



[CLICK TO VIEW](#)

[Table of Contents 2](#)

[List of Tables & Charts 3](#)

[Study Overview 4](#)

[Sample Text, Table & Chart 5](#)

[Sample Profile, Table & Forecast 6](#)

[Order Form 7](#)

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Specialty Silicas

US Industry Study with Forecasts for **2011 & 2016**

Study #2233 | August 2007 | \$4400 | 200 pages

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Table of Contents

EXECUTIVE SUMMARY

MARKET ENVIRONMENT

General	4
Macroeconomic Outlook	5
Manufacturing Outlook.....	8
Historical Trends.....	11
Pricing & Product Mix	14
Technology	16
World Demand	19
Foreign Trade	21
Imports	22
Exports	24

PRODUCTS

General	26
Precipitated Silica.....	29
Supply & Demand	30
Markets.....	32
Capacity & Producers	36
Fumed Silica.....	38
Supply & Demand	39
Markets.....	41
Capacity & Producers	43
Silica Gel.....	45
Supply & Demand	47
Markets.....	49
Capacity & Producers	52
Silica Sol.....	55
Supply & Demand	56
Markets.....	58
Capacity & Producers	60
Fused Silica.....	65
Supply & Demand	65
Markets.....	66
Capacity & Producers	68

MARKETS

General	70
Rubber	73
Rubber Outlook.....	74

Silica Demand	75
Nontire Rubber	76
Tire Rubber	78
Electrical & Electronic Equipment .	81
Electrical & Electronic	
Equipment Outlook	82
Silica Demand	84
Cosmetics & Toiletries.....	88
Cosmetics & Toiletries Outlook...	89
Silica Demand	92
Plastics	94
Plastics Outlook	95
Silica Demand	97
Coatings & Inks	100
Coatings & Inks Outlook.....	101
Silica Demand	103
Chemicals	105
Chemicals Outlook	106
Silica Demand	108
Food & Beverages	112
Food & Beverage Outlook.....	113
Silica Demand	116
Agriculture & Animal Health	118
Agriculture Outlook.....	119
Silica Demand	121
Paper & Textiles.....	124
Paper & Textile Outlook	125
Silica Demand	127
Metals & Refractories.....	131
Metals & Refractories Outlook..	131
Silica Demand	134
Other	136
Adhesives.....	137
Packaging	138
Insulation	139
Water Treatment.....	140

INDUSTRY STRUCTURE

General	142
Market Share	143
PPG.....	146
Degussa.....	147
Cabot	147

Grace	147
Huber	148
Acquisitions & Divestitures.....	148
Competitive Strategies.....	149
Manufacturing	152
Marketing & Distribution	153

COMPANY PROFILES

Akzo Nobel	156
AZ Electronic Materials USA	157
Bayer AG	158
Cabot Corporation	159
Cabot Microelectronics.....	162
Clariant International	163
Denki Kagaku Kogyo	
Kabushiki Kaisha.....	165
DENTSPLY International.....	166
DuPont (EI) de Nemours.....	167
Glassven CA	169
Grace (WR) & Company	170
Huber (JM) Corporation	172
Imerys SA	174
Industrias Quimicas del Ebro.....	175
INEOS Group Limited	176
Kemira Oyj	178
Lyondell Chemical	179
Merck KGaA.....	180
Minco Incorporated	181
Multisorb Technologies	182
Nalco Holdings	183
National Titanium Dioxide	184
Nissan Chemical.....	185
Orisil Limited	186
PPG Industries.....	187
PQ Corporation	188
Qingdao Makall Group	190
RAG AG	191
Rhodia SA.....	193
Starck (HC) GmbH	195
Tokuyama Corporation.....	196
Wacker-Chemie AG.....	197
Other Companies Mentioned	
in the Study.....	199

List of Tables/Charts

EXECUTIVE SUMMARY

1 Summary Table3

MARKET ENVIRONMENT

1 Macroeconomic Indicators8
 2 Manufacturers' Shipments 11
 3 Specialty Silica Market,
 1996-2006 13
 Cht Specialty Silica Market,
 1996-2006 13
 4 Specialty Silica Pricing 16
 Cht Specialty Silica Flow Chart 18
 5 Specialty Silica Foreign Trade. 22
 Cht Specialty Silica Imports
 by Country, 2006 23
 Cht Specialty Silica Exports
 by Country, 2006 25

PRODUCTS

1 Specialty Silica Demand
 by Type 27
 Cht Specialty Silica Demand
 by Type, 2006:
 Value Versus Volume 28
 2 Precipitated Silica
 Supply & Demand 32
 3 Precipitated Silica Markets 35
 4 Precipitated Silica
 Capacity, 2006 38
 5 Fumed Silica Supply
 & Demand 40
 6 Fumed Silica Markets 43
 7 Fumed Silica Capacity, 2006... 45
 8 Silica Gel Supply & Demand ... 49
 9 Silica Gel Markets 52
 10 Silica Gel Capacity, 2006 55
 11 Silica Sol Supply & Demand ... 57
 12 Silica Sol Markets 60

13 Silica Sol Capacity, 2006 64
 14 Fused Silica Supply
 & Demand 66
 15 Fused Silica Markets 68
 16 Fused Silica Capacity, 2006.... 69

MARKETS

1 Specialty Silica Demand
 by Market 71
 Cht Specialty Silica Demand
 by Market, 2006:
 Value Versus Volume 72
 2 Rubber Consumption 75
 3 Rubber Markets for
 Specialty Silica by Type 76
 4 Nontire Rubber Market for
 Specialty Silicas 78
 5 Tire Rubber Market for
 Specialty Silicas 81
 6 Electrical & Electronic
 Equipment Shipments 84
 7 Electrical & Electronic
 Equipment Market for
 Specialty Silicas by Type 88
 8 Cosmetics & Toiletries
 Shipments 92
 9 Cosmetics & Toiletries
 Market for Specialty
 Silicas by Type 94
 10 Plastics Indicators 97
 11 Plastics Market for
 Specialty Silicas by
 Type & Application 100
 12 Coatings & Inks Shipments .. 102
 13 Coatings & Inks Market for
 Specialty Silicas by Type ... 105
 14 Chemical Shipments 108
 15 Chemical Market for
 Specialty Silicas by
 Application & Type 112

16 Food & Beverage Shipments. 115
 17 Food & Beverage Market
 for Specialty Silicas
 by Application & Type 118
 18 Agriculture Indicators 121
 19 Agricultural Market for
 Specialty Silicas by Type ... 124
 20 Paper & Textile Product
 Shipments 127
 21 Paper & Textile Market for
 Specialty Silicas by Type ... 130
 22 Metal & Refractory
 Shipments 134
 23 Metal & Refractory Market for
 Specialty Silicas by Type ... 136
 24 Other Markets for
 Specialty Silicas by
 Application & Type 141

INDUSTRY STRUCTURE

1 Specialty Silica Sales
 by Company, 2006 144
 Cht US Specialty Silica
 Market Share, 2006 146

Best opportunities are anticipated for applications in the dominant rubber market, while more rapid gains will be experienced in the lower volume electrical and electronic equipment market.

US demand to grow 5.4% annually through 2011

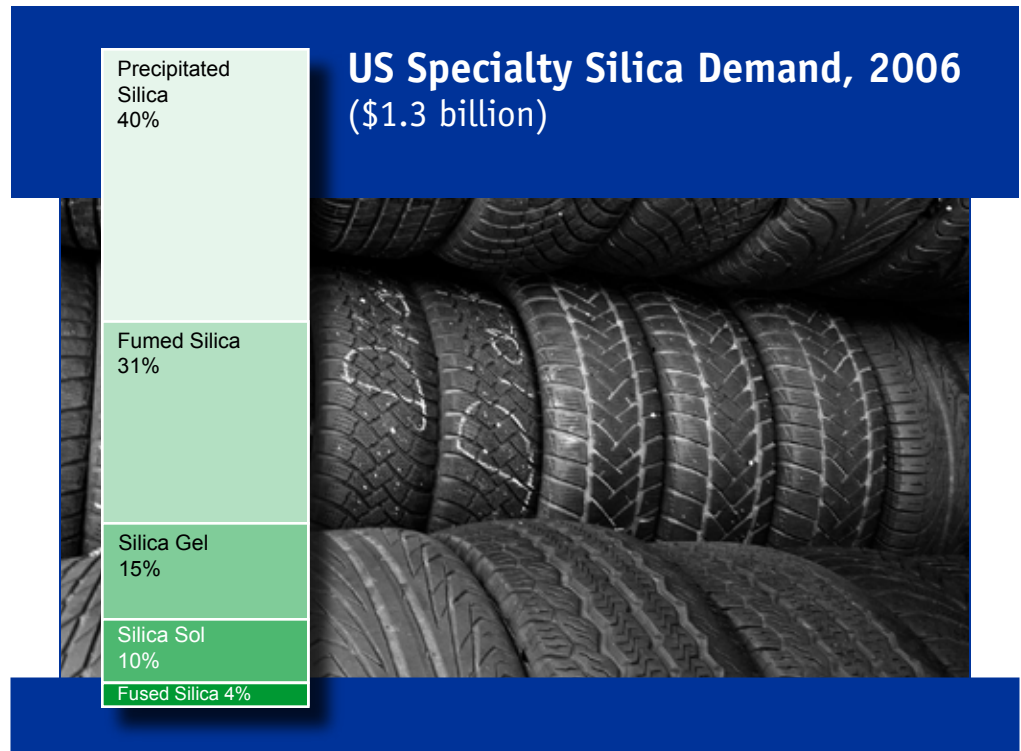
US specialty silica demand is forecast to expand 5.4 percent annually to \$1.65 billion in 2011. Specialty silicas, also known as synthetic amorphous silicas or synthetically produced noncrystalline silicon dioxide, include precipitated, fumed, gel, sol and fused types. Precipitated silica constitutes the largest silica type, both in volume and value. Through 2011, growth in precipitated silica demand will be led by increasingly rapid advances in the large volume tire rubber sector, in which silica reinforcement is used for fuel efficient "green" tires.

Higher value fumed silica to be fastest growing type

Fumed silica will experience the fastest advances, spurred by growth in the electronics market, which primarily utilizes fumed silica in slurries. These slurries are used to polish semiconductor substrates, especially silicon wafers, and have been increasingly used in chemical mechanical planarization (CMP) processes. Despite being the smallest silica type by volume, fumed silica constitutes an important segment of the specialty silica market in value terms, due to its high price relative to other silica types.

Best market opportunities to remain in rubber uses

The rubber industry will remain the largest market for specialty silicas



through 2011, experiencing growth in both tire and nontire segments. Nontire applications, which include the production of silicone rubber, footwear and industrial rubber products, will grow at a below average rate. More rapid gains in the tire rubber market will result from a modest rebound in motor vehicle production and the penetration of silica-reinforced motor vehicle tires offering greater fuel efficiency. These tires utilize precipitated silica in their manufacture and are likely to grow in popularity as a result of high US fuel prices. Advances, however, will be limited by the availability of competing products such as carbon black and by silica's high cost relative to other materials.

Electrical/electronic market to lead gains

Through 2011, demand for specialty silicas in the electrical and electronic equipment industry will grow faster than any other market, both by value and volume. Although this industry accounts for less than one-tenth of the silica market by volume, it is second only to the rubber industry in dollar terms. Advances will be due to accelerating growth in electronic component output, especially semiconductors, for which silica is used as an abrasive polish. Continued success for this application will depend on new polishing formulations which work well with copper surfaces and low-k dielectric materials.

Sample Text, Table & Chart

MARKETS

Silica Demand

Demand for specialty silicas in the food and beverage market is expected to reach 2 million pounds in 2007, valued at \$100 million. Demand is expected to be restrained by market maturity, though growth is expected in wine and beer applications. Specialty silicas serve as anticaking agents, thickeners, and stabilizers in food and beverage applications. They are chemically inert, have a neutral pH, have little or no health drawbacks, and do not affect the color, taste, odor or nature of food products.

While silicas have numerous applications in food and beverages, their most important functions are as flow improvers, stabilizers and flavor carriers. Silicas help keep powdered or granulated mixtures from caking and are instrumental in converting liquid products into powders. They are utilized across a variety of applications, including powdered milk, cake mixes, dry soup mixes and seasonings. Cabot is active in this segment of the food and beverage market, offering the CAB-O-SIL line of untreated fumed silicas. These products serve as direct additives for the prevention of caking and the enhancement of free flow characteristics in powdered food products. Huber and PPG also participate in this market. The former supplies ZEOFREE precipitated silica products to the food industry. PPG markets FLO-GARD flow conditioning silicas which function to improve anti-caking and free flow properties in foods as cheeses, non-dairy creamers and seasonings.

In the production of beer, wine and fruit juices, silicas serve as clarifiers and stabilizers. In wine and fruit juices, for example, the active surface of silica sol particles removes undesirable polyphenolics from the system, thereby improving the taste, appearance and shelf life of the beverage. Beverages are generally treated with

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TABLE III-1

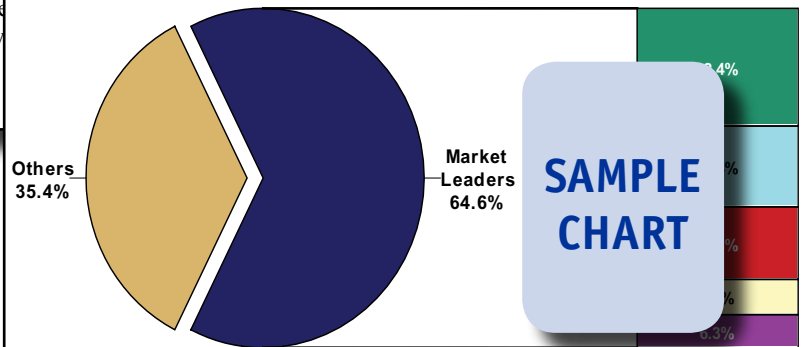
SPECIALTY SILICA DEMAND BY TYPE
 (million dollars)

Item	1996	2001	2006	2011	2016
Nondurable Goods Shpts (bil 2000\$)	1670	1600	1550	1400	1300
lb silica/000\$ nondurables	0.0000	0.0000	0.0000	0.0000	0.0000
Specialty Silica Demand (mil lb)	50	53	55	58	60
\$/lb	2000	1900	1800	1700	1600
Specialty Silica Demand	1000	1000	1000	1000	1000
Precipitated Silica	30	30	30	30	30
Fumed Silica	45	45	45	45	45
Silica Gel	50	50	50	50	50
Silica Sol	81	81	81	81	81
Fused Silica	74	74	74	74	74

SAMPLE TABLE

CHART V-1

US SPECIALTY SILICA MARKET SHARE, 2006
 (\$1.3 billion)



SAMPLE CHART

Sample Profile, Table & Forecast

TABLE III-9
SILICA GEL MARKETS
(million pounds)

Item	1996	2001	2006	2011	2016
Silica Gel Demand					
Cat Litter					
Catalyst Support					
Food & Beverages					
Coatings & Inks					
Packaging Desiccant					
Health					
Cosmetics & Toiletries					
Paper & Textiles					
Other					
\$/lb					
Silica Gel Demand (mil \$)					

**SAMPLE
TABLE**

COMPANY PROFILES

Cabot Microelectronics Corporation

870 North Commons Drive
 Aurora, IL 60504
 630-375-6631
<http://www.cabot.com>

Revenues: \$
 US Revenues
 Employment

Key Products: CMP slurries, planarization
 polishing slurries

**SAMPLE
PROFILE**

Cabot Microelectronics is the world's leading producer of chemical mechanical planarization (CMP) polishing slurries used in the manufacture of integrated circuit (IC) devices in the semiconductor industry, disk drive components and other products. The Company also distributes CMP polishing pads and provides wastewater management and water recovery services.

The Company is active in the specialty silicas industry through the manufacture of CMP slurries, which are used in the production of advanced integrated circuit devices by the semiconductor market. Cabot Microelectronics' CMP slurries, which are typically marketed under the SEMI-SPERSE brand name, are formulated with fumed metal oxides, primarily fumed silicas. These ultra-fine, high-purity fumed silicas can be used as abrasives, to provide rheology control for liquids, serve as reinforcing fillers in elastomers, improve free flow of powders, act as dry carriers for liquids and function as emulsification agents. For example, in May 2007, Cabot Microelectronics introduced WIN W7000 tungsten CMP slurries that are based on fumed silica for the production of ICs.

"Markets - US demand for silica gels is forecast to expand 3.6 percent annually to 155 million pounds in 2011, valued at \$222 million. Volume gains will be driven by imports of silica gel cat litter from China. Value growth will be buoyed by the development of new, higher value gels for applications including binders for sensor components, adsorbents for environmental uses and pervaporation membranes for dehydration of alcohols and other solvents. The presence of low priced and lower quality grades for cat litter applications will limit value gains, however."

--Section III, pg. 49

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OTHER STUDIES

**Pigments:
Inorganic, Organic & Specialty**

US color pigment demand will grow 4.4% yearly through 2011, driven by a shift toward high-performance organic pigments and specialty types. Metallic, pearlescent and other specialty pigments will lead gains based on the need for more novel, eye-catching optical effects in automotive coatings, printing inks, plastics, cosmetics and toiletries. This study analyzes the \$3 billion US pigments industry, with forecasts for 2011 and 2016 by type and market. It also details market share and profiles major players.
#2232 08/2007..... \$4500

World Nanomaterials

The global market for nanomaterials will reach \$4.2 billion by 2011 and remain concentrated in the US, Western Europe and Japan. Products making the greatest initial commercial impact are nanoscale versions of conventional materials such as silica, titanium dioxide, alumina, iron oxide, and zinc oxide. This study analyzes the \$1 billion global nanomaterials industry, with forecasts for 2011, 2016 and 2025 by product, market, world region and for 15 countries. It also discusses R&D and profiles major participants.
#2215 08/2007..... \$5500

Glass Fibers

US glass fiber demand will reach \$7 billion in 2011. The dominant glass wool fiber sector will grow the fastest, driven by rebounding demand in office and commercial construction and increasing insulation use per structure to improve energy efficiency. Reinforced plastics will present the best opportunities for textile glass fiber. This study analyzes the US glass fiber industry, with forecasts for 2011 and 2016 presented by type and market. It also evaluates company market share and profiles leading competitors.
#2199 05/2007..... \$4400

World Carbon Black

World carbon black demand is forecast to rise 4.2% per year through 2011, bolstered by a healthy global rubber market. Special blacks will be the fastest growing market. The Asia/Pacific region, excluding Japan, will post the strongest gains. This study analyzes the 8.9 million metric ton world carbon black industry, with historical data and forecasts for 2011 and 2016 presented by product, market, world region and for 26 countries. The study also evaluates company market share and profiles leading producers.
#2186 05/2007..... \$5400

Industrial Crystals

US industrial crystal demand will grow 5.8% yearly through 2011, led by uses in nonlinear optical materials and compound semiconductor substrates. Communications and security/defense will see the largest market gains. Transition metal-based crystals and semiconducting types will be the fastest growing materials. This study analyzes the \$845 million US industrial crystal industry, with forecasts for 2011 and 2016 by material, application and market. It also evaluates market share and profiles leading players.
#2166 05/2007..... \$4500

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