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# Cement & Concrete Additives

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US Industry Study with Forecasts for **2012 & 2017**

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Study #2382 | August 2008 | \$4600 | 238 pages

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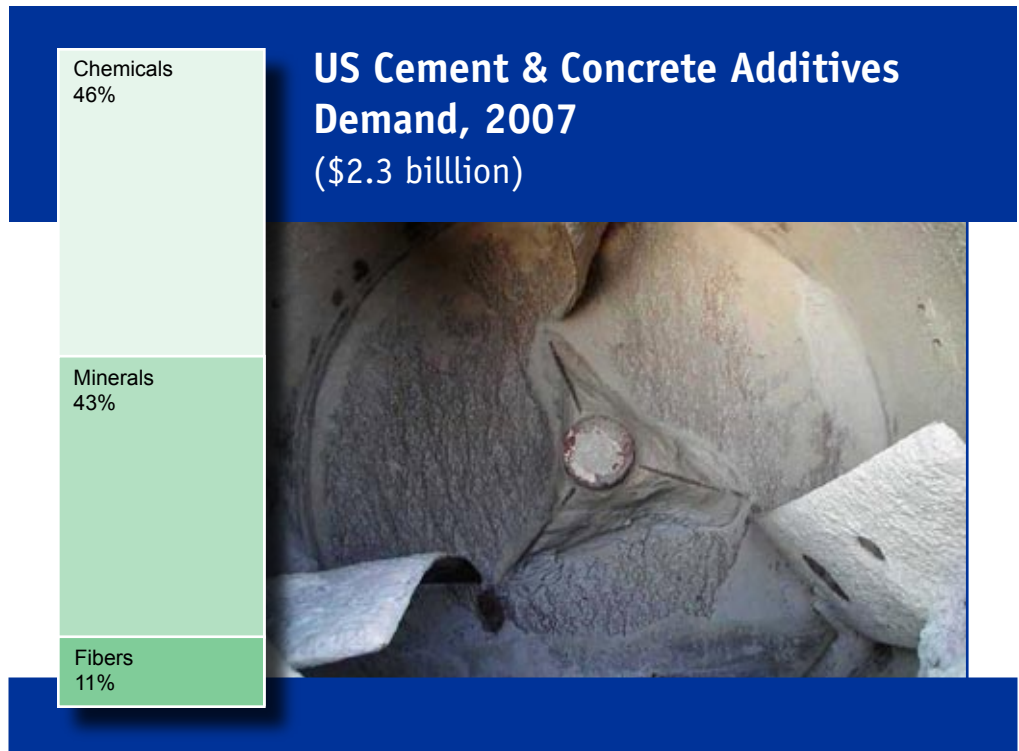
*Advances will be driven in part by rising use of industrial byproducts in concrete, as well as more focus on producing durable and long-lasting concrete structures by using additives.*

## US demand to grow 6.4% annually through 2012

Demand for cement and concrete additives in the US will grow 6.4 percent per year to \$3.2 billion in 2012. Strong gains are expected for all major product types -- chemical, mineral and fiber additives -- as construction activity and concrete demand rebound from a low 2007 base. Advances will also be driven by rising utilization of industrial byproducts in concrete for economic and environmental reasons, as well as an increased focus on the production of durable and long-lasting concrete structures through the use of chemical and fiber additives. Although growth in market value will slow from 2002-2007 rates, gains during this period were inflated due to the impact of rising raw material costs. As a result, volume demand for additives will rise at an accelerated pace through the forecast period.

## Minerals, fibers to be fastest growing segments

Chemical additives will remain the largest product segment, comprising 45 percent of the total market value. Gains will be led by strong demand for water reducers, especially high-range "superplasticizer" types, which are key components of self-consolidating and high performance concrete mixes. Additionally, the rise of next-generation polycarboxylate superplasticizers will expand the range of applications for water



reducers in concrete. The market for accelerators and air entrainers will be characterized by a trend away from traditional commodity products, although the performance of these alternative formulations remains in question.

Mineral additives will post above-average gains in demand, a continuation of long-term trends. Waste materials -- particularly coal fly ash -- will increasingly be used as a partial replacement for portland cement in concrete. Blast furnace slag is expected to see more moderate growth in demand, limited by domestic supply constraints. Additionally, demand will be boosted by the positive environmental profile of these additives, both as recycled materials and through

their ability to reduce the pollution and energy consumption associated with cement production. Higher-value mineral additives such as silica fume and metakaolin will benefit from use in high-strength concrete applications.

Strong gains in demand for fiber additives will be driven by the increased acceptance of these products among concrete producers. Gains will benefit from the rising use of synthetic macrofibers, which are added in high dosages to provide secondary reinforcement for concrete. New product offerings that impart improved functionality to concrete, such as polyvinyl alcohol and cellulose fibers, will also see increases in sales.

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## Sample Text, Table & Chart

### PRODUCTS

**Fly Ash --** Demand for fly ash in cement and concrete to increase 90 million in 2012, the for any minor result from the increase ash on a per concrete costs and pro ket for the power plants. Addition ash is one and SCC, which are continue to of construction projec has both physical and chemical properties which are beneficial in concrete. Due to fly ash's small (less than 250 microns in spherical shape, it fills small voids in the concrete mixture, providing greater flowability and finishability. The chemical activity of fly ash as a pozzolan helps create concrete that is less permeable, resistant to chloride and sulfate attack, resistant to alkali-silica reaction, stronger and more durable. Along with these advantages, fly ash also tends to retard setting time somewhat, and can decrease the effectiveness of air entrainment additives.

Fly ash is a waste byproduct formed by the combustion of coal in power generation plants, which results from coal's mineral impurity. Fly ash typically is composed of silica, alumina, ferric oxide, calcium oxide (lime), magnesium oxide, sulfur trioxide and carbon. The specific chemical composition can vary widely depending on the geographic region where the original coal was extracted. When combusted, the mineral impurities of the coal -- typically clay, feldspar, quartz and shale -- will fuse together and fly upwards with the gas combustion products. These fused materials eventually cool and form small solid spheres which are collected by filters and bagged for sale or disposal.

Over 70 million tons of fly ash are produced annually, but only about 45 percent is put to productive use; the bulk of it is disposed of in landfills or ponds. Fly ash is collected on-site at power generators and is often not further processed before shipment to customers. Consumers of

TABLE IV-25

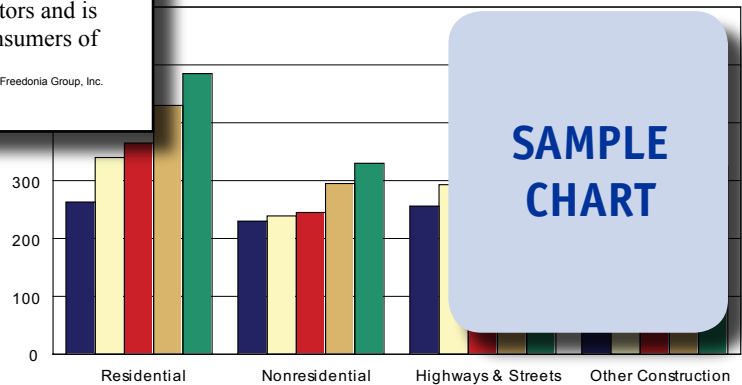
### FIBER ADDITIVES DEMAND IN CEMENT & CONCRETE BY TYPE

Item	1997	2002	2007	2012	2017
Concrete Demand (mil ton)	1055	1000	2555	3190	4190
lb fiber/000 ton concrete					
Fiber Additives Demand (mil lb)					
Synthetic					
Steel					
Other					
\$/lb					
Fiber Additives Demand (mil \$)					
Synthetic					
Steel					
Other					
% fiber					
Cement & Concrete Additives (mil \$)	1055	1000	2555	3190	4190

SAMPLE TABLE

CHART III-3

### CONCRETE DEMAND BY MARKET, 1997-2017 (million tons)

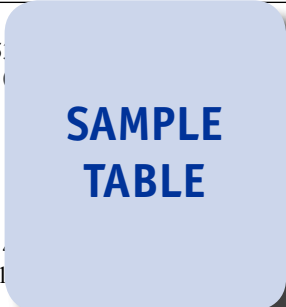


SAMPLE CHART

**Sample Profile,  
 Table & Chart**

**TABLE V-2**  
**BUILDING CONSTRUCTION MARKETS**  
**FOR CEMENT & CONCRETE ADDITIVES**  
 (million dollars)

Item	1997	2002	2007	2012	2017
Building Construction Expend (bil \$)	500	550	600	650	700
\$ additive/000\$ construction	0.24	0.25	0.26	0.27	0.28
Building Construction Additives	65	70	75	80	85
Nonresidential	20	21	22	23	24
Residential	45	49	53	57	61
% building	1.3	1.3	1.3	1.3	1.3
Cement & Concrete Additives Demand	90	95	100	105	110



**COMPANY PROFILES**

**GEO Specialty Chemicals Incorporated**  
 401 South Earl, Suite 3A  
 Lafayette, IN 47904  
 765-448-9412  
 http://www.geosc.com

Sales: \$400 million  
 Employed: 1,000

Key Products: polyoxylate superplasticizers, dispersants, foam stabilizers, emulsifiers, pigments, grinding aids, and oil waxes.

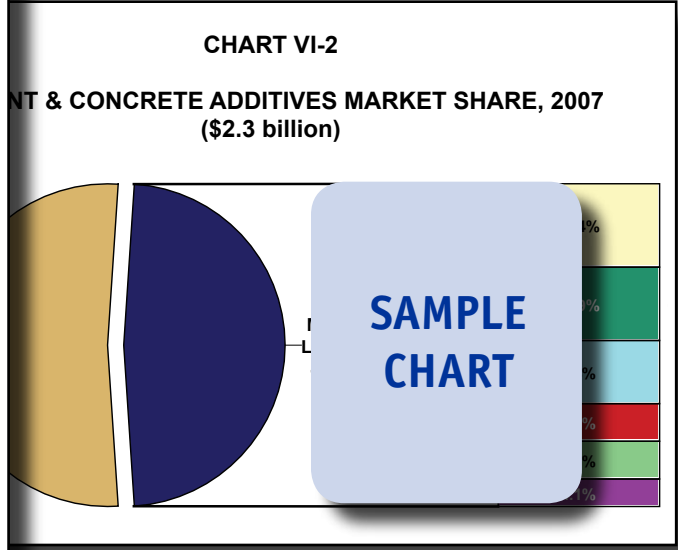
GEO Specialty Chemicals is a manufacturer of over 300 specialty chemicals for water treatment, wire and cable, pulp and paper processing, oil and gas production, coatings, construction and electronics applications. The Company operates through four segments: Trimet Products, Water Treatment Chemicals, Process Industries and Peroxy Chemicals.

The Company is active in the US cement and concrete additives industry through the Process Industries segment, which manufactures naphthalene sulfonate condensates, specialty surfactants and alkylnaphthalene-based products for use in concrete admixtures, among other applications. Among the Company's concrete admixture chemicals are LOMAR naphthalene sulfonate superplasticizers, DILOFLO polycarboxylate superplasticizers, NOPCOTE dampproofing agents, GEO AEA air entrainers and other compounds.

LOMAR naphthalene sulfonate superplasticizers adsorb suspended particles into their hydrophobic polymer backbone-like structures. A

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**Sealants & Caulks**

This study analyzes the US sealant and caulk industry. It presents historical data for 1997, 2002 and 2007 and forecasts to 2012 and 2017 by raw material (e.g., base materials and binders, carriers, fillers); type (e.g., polyurethane, silicone, bituminous, elastomer, acrylic, polysulfide); and market (e.g., construction, motor vehicles, industrial machinery and equipment, aerospace). The study also considers market environment factors, details industry structure, evaluates company market share, and profiles industry competitors.

#2393 ..... 09/2008..... \$4600

**Construction Outlook in China**

Construction expenditures in China will grow 9.2% annually through 2012. Nonbuilding construction will be the fastest growing sector based on the expansion and upgrading of the country's physical infrastructure, and on utilities construction. Nonresidential building will remain the largest market. This study analyzes the ¥4.8 trillion construction sector in China, with forecasts for 2012 and 2017 by type, market and geographic region. It also evaluates company market share and profiles industry participants.

#2356 ..... 07/2008..... \$5100

**World Drywall & Building Plasters**

Global demand for drywall will grow 4.5% annually through 2012. Prospects in the Asia/Pacific region will be particularly robust, while sales growth in the dominant North American market will significantly lag all other regions. Drywall based on synthetic gypsum will account for an increasing share of demand. This study analyzes the 7.8 billion square meter world drywall industry, with forecasts for 2012 and 2017 by product, market, world region and for 14 countries. It also evaluates market share and profiles major players.

#2335 ..... 04/2008..... \$5500

**World Cement**

Global demand for cement will grow 5.3% annually through 2012, driven by strong increases in construction activity in developing countries. The rate of growth in China, the largest market, will moderate considerably but remain above the world average. The second largest market, India, will grow the fastest. This study analyzes the 2.8 billion metric ton world cement industry, with forecasts for 2012 and 2017 by type, market, world region and for 46 countries. It also evaluates company market share and profiles 44 major players.

#2325 ..... 04/2008..... \$5800

**World Asphalt**

Global demand for asphalt will reach 123 million metric tons in 2011. Most developed areas will register relatively slow gains while developing countries post much more robust advances. Gains in China and India, however, are decelerating. Paving products will remain dominant and outpace roofing and other asphalt products. This study analyzes the 661 million barrel world asphalt industry, with forecasts for 2011 and 2016 by product, world region and 20 countries. It also details market share and profiles major firms.

#2274 ..... 01/2008..... \$5500

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