held for the first time in Düsseldorf on 9/10 July 2013. Excellent feedback has been received not only from the 147 international participants from 16 different countries but also from the companies that exhibited. Prominent experts from all over the world, e.g. from Brazil, China, India, Japan or the USA, considered it worthwhile making the trip to attend the two-day Thermprocess Summit, where market trends were reviewed and the latest technologies and processes in the heat treatment industry were presented.

### Technological Innovation Driven by the Customer

An overview of the global business of industrial furnaces and its current challenges within the field of thermal processes as well as about its global structure, applications and technologies for main customer segments was given by *Dr Hermann Stumpp* (COO *Tenova*). The influence and importance for quality and costs within whole production lines was pointed out. Aspects of consumption of natural resources and energy as well as of emissions and cost related hereto were evaluated. Actual developments of ecopolity and its implications for the furnace industry and its customers were discussed. An outlook was given on resulting required technical trends.

### Market Trends

In his talk on „Thermoprocessing in India – economic and technological trends“ *Dr Wilfried Aulbur* (Managing Partner *Roland Berger Consultants Pvt. India*) presented an overview of the current economic environment and the mid- and long-term outlook for the Indian economy. The impact of the economic environment on key industries was highlighted and discussed. Industries in focus were the automotive industry, steel, NF metals and refractories.

„Are the markets for thermoprocess industry going East?“ questioned *Dr Heinz-Jürgen Büchner* (MD *Industrials IKB Bank*). New capacities for steel, for aluminium or copper are mainly build up in Asia. The global car manufacturers reduce their capacities in

*see page 2*

## Highlights in September 2013

UNITECR 2013, Victoria/CA, 09 – 13 September 2013

Further details available at: [www.unitecr2013.org](http://www.unitecr2013.org)

Colloquium on Refractories, Aachen/DE, 25 – 26 September 2013

Further details available at: [www.ecref.eu](http://www.ecref.eu)

Western Europe. On the other hand one can expect moderate higher production in Central Eastern Europe and a further strong growth in China. With the exception of Poland and Germany, the European construction markets are going down. Consequences for the global thermoprocess industry were disucced.

„Energy and climate policy in Germany and the EU – status, challenges and perspectives“ was the topic presented by *Dr Felix Matthes* (Research Coordinator *Öko-Institut e.V.*). His presentation described the recent status of energy and climate policy in Germany and the European Union after the groundbreaking decision in 2010 und 2011 in Germany and the emerging EU policies based on the climate policy and energy roadmaps of the EU. It provided an overview on the respective challenges and perspectives for policy and industry and lays out emerging political decisions for the next years.

*Mark Mills* (Senior Fellow, *Manhattan Institute*) reported on „North America's energy future: a new Middle East“. He stated that the supply and demand paradigms of global energy markets are undergoing fundamental transformation. Emerging, not mature economies, increasingly dominate both the growth in energy demand, and absolute demand. Meanwhile, North America has now entered an era where it can become a major, possibly the largest net sup-

plier of hydrocarbons to world markets through the combination of enormous infrastructure advantages and the maturation of new technologies that have unleashed, and will increasingly expand access to Middle East class of resources.

*Dr Ralph Niederdrenk* (Partner *PricewaterhouseCoopers AG*) gave an overview on the „Global automotive business – status and future perspectives“.

The internationalisation of German light vehicle manufacturers is in full swing, important models are produced increasingly abroad, he stated. As a consequence of this, emerging markets show high growth while Germany will stagnate in the medium term. This sustainable trend also affects the whole value chain of suppliers. National actively suppliers will increasingly become under pressure. The need to internationalize its own production footprint is key for all suppliers in the value chain. The presentation highlighted this key trends, illustrated the “build-where-you-sell” behavior of the German light vehicle manufacturers and discussed the consequences for the German automotive suppliers.

*Dr Hans Fischer* (Chief Technical Officer *Tata Steel Europe*) gave insights on „Energy: a steel industry perspective“. For energy intensive industries such as iron and steelmaking, energy costs are a significant proportion of overall costs and these costs are rising. Furthermore, energy costs vary significantly

from country to country, both inside and outside the EU, resulting in an un-level playing field and significant international competitiveness issues.

The steel industry has reduced its energy consumption per tonne of steel produced by more than 50 % since the 1970s and continues to make improvements, although the potential for further improvements is now relatively limited. His paper outlined the energy situation in Europe from the perspective of an European steelmaker and, by way of several examples, it was shown how technology is being used to improve energy efficiency, taking the industry closer and closer to theoretical best practice. Areas, where policymakers, regulators and equipment providers/technology suppliers can help, were also described.

The panel discussion, headlined „Future of energy intensive production“, summarized at the end of the first day the various aspects given by the speakers. The second day of the conference had a stronger focus an technical details of the heat treatment suppliers industry.

The ITPS Conference is part of the established Bright World of Metals event, that will be inviting the industry community to come to Düsseldorf again for its trade fairs **GIFA**, **METEC**, **THERMPROCESS** and **NEWCAST** from **16 – 20 June 2015**.

For further information: [www.itps-online.com](http://www.itps-online.com)

Russia

### **Magnezit Group Commissioned the World's most Powerful High-temperature Shaft Kiln for Firing Refractory Raw Materials**

*Magnezit Group*RU commissioned for industrial operation a high-temperature shaft kiln (*Polysius AG/DE*) with a production capacity of 80 000 t/a at Satka production site (town Satka, Chelyabinsk region). Before launching the kiln in Satka, annual production capacity of similar kilns of the company Polysius AG, operating in various countries of the world, did not surpass 50 000 t/a.

The high-temperature kiln was built within the framework of the biggest investment project of Magnezit Group for increasing the magnesia clinker production volumes up to 130 000 t/a. Novel technological solutions, employed within the framework of the project, correspond to the highest world standards including energy efficiency and environmental safety.

The kiln was built during a record time-frame: the foundation pit was delineated by the close of the year 2011 and first metal poles were installed in early 2012. Ignition of the kiln took place on 4 July of the current year. During several days the kiln has been operating in heating mode, temperature and charging volumes increased gradually. At present the kiln reached the targeted technical parameters and switched over into the mode of industrial operation.

Magnezit Group is the only producer of dead burnt magnesia clinker on the territory of Russia and CIS countries, which is clinker of a high quality material for production of modern refractories, required by enterprises of ferrous and non-ferrous metallurgy and cement industry. Competitive advantage reached after implementation of this project remains for the moment unattainable for other refractory enterprises on the post-soviet territory. After commissioning of the second unique unit – a multi-hearth furnace (Polysius) –, construction of which will be finished in autumn of the current year, Magnezit Group will implement the complete cycle of magnesia clinker production. Total volume of investments into construction of the shaft kiln and multi-hearth furnace surpassed RUB 2,3 billion.

This production facility was initiated in 2008 after commissioning of a *Maerz* high-temperature shaft kiln with an annual productivity of 50 000 t. Technologies of fine grinding and briquetting of magnesia powders were united in one single technological cycle, as well as firing and all this finally allowed to produce material with excellent targeted characteristics.

Implementation of the project for increasing the magnesia clinker production volumes will permit Magnezit Group to transfer to the clinker technology up to 70 % of treated raw materials, to considerably expand the range of manufactured novel pro-

ducts, to improve cost-effectiveness of production and productivity of labour. Resources conservation and introduction of advanced technological solutions will permit to preserve mineral wealth for future generations and to reach the highest level of environmental safety of production.

The complex of the high-temperature shaft kiln includes the site for grinding with 2 ball mills (*Hosokawa Alpina/DE*), the site for briquetting with 6 roller presses (*Hosokawa Bepex/DE*) and the kiln itself. The height of the building for the kiln is 52 m. The working chamber of the kiln is composed of two parts: cylinder one, which is 12,5 m high and has a diameter of 3,6 m, and the conical part, from which ready-made product is discharged. Length of the conical part is 2,5 m. The kiln is equipped with 32 gas burners (Polysius AG).

An automated control system of the main technological processes allows to reveal reasons for deviations in operation of technological equipment and completely excludes influence of the so-called human factor. Attendance of technological process is carried out by two highly skilled operators. The kiln operates in continuous run.

The maximal possible design temperature of the kiln is 2200 °C, density of briquettes after firing is 3,3 g/cm<sup>3</sup> (before firing 2,15 g/cm<sup>3</sup>). A modern suction cleaning system is installed for dust trapping: four filters in the points of charging and pouring of

raw material and two-stage gas-purifying equipment on the main smoke stack, including settling chamber and bag filter of *Scheuch GmbH/AT*, ensuring trapping of 99,9 % of dust.

UAE

### Dubal, and Mubadala Take over Guinea Alumina Corp.

*Dubai Aluminium (Dubal)*, the owner of the world's largest single-site primary aluminium smelter, and Abu Dhabi state investment fund *Mubadala* have secured the full ownership of *Guinea Alumina Corporation (GAC)*. GAC, a leading producer of alumina in West Africa, also runs mines for bauxite.

Announcing the GAC takeover, Dubal said along with Mubadala it had successfully acquired the remaining GAC stake from US-based *Global Alumina Corporation* and *BHP Billiton*, a leading resources company.

Dubal and Mubadala are also joint-venture partners in *Emirates Aluminium (Emal)*, a leading UAE-based aluminium smelter at Al Taweelah, Abu Dhabi. The acquisition move comes following the recent announcement of the creation of *Emirates Global Aluminium (EGA)* by Dubal through integration of its business with Emal. An entirely state-owned enterprise, Dubal has invested in joint-venture bauxite/alumina projects, notably in Brazil, Cameroon, and the Republic of Guinea; as well as in a joint-venture calciner development project in China.

The GAC acquisition will help the Dubal joint venture firm to embark on a global expansion and make it the fifth largest aluminium company in the world, said Dubal in a statement.

China

### Norsk Hydro: Chinese Competition Authorities have Approved Joint Venture in Aluminium Solutions

The *Chinese Competition Authorities (MOFCOM)* have approved the closing of the transaction whereby *Hydro* and *Orkla* will have 50/50 ownership of the planned joint venture. The approval from the Chinese Competition Authorities marks the conclusion of the competition law assessment of the agreement, necessary for closure. The transaction has already been approved by the EU Commission, the US Department of Justice and relevant competition authorities in several other countries.

The parties intend to close the transaction as soon as possible and with accounting effect from September 2013.

Austria

### RHI Ready to Expand further the Magnesite Activities

*RHI* is on the verge of acquiring magnesite mining rights including existing production facilities in Turkey. The Supervisory Board of *RHI AG* granted on

13 August 2013 the Managing Board approval to sign agreements with *Cihan Group* for the purchase of mining rights in Erzurum/TR including existing production facilities, pending the provision of outstanding documents by the seller.

The expected purchase price amounts to roughly EUR 36 million. After the agreements are signed, the purchase will still require the approval of the civil court of first instance and the competent administrative authorities in Turkey. The planned purchase will serve to further expand the company's own supply of raw materials for refractory products for the steel and cement industry.

France

### HAVER Palletizers Made by NEWTEC BAG PALLETIZING

Already last year it was announced that a new subsidiary company had joined the *HAVER* family: *NEWTEC BAG PALLETIZING*, a company employing 70 workers, based in the Alsatian city of Illzach. *NEWTEC BAG PALLETIZING* supplements and enriches *HAVER's* famous product range with palletizing machines. *HAVER & BOECKER* offered the security of a family and the new daughter company brought 40 years of experience in the sector of palletizing systems. During this period *NEWTEC BAG PALLETIZING* had made a name for itself in the chemical, fertiliser, cement, limestone, gypsum, and building products industries, and is proud to look back at more than 1600 systems delivered. About one year ago, the French daughter company entered hand-in-hand with the mother company into known and new customer sectors.

As a complete systems supplier in the packing industry, it did not take long for this development to lead to success: *NEWTEC BAG PALLETIZING* has increased its turnover already by a third, and a doubling is planned within the next five years. Here the new subsidiary company benefits from the global sales network of its parent company. Support from the other *HAVER* family companies is also certain for *NEWTEC BAG PALLETIZING*. Mutual developments are planned for the future so that even more efficient systems may be offered to customers.

The first step was achieved with the development of the new Palletizer Series 5000, which will be used mainly in the building materials industry and matched to the speed of *HAVER's* packing machines. In addition to the target of achieving success, the parent company and subsidiary mutually share a family-oriented company philosophy.

Cordiality and the feeling of belonging among employees and within the *HAVER* family, was clearly visible in Illzach in April 2013, when *NEWTEC BAG PALLETIZING* presented itself as an expert family member to the employees of the parent company, other subsidiary companies, and worldwide sales representatives.

Iran

### Iran's Cement, Tile and Ceramic Outputs on the Rise

Iran's cement, tile and ceramic outputs rose by 3,8 % in the first four months of the current Iranian calendar year, which began on March 21, compared to the year before, *IRNA* quoted industry ministry official *Mohammad Fatemian* as saying.

Cement output amounted to 25, 65 Mt, the ceramic tile hit 24,83 million m<sup>2</sup> in the 4-month period. The cement output showed 91 % rise compared to the same period in the previous year. By reaching the annual output capacity of 115 Mt, Iran will become world's third largest cement producer in the coming years, *IRNA* reported.

Iran's cement output will reach 75 Mt by the end of current Iranian calendar year. Iran plans to increase its cement output up to 85 Mt by the end of the next Iranian calendar year. Iran also plans to export 12 Mt of cement in the current calendar year.

Iran's tiles and ceramics output stood at 291 million m<sup>2</sup> in the previous Iranian calendar year. The amount showed 1,1 % increase compared to its preceding year, *IRNA* reported. Iran exports 80 % of its domestically-made tiles and ceramics to Iraq. Afghanistan and Uzbekistan are other destinations for Iranian-made products. Some USD 270 million worth of tiles were exported two years ago.

Great Britain

### Half Year Results 2013 Vesuvius plc

*Vesuvius plc* became with effect from 19 December 2012 a stand-alone business, listed on the London Stock Exchanges. Following the completion of the sales of the Precious Metals Division, *Vesuvius* is now a focused molten metal engineering company running an Steel and Foundry Division.

The total half year revenue reached GBP 73 million (H1 2012: GBP 819 million). The Steel Division con-

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tributed GBP 514 million (GBP 279 million with the steel flow control activities, another GBP 235 million with advanced refractories). The Foundry Division contributed GBP 259 million revenue (H1: GBP 283 million) with a trading profit of GBP 28 million. The revenue include GBP 3 million of the solar crucible activities. The decision to exit the loss-making solar business was already implemented. The trading profit of the Steel Division GBP 43 million resulting in a total trading profit of GBP 71 million (9,2 % compared to 9,7 % in H1 2012). A lower sales revenue in the Steel Division is mainly reflecting the disposal of the *VGT Dyko* operation in Germany and the *Andreco Hurl* business in Asia.

The disposal of the low-margin construction and installation business in Canada was meanwhile announced too. Positive impact of this division was provided by good revenue and profit performance in India and South East Asia.

The decline in the Foundry Division is seen as in line with the current overall trading condition (e.g. weakness of heavy truck production in Europe, reduced mining, and rail-road sector in the Americas). The new Foundry Division global R+D facilities in the Netherlands, which will include an experimental foundry, remains on track to become fully operational by mid 2014.

Canada

#### Orbite Announces Changes to Management

*Orbite Aluminae Inc.* announced in August 2013 two changes to its senior management team. That the company has abolished the position of Vice President Corporate Development, which was held by *Marc Johnson* and the position of Vice President Sustainability, which was held by *Guy-Louis Boucher*, was announced by *Glenn Kelly*, *Orbite's* Chief Operating Officer.

*Orbite Aluminae Inc.* is a Canadian corporation with innovative and proprietary processes, that are expected to produce alumina and other high-value by-products, such as rare earth and rare metal oxides, at one of the lowest costs in the industry, without generating any wastes, using feedstocks that include aluminous clay, kaolin, nepheline, bauxite, red mud and fly ash. *Orbite* is currently operating and optimizing its first commercial high-purity alumina production plant in Cap-Chat, Québec. *Orbite* has completed the basic engineering for a proposed smelter-grade alumina production plant, which would use clay mined from its Grande-Vallée deposit. *Orbite* signed an exclusive worldwide collaborative agreement with *Veolia Environmental Services* for the remediation of red mud using the *Orbite* processes with the intent to begin construction of a *Veolia*-operated plant.

The corporation has an intellectual property portfolio that contains 14 IP families, and owns the intel-

lectual property rights to 9 patents and 40 pending patent applications in 10 different countries.

[www.orbitealuminae.com](http://www.orbitealuminae.com)

United States

#### Alcoa to Close or Curtail 164 000 t in the United States and Brazil

*Alcoa* announced in August 2013 that it will close or curtail 164 000 t of smelting capacity in the United States and Brazil as part of its smelting capacity review that was announced in May.

One potline representing 40 000 t at the Massena East plant in New York will be permanently closed. In addition, the company has started to temporarily curtail 124 000 t at its smelters in Brazil. The closures and curtailments will be complete by the end of September.

*Bob Wilt*, President of *Alcoa's* Global Primary Products, said "aluminum prices, including premiums, have fallen to four-year lows and we continue to operate in an uncertain, volatile market."

In total, *Alcoa* has announced closures or curtailments representing 269 000 t of the 460 000 t placed under review in May. This includes the permanent closure of 105 000 t of capacity announced earlier at *Alcoa's* Baie-Comeau smelter in Canada. In addition the company permanently closed its *Fusina/IT* smelter representing 44 000 t, that was not part of the May review.

Once the Massena and Brazil closures and curtailments are complete, *Alcoa* will have 16 %, or 646 800 t of smelting capacity idle.

*Alcoa's* review of its primary metals operations is consistent with the company's 2015 goal of lowering its position on the world aluminum production cost curve by 10 % and the alumina cost curve by 7 %. Total restructuring-related charges for the third quarter 2013 associated with the above actions are expected to be between USD 5 – 10 million after tax.



#### Media 2014

The media information refractories WORLDFORUM 2014 is available now. Please contact:

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## WORLDFORUM

Manufacturing & Performance of High-Temperature Materials

### preview of issue 4/2013 (excerpt)

#### Company Profiles/Interviews

RHI Normag/NO – LKAB Minerals/SE+GB – REFKO/DE – DAZZ Technologies/CN – Budenheim/DE – EZG Manufacturing/US

#### Technology Trends

- Aspects of Elastification Reactions in Basic Cement Kiln Bricks (Refratechnik Cement/DE)
- Consequences of Humid Refractories in Vacuum Metallurgy (Pötschke/DE)
- New Additive Package for Microsilica Gel-bonded MgO Based Castables (Elkem/NO)
- The Optimisation of Magnesia Containing Castables Containing Calcium Magnesium Aluminate Cement (Kerneos/FR)
- The Influence of Metallic Antioxidants on some Critical Properties of Magnesia-carbon Refractories (CSIR/IN)
- Flowability around Ground Calcined and Reactive Aluminas (Alteo/FR)
- High-temperature Kiln for Refractories – a New Kiln Roof Design for Faster Temperature Changes and Reduced Thermal Roof Losses (LINGL/DE)

#### Reports

- MagMin 2013/NO
- ECerS 2013/FR
- 60<sup>th</sup> PRE Anniversary/EU
- ReStaR – Collaborative R&I in the European Refractory Sector to Review and Improve Testing Stan

#### Markets & Economy

- The Changing Face of Magnesia Supply (Roskill/GB)
- Fused-cast for the Glass Industry: a Troubled Future and New Competitive Refractories (Ratto/IT)

#### Refreed Papers

- Key Aspects on Refractories for Molten Aluminium Long-distance Delivery (UFSCAR/BR)
- Latest Development in Carbon Blocks for Blast Furnaces (Wuhan University/CN)

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