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# Refractories

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

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*Growth will reflect a rebound in steel manufacturing from dismal 2009 levels, with the metals industry as a whole accounting for more than 75 percent of demand gains through 2014.*

## US demand to advance 8% annually through 2014

US demand for refractory products is forecast to advance 8.0 percent annually to \$3.1 billion in 2014, reflecting a rebound in steel manufacturing from dismal 2009 levels. Of the nearly \$1 billion total gain in refractory demand by value between 2009 and 2014, the metals industry will account for more than 75 percent. Total market demand by tonnage for the same period is forecast to climb 6.1 percent per annum to 2.7 million tons in 2014. This level of consumption, though comparable to 2004 levels, still falls short of the 3.5 million tons consumed in 1999.

## Value gains to outpace tonnage gains

The US refractory industry has been negatively affected in recent years by one of the steepest declines in production that the iron and steel industry has ever seen. Given the refractory-intensiveness of ferrous metal production processes, coupled with the fact that this sector typically accounts for about half the value of refractories consumed, refractory producers had to contend with a significant decline in demand for their products in 2009. Although recovery in US steel production, as well as other economic sectors, will bode well for refractory demand growth through 2014, this growth is best considered in the context of improving refractory technologies. These technologies have, in effect, lowered refractory consumption per unit

## US Refractory Demand, 2014 (\$3.1 billion)



Bricks & Shapes  
56%

Monolithics  
28%

Other Forms  
16%

photo: Raith Incorporated

of output in steel and other refractory-consuming industries, thereby limiting tonnage gains, but supporting value gains through higher prices.

## Preformed shapes, monolithics to grow the fastest

Among refractory forms, demand for preformed shapes and certain monolithics will mirror shipments and see the strongest gains, because of their ease of use and versatility, respectively. From a materials perspective, demand growth for nonclay materials will outpace that for clay materials. The switch to better-performing products will continue, with the best opportunities expected for silicon carbide, extra-high-alumina, and

zircon and zirconia refractories among nonclay products and high-alumina clays in that segment.

## Minerals to be fastest growing nonmetallic market

Among the various nonmetallic refractory markets, the best growth opportunities will be found in the nonmetallic minerals market (cement, glass and ceramics) due to economic recovery and in non-manufacturing markets through less traditional end uses such as waste-to-energy generation and restaurants with in-house bakeries and stone ovens. However, the impact of these small markets on aggregate refractory demand will be minimal.

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## Sample Text, Table & Chart

### MATERIALS

#### Magnesite & Chrome

Shipments of magnesite and chrome refractories, which accounted for 45% of nonclay refractory shipments by value, increased to \$1.5 billion in 2014. Dollar shipments will reflect demand and price increases. Refractory shipments dropped an average of 10 percent a year from 2009. Although volume shipments will recover as the economy recovers from recession, magnesite and chrome shipments are not expected to revisit 1999 levels. Despite the modest growth prospects, magnesite and chrome will continue to account for the largest share of nonclay refractory output in both value and volume terms, a testament to the materials' relatively low cost and position as basic, well established and well understood refractory materials.

Despite the anticipated recovery in volume shipments through 2014, shipments of magnesite and chrome refractories will be constrained by competing specialized materials. Competing materials include certain types of nonclay refractories, which are expected to continue to replace magnesite and chrome refractories because the other materials offer such advantages as superior performance in harsh operating environments or easier disposal. For example, spinel refractories have increasingly replaced magnesia-chrome refractories, which can be difficult to dispose of due to the formation of toxic hexavalent chromium as the refractories degrade.

Growth will also be limited by stiff competition from foreign suppliers, which supply some of the same overseas markets as US producers, as well as the significant amount of imports in the market. Leading foreign producers of magnesite and chrome refractories exporting into the US include China, Brazil and Austria. Reporting by Resco Products to the International Trade Commission

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**SAMPLE TEXT**

TABLE IV-5

### ZIRCON & ZIRCONIA REFRACTORY SHIPMENTS (million dollars)

Item	1999	2004	2009	2014	2019
Nonclay Refractory Shipments % zircon & zirconia					
Zircon & Zirconia Refractory Shipments Bricks & Shapes					
Monolithics					
Other Forms					
\$/ton					
Zircon/Zirconia Refractory Shpts (000)					

**SAMPLE TABLE**

CHART VI-1

### US REFRACTORY MARKET SHARE BY COMPANY (\$2.1 billion, 2009)



**SAMPLE CHART**

## Sample Profile, Table & Forecast

### COMPANY PROFILES

#### BNZ Materials Incorporated

6901 South Pierce Street, Suite 260  
 Littleton, CO  
 303-978-1199  
<http://www.bnzm.com>

Annual Sales  
 Employment:

Key Products: structural insula-  
 tion, mortars,

BNZ Materials is a manufacturer of specialty industrial insulation and refractories for the furnace, petrochemical, aluminum, electrical, glass, steel and other industries. The Company is privately held.

The Company is involved in the US refractory industry through the production of insulating firebricks, calcium silicate (CaSiO<sub>3</sub>) structural insulation, mortars, cements and castables. BNZ insulating firebricks from BNZ Materials are made from high-purity refractory clays and other ceramic raw materials, as well as organic filler that is burned out during the manufacturing process to provide a uniform and controlled pore structure. These firebricks are designed for use as primary hot face refractory linings or back-up insulation in applications with temperatures ranging from 2,000 to 3,200 degrees Fahrenheit, including furnaces, flues and kilns. BNZ insulating firebricks are available in standard, specialty cemented, machined and ZELIE JUMBO models. Specifically, ZELIE JUMBO insulating firebricks do not require mortar joints, and are produced in sizes of up to 24 inches by 9 inches by 3 inches.

TABLE III-3

### REFRACTORY BRICK & SHAPE SUPPLY & DEMAND (million dollars)

Item	1999	2004	2009	2014	2019
Refractory Demand	2,000	2,500	2,800	3,000	3,500
% bricks & shapes	100	100	100	100	100
Brick & Shape Demand	2,000	2,500	2,800	3,000	3,500
net exports	0	0	0	0	0
Brick & Shape Shipments	1,200	1,500	1,800	2,000	2,500
By Form:					
Standard Bricks	1,000	1,200	1,400	1,500	1,800
Preformed Shapes	200	300	400	500	700
By Material:					
Nonclay	1,000	1,200	1,400	1,500	1,800
Clay	200	300	400	500	700
\$/ton	100	100	100	100	100
Brick & Shape Shipments (000 tons)	1200	1500	1800	2000	2500

**SAMPLE  
TABLE**

"Shipments of standard bricks are forecast to advance 5.7 percent per year to \$850 million by 2014. In volume terms, standard brick shipments will increase 3.9 percent annually to 570,000 tons, not quite returning to 2004 levels. Gains will be driven by recovery from recession, especially in steel and glassmaking, in the US and its principal trading partners. However, the high cost of standard brick refractories, inclusive of their installation, and imports from foreign suppliers will restrain growth somewhat."

--Section III, pg. 50-1

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**OTHER STUDIES**

**Abrasives**

Demand for abrasives in the US is forecast to rise 4% 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% 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

**Decorative Tile**

US demand for decorative tile is forecast to increase 4.4% per year through 2013. Flooring will remain the dominant application. The residential construction market will generate the most rapid gains in tile demand, as housing completions rebound and consumer spending on improvement and repair projects increases. This study analyzes the 2.7 billion square foot US decorative tile industry, with forecasts for 2013 and 2018 by product, application and market. It also evaluates company market share and profiles industry players.

#2580 ..... December 2009 ..... \$4800

**World Kaolin**

Global demand for processed kaolin clay products will reach 24.8 million metric tons in 2013, based in part on an improved paper market, which will offset a slower ceramics market. Strong growth in developing Asian countries will account for most new kaolin demand, with China alone claiming over half of the global gain. This study analyzes the \$3.1 billion world kaolin industry, with forecasts for 2013 and 2018 by market, world region and for 20 countries. It also evaluates company market share and profiles industry players.

#2579 ..... December 2009 ..... \$5700

**Landscaping Products**

US landscaping product demand is forecast to grow 6.1% yearly through 2013 based on a recovery in the housing market. Decorative products will benefit from the relatively low market penetration of water features. Hardscapes will see favorable growth as consumers value pavers, stones and boulders for patios, walkways and surrounds. This study analyzes the \$5.6 billion US landscaping product industry, with forecasts for 2013 and 2018 by type, market, end use and region. It also evaluates market share and profiles industry players.

#2488 ..... April 2009 ..... \$4700

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