

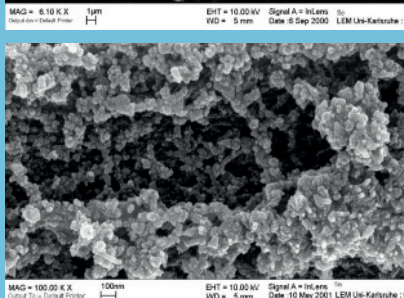
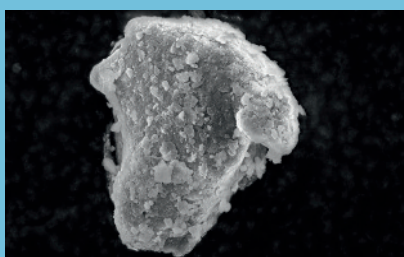
# refractories

## WORLD FORUM

**Hot Topics**

Manufacturing & Performance of High-Temperature Materials

NEWSLETTER 2/2011



Particle of „Eisenberger Klebsand“ from EKW (top); (below) aggregate of Al-Si-gel phases (source: Fuhlberg 2006) *see page 3*



## German Thermal Process Engineering Exports – 2001 to 2010

In March 2011, according to the German *ifo Institute for Economic Research*, for the first time since the crisis the estimates of the industrial furnace manufacturers with regard to the business climate were on par with those for machine engineering overall, namely not far off the pre-crisis level. So it's a good time for *Thermprocess 2011* to be held this summer. For a sector with an export quota ranging at around the 90-% mark in recent years, it is essential to look at the trends in export development. Since the turn of the year 2010/2011 the export data have again been pointing towards growth. The last 3-month average was up almost 13 % (change in November 2010 to January 2011 compared to the corresponding prior-year months).

### Coordinates of the upswing

Overall the development of the total exports of thermal process engineering in the year 2010 remained restrained. In 2010 the decline in exports attenuated to just under minus 5 % compared to the previous year. In 2009 the exports had declined by almost 20 % compared to the boom year of 2008. The rise in the January exports 2011, up 22 %, strengthens the impression from the 3-month comparison and gives rise to hopes of a return to more stable growth.

Analysis of longer term tendencies can help to better estimate the dynamics of the current recovery phase in exports to the different regions with their specific characteristics.

### Regionally varying dynamics

In 2010, the exports of German thermal process engineering manufacturers to the EU-27 and the other European countries were slightly below the 10-year average, reaching values of EUR 466 mill. and EUR 225 mill. respectively. Differences in the longer term dynamics are opening up in the comparison of the two benchmark years 2001 and 2010. Exports to the EU-27 countries in 2010 were just under 20 % higher, exports to the other European coun-

*see page 2*

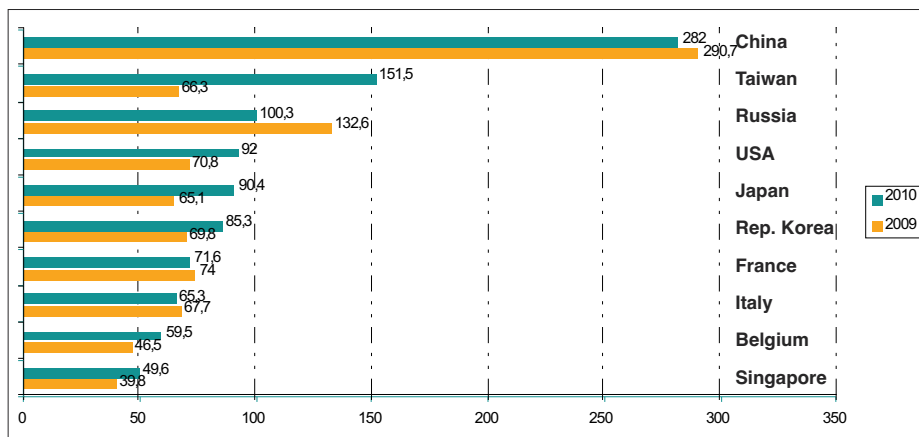
## UNITECR 2011: Date is confirmed by Tarj

In spite of the natural disaster in march 2011 Tarj is continuing the effort to holding Kyoto congress of the *UNITECR 2011* on 30.10.-02.11.2011. Kyoto is completely safe. The radiation dose in Kyoto is not high than in other world major cities. There are no problems to receive the participants from all over the world. The organizers are recommending the following websites to facilitate to find up to date information to judge the safety in traveling to Japan.

- Message from the President of Japan National Tourism Organization(JNTO); [http://www.go.jp/eq/eng/jnto\\_message.htm](http://www.go.jp/eq/eng/jnto_message.htm)
  - Kyoto Travel Guide; [http://www.kyoto.travel/new\\_release.html](http://www.kyoto.travel/new_release.html)
  - Disaster/Recovery General Information  
JNTO- Japan Travel Updates after the 3.11 Earthquake;  
[http://www.jnto.go.jp/eq/eng/04\\_recovery.htm](http://www.jnto.go.jp/eq/eng/04_recovery.htm)
- Further details on UNITECR 2011 will be published in the next issue of refractories WORLD FORUM (publication date: 16.06.2011).

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**Germany: Major export markets 2009 / 2010, Industrial furnaces, burner and firing systems (in mill. EUR)**

tries were, in contrast, up by 43 %. In both regions, however, exports were a long way off the dizzy heights of the boom year of 2008 with values of EUR 644 mill. and 450 mill. respectively.

Almost regardless of the different economic conditions in the period under consideration, exports to the Near and Middle East rose steadily up to 2009. In the year 2010, the decline of around 5 % was still relatively low. Totalling just under EUR 108 mill., exports from Germany were roughly three times the figure from the year 2001.

While exports to Central and South Asia were still under EUR 15 mill. in 2001, by 2009 they had leapt to EUR 170 mill. and therefore increased tenfold – this leap was particularly the result of the acquisitions by buyers from India and Kazakhstan. Here, however, the year 2010 brought drastic losses for thermal process engineering from Germany, exports being down to a half and an eighth of the prior year figures respectively. However, the last available 3-month average with recent increases (India 82 %, Kazakhstan 284 %) is indicating growth again.

Despite the crisis, in 2009 the East Asian market for thermal process engineering from Germany totalled just under EUR 500 mill. and corresponded roughly to the value of exports to the EU-27, here, however, the base level in the year 2001 was much lower than in Europe. This development has been influenced substantially by the threefold growth of the Chinese market. Whereas exports to China maintained the high level (minus 3 %) in 2010, in the other countries of the region the growth trend continued. Last year, the sector's exports to Taiwan reached a value of over EUR 150 mill., goods to the value of EUR 85 and 90 mill. were exported to the Republic of Korea and Japan respectively. For Korea and Taiwan, the last 3-month comparison at the turn of the year shows growth rates of over 200 %.

German exports of thermal process engineering to Southeast Asia have increased steadily between 2001 and 2010 – even in the phase of economic crisis – and in 2010 reached just under EUR 93 mill. which corresponds to growth of 11 % for last year. Whereas Indonesia and Vietnam imported fewer

goods, exports especially to Thailand and Singapore, which since 2008 have been the biggest buyers of German thermal process engineering in the region, rose. However, the sector started off 2011 with a decline.

The development of German exports to Central America has been determined primarily by trade with Mexico, which with over EUR 30 mill. in exports from 2009 to 2010 made a leap by 123 %, after it had fallen in 2009 below the level of the year 2001.

Over the period in question, crucial for the development of German exports of thermal process engineering to South America was as expected Brazil and that by a long way. With exports in the same order as to Mexico, these were after all almost twice as high as in 2001, did not, however, reach the peak from the year 2008 – with just under EUR 42 mill. . While the upwards trend in Mexico stabilized at the beginning of 2011, exports to Brazil were down 64 % in the 3-month comparison.

Over the past 10 years, exports to the USA have averaged EUR 90 mill. , the boom year of 2008 easily exceeding this figure with EUR 144 mill. The following crisis year of 2009 with an export value of just EUR 70 mill. saw a drastic cooling down in exports. Insofar, last year a stabilization ensued, with exports rising to a value of just under EUR 92 mill. From the view of German exporters of thermal process engineering, volume and growth in recent years have gone hand in hand, especially in East Asia, but to a much lower extent in Europe. Exports to Southeast Asia and to the Near and Middle East increased considerably, whereas the development of exports to the Americas was much less dynamic.

VDMA

*Thermoprocess- und Abfalltechnik*  
[www.vdma.org/thermoprocessing](http://www.vdma.org/thermoprocessing)

Germany

#### **GIFA, METEC, THERMPROCESS, NEWCAST 2011 bigger than ever before**

Shortly before they are opening their gates (28 June to 2 July 2011), it is becoming apparent that the four metal trade fairs GIFA, METEC, THERMPROCESS and NEWCAST will be setting a new exhibitor record.

There has been a particularly large increase in the space booked at the Düsseldorf trade fairs: the bookings made to date reveal, that the trade fairs have grown considerably – 77 230 m<sup>2</sup> have been booked (72 698 m<sup>2</sup> in 2007).

Messe Düsseldorf already responded to exhibitors' requests for larger stand areas a number of months ago and made another, larger hall (Hall 3) available

for METEC – and the space there is almost fully booked in the meantime as well. The four technology trade fairs are now being held in Halls 3 to 17. The registration figures reflect the actual situation of the industry too. Because not all companies have survived the crisis completely unscathed and the impact of this is being felt at GIFA in particular. Most companies want and are in a position to be represented at the trade fair, which is also why the registration figures here are almost as high as at the previous event, but the crisis has led to a number of corporate mergers between the manufacturers of machines and equipment for foundries in particular. The number of exhibitors has therefore decreased slightly from 793 in 2007 to 723 companies now. The exhibitors are not will-

ing to compromise on space, and have booked about 42 000 m<sup>2</sup> (2007: 43 800 m<sup>2</sup>) in Halls 10 to 13 and 15 to 17, even though fewer companies are exhibiting.

It looks like a new record for both the number of exhibitors and the amount of space booked will be set at METEC: 18,4 % more companies will be represented, while the stand space booked has increased by more than 34,6 %. With 437 exhibitors and almost 20 000 m<sup>2</sup> of space, the trade fair is bigger than ever before.

The number of companies registering for THERMPROCESS is considerably higher than in 2007 too: about 300 exhibitors and more than 9 500 m<sup>2</sup> of space booked are extremely impressive figures. The trade fair will as a result have more ex-

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hibitors this year than ever before in its 37-year history.

The number of visits and page impressions recorded by the trade fair portals is another major indication that the events will be a success. The websites [www.gifa.de](http://www.gifa.de), [www.thermprocess.de](http://www.thermprocess.de), [www.new-cast.de](http://www.new-cast.de) and [www.metec.de](http://www.metec.de), are registering steady increases in the number of visits – from almost 10 000 last September to 31 700 in February – and page impressions – from 53 900 (September 2010) to 252 900 (February 2011), which confirms the popularity of the trade fair portals.

The exhibitor database, for example, is a detailed search engine than enables very specific searches to be made for companies that supply individual solutions. The app for the four trade fairs is available free of charge in the app store with immediate effect too. E-tickets for admission to the trade fairs are a new service successfully introduced this year by Messe Düsseldorf at boot Düsseldorf. They can be printed out conveniently at home or at the workplace and can already be used as tickets for buses and trains within a radius of about 40 km around Düsseldorf.

Germany

#### Resource-saving refractories for cupola furnaces

At typical application temperatures of around 1540 °C, the refractories have to be resistant to aggressive slags, different furnace atmospheres (reducing or oxidizing) as well as liquid metal melts themselves.

These requirements are met by materials in the  $\text{SiO}_2\text{--CaO--Al}_2\text{O}_3$  phase system. From this system, refractories with pronounced resistance to hot abrasion and carbon monoxide are produced for applications in the charging zone and the shaft. With the addition of carbon carriers such as, for example, graphite, specifically prepared cokes or synthetic, in-situ carbonizing binders, ceramic refractories are formed with the necessary resistance to the process-related stresses.

EKW GmbH/DE has developed innovative refractory solutions and focuses on project planning through installation to function monitoring. EKA-CAST CSC and EKA-RAMMIX RSC are two recent product lines of unshaped refractories. EKA-CAST is a refractory concrete or castable, EKA-RAMMIX indicates use as a ramming mix (semi-plastic compound). EKW has integrated its production on industrial scale into the existing production processes. The granulates obtained have a carbon-containing bonding matrix, which is strengthened by the ultrafine fraction < 25 µm of the sticking sand. This composite material improves the chemical, mechanical and thermal properties. The particles in the  $\text{Al}_2\text{O}_3\text{--SiO}_2\text{--C}$  system obtained from the granulation processes can be further processed to composite materials by means of pressing and casting. The composite material

made of carbon and sticking sand has the potential to substitute existing refractories in the metallurgical process. Against the background by the shortage and cost increase of synthetic aluminium silicates and alumina grades, this is especially interesting in economic terms.

EKW GmbH – Refractory + Service + System  
D–67304 Eisenberg/Palatinate  
Hall 10, Stand J23 at GIFA 2011

Germany

#### 54<sup>th</sup> International Colloquium on Refractories + UHPC Symposium

The conference "Refractories for Industrials" will take place on 19 and 20 October 2011 in Aachen covering the topics glass, cement/lime/plaster, ceramics, incineration, chemistry, refractory raw materials, shaped and unshaped refractories, processing and refractory lining services, quality management, corrosion and wear, recycling, environmental protection. A special symposium is planned on "Prefabricated elements made of UHPC – refractories industry as a production partner?"

Elements made of ultra-high-performance concrete (UHPC) need heat treatment in their production process, e. g. two days at 90°C. The prefabricated concrete element manufacturers don't usually have the suitable equipment and consequently only limited elements made of UHPC are supplied.

The refractories industry in Germany and Austria with more than 50 production facilities spread across the two countries has sufficient heat / waste heat and equipment to heat-treat prefabricated parts.

Now following up an idea from the industry, prefabricated concrete element manufacturers are now to be given the opportunity to get to know refractories manufacturers as potential manufacturing partners. The refractories companies can be called in as service providers for heat treatment. Concrete prefabricated element manufacturers can cast UHPC elements and take them to the nearest refractories company for heat treatment. And / or mix and cast the recipe directly in the refractories facility. In this way, wider application of UHPC can be ensured. In the UHPC symposium refractories manufacturers, prefabricated concrete element producers, potential "UHPC consumers" and idea contributors will be brought together.

The UHPC Symposium is held in the scope of the International Colloquium on Refractories in Aachen on Thursday, 20.10.2011, from 14.00 h, in German. Renowned speakers could be enlisted to present information: Dr Carsten Geisenhanslüke, Dyckerhoff AG, will present the material UHPC, Dr Liudvikas Urbonas, cbm Centre for Building Materials and Material Testing, TU Munich, will talk on heat treatment, and Dr Hans-Carsten Kühne, BAM, will describe the properties of heat-treated ultra-high-

strength concrete. Finally, Dr Thomas Teichmann, G.tecz Engineering, will present typical applications for UHPC. Following on from this, the refractories industry will discuss what heat treatment equipment is available. To conclude, the ECREF will be presented as an intermediary between prefabricated elements plants and refractories manufacturers.

In future, ideas and projects are to be realized in a new committee, which is affiliated to the ECREF (European Centre for Refractories). Eberhard Bauer, Elementbau Osthessen GmbH & Co. ELO KG; Prof Dr Dr Ulrich Schneider, Institute of Building Construction and Technology, Vienna University of Technology; em. Prof Dr Lutz Sparowitz, Wörle Sparowitz Ingenieure Ziviltechniker GmbH; Prof Dr Andreas Rogge, Department for Safety of Structures, BAM Federal Institute for Material Research and Testing; Dr Carsten Geisenhanslüke, Dyckerhoff AG; Prof Dr Frank Dehn, MFPA Leipzig GmbH as well as Dr Thomas Teichmann, G.tecz Engineering have already agreed to take part. This "team", the members of which have already worked with the material UHPC for many years and some of which have already planned and built bridges made of UHPC, forms the basis for productive work.

Anyone interested from the refractories industry can attend the symposium when participating at the Aachen Colloquium without any separate registration.

Further information: [info@ecref.eu](mailto:info@ecref.eu)

World

#### Demand for refractories to approach 41 Mt in 2014

Global demand for refractories is projected to rise 5,3 %/a through 2014 to 40,7 Mt. China will remain the largest national market and continue to

#### IMPRINT

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comprise the majority of global demand. Above-average growth will also occur in India due to solid gains in fixed investment expenditures. Suppliers will benefit from an improvement in the key US market, which will rebound from dismal levels in 2009. Raw material supply will continue to be a challenge to refractory producers, especially those in Europe and the Western Hemisphere. These and other trends are presented in World Refractories, a new study from The Freedonia Group, Inc., a Cleveland-based industry market research firm.

The world refractory industry has been negatively affected in recent years by a slowdown in steel and iron output. Given the refractory-intensiveness of ferrous metal production processes, coupled with the fact that this sector typically accounts for about three-fifths of the volume of refractories consumed, refractory producers contended with sluggish demand for their products in 2009. Markets most affected were the developed areas such as the US, Western Europe and Japan.

Despite declines in the amount of units needed per ton of steel produced, iron and steel will have the strongest gains of any market through 2014 due to rising steel production. Demand for refractories used in the production of other metals will rise, benefiting from increased output of materials such as aluminium. Gains are also expected in the non-metallic mineral products market, spurred by growth in the production of ceramics, cement and other mineral products, fuelling demand for associated refractories. Other markets, including petroleum, chemicals, paper and aerospace, will benefit from rising production by end users.

Among refractory forms, demand gains for bricks and shapes are expected to lag those for monolithics. They are projected to grow at an above-average pace, as the use of these products provides an economic advantage by extending the interval between brick re-linings.

The report, published in March 2011, has 371 pages and is available for USD 5900. Further information: [www.freedoniagroup.com](http://www.freedoniagroup.com)

Italy

#### **Dolomite Franchi confirms its trust to Cismac Automazioni**

The partnership between Cismac Automazioni and Dolomite Franchi (RHI Group) strengthens and moves on finding new confirmations; this active relationship is based on the mutual trust and cooperation. The object of this new supply is the realization of a custom-tailored robotised loading system, embellished by a modern and innovative vision system, engineered and built using the utmost technology available on the market. Reliability, credibility and prompt cooperation have distinguished, once again, Cismac as the ideal partner for an important new pilot project that is 100 % made in Cismac.

China

#### **China Carbon Graphite expects continued growth**

China Carbon Graphite Group, Inc. the largest wholesale supplier of fine-grain and high-purity graphite in China, intends to begin producing isostatic graphite, including solar, semiconductor or nuclear graphite.

Currently, there are 13 nuclear power reactors in China and 25 more are under construction, with plans to start construction on more facilities soon. Each of China's 13 operating nuclear power reactors requires at least 10 000 t/a of nuclear graphite. During 2010, China Carbon doubled annual production capacity from 15 000 to 30 000 t/a. The company intends to double annual production capacity again by June 2011 to 60 000 t/a. The company expects to utilize its new facility, which has an annual production capacity of 30 000 t/a, primarily to produce its existing products, including graphite electrodes, fine grain graphite and high purity graphite, which are used in a variety of high-tech applications including aerospace, defense, automotive and clean tech end products. In 2012, the company plans to develop isostatic graphite, including nuclear, solar, and semiconductor graphite in a separate plant. The company expects that USD 12 million will be needed to purchase an isostatic-moulding machine and to construct the new facilities in order to produce isostatic graphite. The company is currently operating at 100 % capacity.

China is quickly becoming independent in regards to nuclear reactor design and construction and the nation plans to increase domestic manufacturing of nuclear plants and equipment. China hopes to be completely self-reliant in respect to the design and project management of their nuclear facilities as well.

Germany

#### **Almatis names Taco Gerbranda as new CEO**

The Board of Almatis has nominated Taco Gerbranda as the new Chief Executive Officer (CEO) of Almatis. He is expected to take up his new role during May. He succeeds Remco de Jong who has decided to step down from his position following the successful completion of the financial restructuring of the company.

Taco Gerbranda spent over 25 years with the Philips Group, where he held several different management positions in various countries, including Singapore, Brazil, Germany, Belgium and the Netherlands. He worked in technical and commercial roles across the consumer electronics, car systems, components and Grundig divisions. In 2001 he joined Heraeus Holding as CEO of the division Heraeus Electro-Nite, which he led from 2001 until the end of 2009.

# refractories

## WORLDFORUM

Manufacturing & Performance of High-Temperature Materials

### **preview of issue 3/2011 (extract)**

#### **Company Profiles/Interviews**

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#### **Technology Trends**

- Refractory Demands on Inductive Melting of Cast Iron (ABP Induction Systems / DE)
- The Latest Trends in Refractories Technology for Iron and Steel Production (Nippon Steel Corp. / JP)
- Environmentally Friendly Carbon Bonded Aluminosilicate Refractories – From Concept to Application (EKW / DE)
- Silicon Nitride Based Ceramics for Aluminium Foundry Applications (FCT Ingenieurkeramik / DE)
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- Physico-Chemical Behaviour of Southern Indian Graphite Used for Refractory Manufacture (RDCIS, SAIL / IN)

#### **Economy & Markets**

- German Thermal Process Engineering Exports – 2001 to 2010
- The Refractories Industry in ALAFAR Countries

#### **Special Circulation at:**

THERMPROCESS, GIFA, METEC, NEWCAST,  
Düsseldorf/DE, 28.06.–02.07.2011  
4<sup>th</sup> DGFS Conference,  
Düsseldorf/DE, 28.06.2011

**Advertising Deadline:** 23.05.2011

**Publication Date:** 16.06.2011

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Further media information on volume 3 (2011):

[www.refractories-worldforum.com](http://www.refractories-worldforum.com)

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