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A new Market Report on the Engineering Ceramics Industry....

ENGINEERING CERAMICS IN EUROPE AND THE USA: A MARKET AND STRATEGIC STUDY TO THE YEAR 2012

By John Briggs, Enceram

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- The markets for engineering ceramics (covering structural, environmental and process applications) were valued at approximately €2.1 billion (\$2.7 billion) in Europe (EU25) and \$1.9 billion (€1.5 billion) in the USA in 2006.
- Consumption of engineering ceramics is expected to reach over €3.2 billion in Europe and over \$2.6 billion in the USA by the year 2012, corresponding to average annual growth rates of 7.3% and 5.6% respectively. These rates exceed those of the last five years.
- Sectors with the highest growth rates are, currently, armour in the USA, and diesel exhaust particulate filters and various wear parts in both geographic areas. Future trends in these and other application areas are analysed in detail.
- The markets for environmental ceramics will reach around €1361 million in Europe and around \$871 million in the USA by 2009. The "environmental ceramics" group encompasses particulate filters and catalyst supports for vehicles and industrial plants, and membranes.
- The market for ceramic armour in the USA was valued at \$550 million in 2006, which represents a more than ten fold growth since 2003.
- More than 60% of the total engineering ceramics demand is supplied by just six companies in each region (i.e. North America and Europe defined as the EU25 countries).
- The activities of more than 110 companies are reviewed, including new acquisitions and joint ventures. Estimates of their share in the different engineering ceramic product categories are also provided.
- Demand for raw materials, including the various categories of ceramic powders, is discussed.
- The markets in the major European countries are analysed along with the European total. Overall, Germany still consumes about 34% of the European total, despite recent slow economic growth in that country. The USA is a net importer of engineering ceramics while Europe, especially Germany, produces more than it consumes.

AVAILABLE NOW - "Engineering Ceramics in Europe and the USA: A Market and Strategic Study to the Year 2012", a 270-page market report that analyses the US and European markets for engineering ceramics, discusses the demand for various materials and product forms, and highlights new commercial and technical opportunities.

Featuring 120 tables, the report provides a detailed analysis of the 2006 and projected 2007, 2009 and 2012 markets for engineering ceramics in the USA and Europe (EU), covering ten categories of products. These categories are broken down further into numerous product subgroups (see Table of Contents on next page). The activities of 110 companies, and their subsidiaries, including key financial results and market position, are reviewed. The research and development activities being conducted in both Europe and the USA are also discussed.

Trends highlighted in the report include:

- The demand for ceramic armour (boron carbide, titanium diboride, silicon carbide, alumina) in the USA expanded very rapidly in 2004-2006. Growth will continue in the medium term, particularly if performance improvements can be achieved;
- The market for ceramic-on-ceramic hip joints is growing rapidly. Europe produces far more ceramic hip prostheses than it consumes, exporting many to the USA. Other ceramic prostheses, such as knees, fingers and spinal implants, are now in the clinical phase;
- Catalyst supports in automobile engine exhausts are evolving as new air pollution legislation is introduced in the USA and Europe in the period 2006-2010. Particulate filters and oxidation catalysts for small diesel engines are far more common in Europe than in the USA.
- The demand for ceramic de-NOx catalysts for industrial (non-automotive) applications is expected to exceed (US)\$130 million per year in the USA by 2009;
- Growth rates for ceramic pump seals have been rapid in recent years, though they are now starting to slow down. The move from alumina based seals to silicon carbide types is continuing;
- The market for ceramic filters for molten metals has continued to expand, though increasing competition has pushed prices down;
- In the kiln furniture sector, high value silicon carbide is a growing market, whereas the market for cordierite is shrinking. The European market for kiln furniture is four times the size of the US market.
- There has been rapid growth in the demand for ceramic wear parts, encompassing wear plates, faucet/tap plates, nozzles, valve parts, pump parts and other wear resistant items;

These and many other facts and figures are given in "Engineering Ceramics in Europe and the USA: A Market and Strategic Study to the Year 2012". The market report is aimed at companies manufacturing engineering ceramic products, as well as those supplying ceramic materials to the sector, equipment manufacturers, consultants and others interested in this important, dynamic industry.

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The report provides essential information on key companies, including:

- Advanced Cerametrics Inc
- Alcan Inc
- Almatix
- Applexion SA
- Applied Ceramics Inc
- Argillon GmbH
- Armor Holdings Inc
- Astro Met Inc
- BAE Systems, Advanced Ceramics Division
- Baikowski International Corp
- BASF AG
- Industrie Bitossi SpA
- Blasch Precision Ceramics
- Boart Ceramics GmbH
- Boxitogorsk Alumina
- Brace GmbH
- Burton GmbH & Co KG
- Carbo Ceramics Inc
- Carpenter Advanced Ceramics Inc (*Certech Inc, Z-Tech Corp*)
- SC Casirom SA
- Ceradyne Inc (*ESK Ceramics GmbH & Co. KG*)
- Ceramic Protection Corp
- Céramiques Techniques & Industrielles SA
- CeramTec AG
- Ceratizit SA
- CerCo LLC
- Cerobear GmbH
- Clariant (*Kion Corp*)
- COI Ceramics Inc
- Cookson Group plc
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- Corning Inc (*Cormetech Inc, CeraMem Separations Inc*)
- Denki Kagaku Kogyo KK (Denka)
- Didier-Werke AG
- Du-Co Ceramics Co
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- Elkem A/S
- ESK-SIC GmbH
- ETEC GmbH
- Exolon-ESK Co Inc
- Fairey Industrial Ceramics Ltd
- Foseco Ltd (*Foseco-Steel*)
- Porzellanfabrik Frauenthal GmbH
- Friatec AG
- GE Advanced Materials
- Greenleaf Corp
- Haldor Topsøe AS
- Heany Industries Inc
- HOB Certec Sro
- Hofmann-Ceramic GmbH
- Honeywell Ceramic Components
- Ibsiden DPF France SAS
- Imerys Group (*Imerys Kiln Furniture, Treibacher Auermet Prod GesmbH, Timcal Ltd*)
- Industrial Filter & Pump Manufacturing Co
- Ipsen Ceramics
- Iscar Ltd
- Johnson Matthey plc
- Kalenborn Kalprotect GmbH & Co KG
- Kennametal Inc (*Boride Products, Sintec GmbH, Sintec Keramik GmbH & Co KG, Hochtechnologie Materialien*)
- Kerafol Keramische Folien GmbH
- Kollo Silicon Carbide BV
- Krosaki Harima Corp
- Kyocera Corp
- LiqTech A/S
- LWB Refractories GmbH
- Martinswerk GmbH
- MCubed Technologies Inc
- Metoxit AG
- The Morgan Crucible Co plc (*Waldenwanger Technische Keramik GmbH & Co KG*)
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- Oxidkeramik J Cardenas GmbH
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- Porvair plc (*Selee*)
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- Rath GmbH
- Rauschert GmbH
- Refractron Technologies Corp
- Refratechnik GmbH
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- Rhodia SA
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- Sanac SpA
- Sandvik AB (*Kanthal AB, Rexam Tooling*)
- Saphirwerk Industrieprodukte AG
- Schunk Ingenieurkeramik GmbH
- Sembach GmbH & Co KG
- SGL Carbon Group
- Shenango Advanced Ceramics LLC
- Showa Denko KK
- SHS Cerámicas SA
- Société des Céramiques Techniques (SCT)
- H C Starck GmbH (*H C Starck Ceramics GmbH*)
- Starfire Systems Inc
- Steuler Industriewerke GmbH
- Superior Graphite Co
- TaeguTec Ltd
- TAMI Industries
- Tenmat Ltd
- Toshiba Ceramics Co
- Tosoh Corp
- TYK Corp (*TYK Refractories Co*)
- Umicore Group
- UCM Group
- US Refractories Inc
- Vesta Ceramics AB
- Vesuvius Group (*Vesuvius Becker & Piscantor GmbH & Co KG, Goebel-Werk GmbH*)
- Washington Mills Electro Minerals Corp

(NOTE: in the listing above, those companies given in italics and brackets are subsidiaries or associate companies of those given before the opening brackets).

ABOUT THE AUTHOR

The author, Dr John Briggs, runs an independent consultancy called Enceram, which specialises in the field of inorganic materials, with particular interest in advanced ceramics, refractories and abrasives. Dr Briggs has more than 35 years experience of research, development and marketing in this area. After taking degrees at the Universities of Leeds and Sheffield, he worked for Battelle's European operation in Geneva, Switzerland, before moving into the engineering ceramics industry for a number of years, holding senior technical posts. He has also lectured at the University of Surrey, UK. In 1984, Dr Briggs founded Enceram, and through his consultancy activities has been responsible for numerous authoritative multiclient market surveys on advanced ceramics and related materials, a number of which have been published by Materials Technology Publications. Briggs has also authored reports for the Financial Times. He is also the author of the previous version (published in 2003) of the present report.