World Refractories

Industry Study with Forecasts for **2014 & 2019**

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Industry Study with Forecasts for ***2014 & 2019***

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China will remain the largest national market and continue to comprise the majority of global demand. Above-average growth will also occur in India due to solid gains in fixed investment.

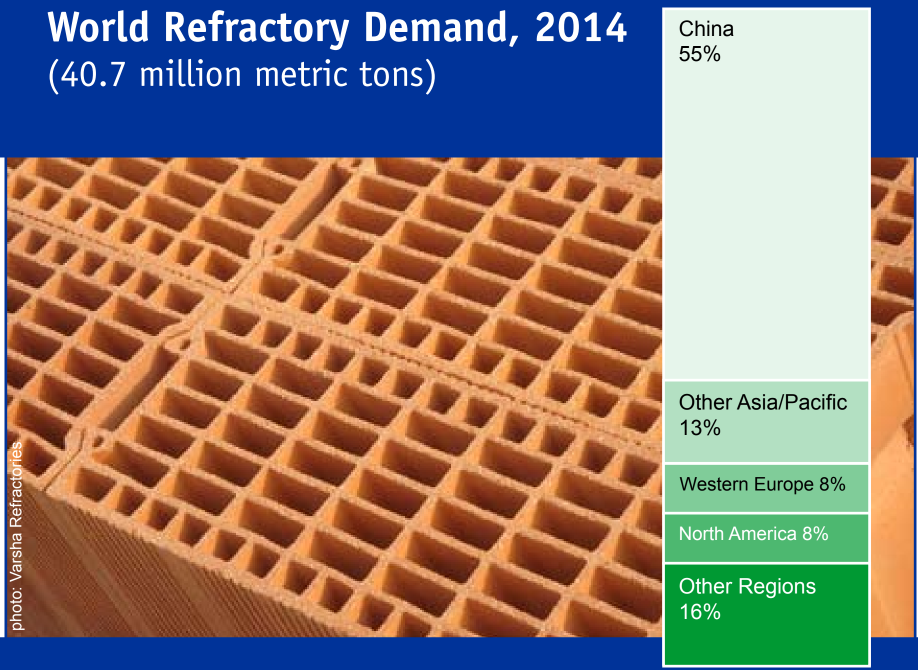
World demand to rise 5.3% annually through 2014

Global demand for refractories is projected to rise 5.3 percent per year through 2014 to 40.7 million metric tons. China will remain the largest national market and continue to 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.

In value terms, demand will rise 7.0 percent annually through 2014, reaching $33.1 billion. Advances in value terms will be stronger than in volume terms, reflecting improving refractory technologies. These technologies have, in effect, lowered refractory consumption per unit of output in virtually all refractory-consuming industries, especially in steel, thereby limiting tonnage gains, but supporting value gains through higher prices. Refractory prices have also been impacted by raw material costs, and will continue to be a challenge to refractory producers, especially those in Europe and the Western Hemisphere.

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,

World Refractory Demand, 2014
(40.7 million metric tons)



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.

Iron, steel market to have strongest gains in demand

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 aluminum. Gains are also expected in the nonmetallic mineral products market, spurred by growth in the production of ceramics, cement and other mineral products, fueling demand for associated refractories. Other markets, including petroleum, chemicals, paper and aerospace, will benefit from rising production by end users.

Monolithic refractories to outpace bricks and shapes

Among refractory forms, demand gains for bricks and shapes are expected to lag those for monolithics. Monolithics 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 relinings.

World Refractories

Industry Study with Forecasts for ***2014 & 2019***

Sample Text, Table & Chart

ASIA/PACIFIC

Nonmetallic Minerals -- Demand for refractories in n
minerals applica SAMPLE TEXT 7 percent annually
2014, reaching me gains will la
2009 pace due t e use of more a
better performi ceramics and g
However, solid al product shipm
create opportun xample, will out
experienced duri
Nonmetallic mineral products include ceramics, glass, cemer
and other minerals. The manufacture of nonmetallic mineral
ucts employs melting and firing processes that involve extrem
temperatures. Moreover, significant mechanical stresses and
to hazardous chemicals are also characteristic of many such c
Given these production conditions, refractories are utilized e
this segment.

Refractories are utilized in ceramics-related applications such as heat-resistant materials in kilns and driers to produce abrasives, ceramic electronic components (e.g., capacitors, ferrite cores and semiconductor substrates), dinnerware, electric insulators, sanitary or whiteware (e.g., toilets and sinks), sewage/drainage/irrigation pipe, structural brick and tile, technical or advanced ceramics, and refractory products themselves. Refractories used in the firing of ceramics must be able to withstand fuel ash corrosion, high temperatures, and slag attack from vapors and sulfur. Trends toward higher operating temperatures and faster firing cycles are
increasing demand for refractories with better heat insulating
refractoriness and spalling resistance. This accounts for the
of such extremely high heat-resistant materials as silicon car
refractory applications in the ceramics industry. Nonetheless
of other materials can also be used, especially for outer areas
kiln, which do not come into contact with the material being
vapors from the firing process. Examples of such products i

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TABLE VI-6

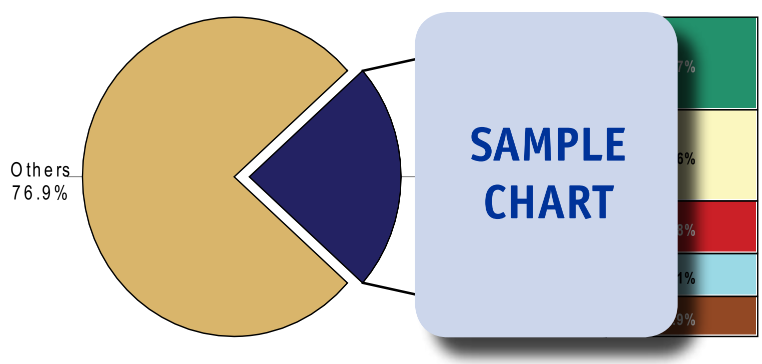
INDIA: REFRACTORY DEMAND BY FORM, MATERIAL & MARKET
(000 metric tons)

SAMPLE TABLE

Item	1999	2004	2009	2014	2019
Gross Fixed Investment (bil 2008$)					5
m ton refractory/mil $ GFI					8
Refractory Demand					0
By Form:					
Bricks & Shapes					5
Monolithics & Other					5
By Material:					
Clay					5
Nonclay					5
By Market:					
Iron & Steel					0
Other Metals					5
Nonmetallic Minerals					0
Other Markets	60	75	90	120	145

CHART VIII-1

WORLD REFRACTORY MARKET SHARE BY COMPANY
($23.6 billion, 2009)



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Industry Study with Forecasts for ***2014 & 2019***

Sample Profile, Table & Forecast

TABLE VI-5

INDIA: REFRACTORY SUPPLY & DEMAND

Item	1999	2004	2009	2014	2019
Gross Domestic Product (bil 2008$)	1				30
% GFI					9
Gross Fixed Investment (bil 2008$)					5
Steel Production (mil metric tons)					0
m ton refractory/mil $ GFI					8
m ton refractory/000 m ton steel					7
Refractory Demand (000 metric tons)					0
$/m ton					5
Refractory Demand (mil $)					0
net exports					0
Refractory Shipments (mil $)					60

SAMPLE TABLE

COMPANY PROFILES

Puyang Refractories Group Company Limited
Middle West Circle Road
Puyang, Henan 457100
China
86-393-3214-015
http://ww

Annual
Employ

Key Pro s & other refractories

Puy ops, manufactures and sells als, functional refractory mate the iron and steel industries. The Company also conducts refractory designing, installation and construction activities.

SAMPLE PROFILE

The Company participates in the world refractory industry through the production of castables and other refractories for use in tundish, ladle, electrical arc furnace, blast furnace, industrial furnace, hot metal mixer, aluminum cell, nonferrous, converter, electrical, casting, anode furnace and other applications. Among these products are self-flow, lightweight insulating, clay, corundum-chrome and low-cement castables; clay insulating firebricks; expanded perlite heat-insulating, magnesium oxide-carbon, nitride-bonded silicon carbide abrasive, and alumina bricks; clay mortars; gun mixes for electric arc furnaces and converters; tundish dry vibration mixes; and alumina carbon silica ramming mixes.

Manufacturing and marketing operations for Puyang Refractories are conducted through five subsidiaries: PRCO Yingkou Magnesia

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"Refractory demand in India is forecast to increase 7.1 percent per annum to 1.9 million metric tons in 2014, among the fastest growing of the major nations of the world. Steel production will continue to rise at rates well above the worldwide average. However, market gains will be restrained to some degree by competition for foreign investment funds from other rapidly developing Asian economies. In value terms, refractory demand is expected to ..."

--Section VI, pg. 133-4

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Other Studies

World Machine Tools

This study analyzes the world machine tool industry. It presents historical demand data 1999, 2004 and 2009, and forecasts for 2014 and 2019 by type (e.g., metal cutting, metal forming, accessories), market (e.g., industrial machinery and equipment, transportation equipment, primary and fabricated metal products, electrical and electronic equipment), world region and major country. The study also considers market environment factors, details industry structure, evaluates company market share and profiles industry competitors.

#2739 .... April 2011 .... $5900

Refractories

This study analyzes the US refractory industry. It presents historical demand data for the years 1999, 2004 and 2009, and forecasts for 2014 and 2019 by refractory form (e.g., bricks, shapes, monolithics), material (e.g., nonclay, clay) and market (e.g., metal industries, nonmetallic mineral processing, engineering contractors, nonmanufacturing, petroleum and chemicals). The study also considers market environment factors, details industry structure, evaluates company market share and profiles industry players.

#2704 .... December 2010 .... $4800

Abrasives

Demand for abrasives in the US will rise four percent annually through 2014. Durable goods manufacturing will remain the dominant market, with the motor vehicle segment growing the fastest. Nonmetallic coated and bonded abrasives and loose grains and powders will outperform metallic abrasives. This study analyzes the $4.7 billion US abrasives industry, with forecasts for 2014 and 2019 by raw material, product and market. It also evaluates company market share and profiles industry players.

#2696 .... October 2010 .... $4800

Brick & Block

US demand for brick and block products is projected to increase 11.8 percent annually through 2014. Gains will be driven by a recovery in building construction, especially new housing. Common, glazed and other clay brick will be the fastest growing products, followed by concrete pavers. This study analyzes the 7.1 billion unit US brick and block industry, with forecasts for 2014 and 2019 by product, market, application and US region. It also evaluates company market share and profiles industry players.

#2652 .... September 2010................ $4800

World Bearings

Global bearing demand will increase 8.5 percent annually through 2014. Unmounted bearings will continue to account for the majority of sales. The Asia/Pacific region will post the strongest gains, led by China. The motor vehicle and machinery markets will remain the largest sources of demand. This study analyzes the $50.5 billion world bearing industry, with forecasts for 2014 and 2019 by product, market, world region and for 30 countries. It also evaluates company market share and profiles industry participants.

#2649 .... June 2010 .... $6100

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