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Flame Retardants

US Industry Study with Forecasts for **2016 & 2021**

Study #2926 | September 2016 | \$4900 | 245 pages



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Robust gains in building construction -- particularly for new housing -- as well as in other closely associated markets such as wire and cable, and home furnishings, will drive advances.

US demand to expand 6% annually through 2016

US demand for flame retardants will expand 6.0 percent per year to 1.1 billion pounds in 2016. Robust gains in building construction -- particularly for new housing -- as well as in other closely associated markets such as wire and cable, and home furnishings, will drive advances. Stringent fire codes and flammability requirements, especially in building materials and consumer products, will also support flame retardant sales. However, health concerns about some flame retardant chemicals will limit faster increases, particularly for halogenated flame retardants, some of which are being voluntarily phased out by the industry despite their effectiveness.

Construction markets to show best opportunities

One of the most important factors affecting flame retardant demand in the US is building construction spending, with the construction market alone accounting for 38 percent of total flame retardant demand by volume in 2011. Double-digit annual growth in both residential and nonresidential building spending through 2016 will lead to robust gains for flame retardants in insulation materials such as cellulose, foamed polyurethane, and polystyrene, as well as PVC and other materials used in flooring, panels, piping, and other construction products. Other flame retardant markets are also heavily impacted by building construction,

US Flame Retardant Demand, 2016 (1.1 billion pounds)



Alumina Trihydrate	39%
Boron Compounds	24%
Phosphorus Compounds	14%
Brominated Compounds	10%
Other Flamer Retardants	13%

photo: Ciba

including textiles (e.g., carpets, curtains, and rugs), insulated wire and cable (e.g., building wiring, connectivity wiring), and furniture and mattresses.

The ongoing rebound in the US motor vehicle industry will also have a positive impact on flame retardant demand. Rising vehicle production levels, the increased use of lighter weight plastic and composite materials that offer improved fuel efficiency, and elevated temperatures in under-the-hood applications due to smaller, hotter running engines will all contribute to increasing motor vehicle flame retardant demand. Efforts by Boeing and Airbus to improve airplane fuel efficiency through the increased use of composites and other plastics, along with the industry's strict

flame retardance standards, will drive gains in the aerospace market.

Boron compounds to register fastest growth

With new residential building construction driving rapid increases in cellulosic insulation demand, boron compounds will register the fastest growth going forward. Alumina trihydrate will achieve strong gains as well and remain the most significant flame retardant by volume, representing 39 percent of demand in 2016. Non-halogenated phosphorus compounds and other types with more environmentally friendly profiles will benefit from industry efforts to forestall increased regulatory scrutiny.

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Sample Text, Table & Chart

MATERIALS

Acrylonitrile-Butadiene-Styrene

Demand for flame retardants in acrylonitrile-butadiene- is forecast to reach 1.5 million pounds valued at \$1.5 billion in 2011. Demand in electronics and plastics blends are increasing, being used in automotive, boosting demand for resistant non-halogenated flame retardants. Further advances in flame retardant technology, such as polymeric elastomers, plasticizers and flame retardant applications such as automotive under-the-hood and appliance housings.

Brominated compounds accounted for 55 percent of flame retardant demand in ABS in 2011. The most widely used brominated flame retardants in ABS are tetrabromobisphenol-A (TBBA) products and their derivatives, along with antimony trioxide as a synergist. Although TBBA is most often used as a reactive flame retardant, such as in epoxy formulations, TBBA use in ABS is in an additive capacity. DecaBDE has also been employed in flame retardant ABS systems to a lesser extent. With the phasing out of decaBDE for most uses at the end of 2012, and all uses by the end of 2013, the fastest growth for flame retardants in ABS will occur in ATO compounds.

Flame retardant ABS is predominantly used in the electrical and electronics market. Key commercial applications include housings, trays, and other parts for business equipment such as personal computers and laptop computers, printers and other computer peripheral devices, copiers, fax machines, and telephone and other telecommunication equipment. These products mainly use some flame retardant ABS and polycarbonate/ABS blends. ABS/PVC blends are used to a lesser extent in these applications. In transportation equipment, flame retardant ABS continues to be used in the manufacture of auto

TABLE III-4

FLAME RETARDANT DEMAND BY PRODUCT
(million pounds)

Item	2001	2006	2011	2016	2021
Gross Domestic Product (bil 2005\$)	10	14	18	22	26
lb FR/mil \$ GDP	0.04	0.05	0.06	0.07	0.08
Flame Retardant Demand	0.04	0.05	0.06	0.07	0.08
Alumina Trihydrate	0.00	0.00	0.00	0.00	0.00
Boron Compounds	0.00	0.00	0.00	0.00	0.00
Phosphorus Compounds	0.00	0.00	0.00	0.00	0.00
Brominated Compounds	0.05	0.05	0.06	0.07	0.08
Antimony Trioxide	0.00	0.00	0.00	0.00	0.00
Chlorinated Compounds	0.00	0.00	0.00	0.00	0.00
Other Flame Retardants	0.00	0.00	0.00	0.00	0.00
\$/lb	0.04	0.05	0.06	0.07	0.08
Flame Retardant Demand (mil \$)	0.04	0.05	0.06	0.07	0.08

SAMPLE
TEXT

SAMPLE
TABLE

CHART VI-1

US FLAME RETARDANT MARKET SHARE
(\$790 million, 2011)



SAMPLE
CHART

Sample Profile, Table & Forecast

TABLE V-3
**CONSTRUCTION PRODUCTS MARKET FOR
 FLAME RETARDANTS BY APPLICATION**
 (million pounds)

Item	2001	2006	2011	2016	2021
Building Construction (bil 2005\$)	87	90	90	90	90
lb FR/000\$ construction					
FR Demand in Construction Products					
Insulation					
Roofing Material					
Wood Panel Binder Resins					
Other Construction Products					
\$/lb					
FR Demand in Construction (mil \$)					
% construction products					
Flame Retardant Demand (mil \$)					

**SAMPLE
PROFILE**

**SAMPLE
TABLE**

COMPANY PROFILES

Nabaltec AG
 Alustraße 50-52
 92421 Schwabmünchen
 Germany
 49-9431-53-0
 http://www.nabaltec.com

Revenues: \$118 million
 US Revenues: \$118 million
 Employment: 1,000

Key Products: aluminum hydroxide, aluminum oxide hydrate, and magnesium hydroxide flame retardant fillers

Nabaltec is a manufacturer of flame retardant fillers for the plastics industry, and base materials for use in technical ceramics, catalysis, and the refractory industry. The Company functions in two segments: Functional Fillers and Technical Ceramics.

The Company is active in the US flame retardant industry through the Functional Fillers segment, which generated revenues of \$118 million in 2011. Via this segment, Nabaltec manufactures a range of functional fillers, including non-toxic and environmentally friendly aluminum hydroxide, aluminum oxide hydrate, and magnesium hydroxide flame retardant fillers. These non-halogenated flame retardant fillers, which are marketed under the APYRAL and APYMAG brand names, are used in the manufacture of such products as adhesives, coatings, printed circuit boards, cable compounds, conveyor belts, hoses, carpet backing, polyurethane foams, and cast resins.

Nabaltec's APYRAL aluminum hydroxide flame retardant fillers have a very high chemical purity of at least 99.5 percent, with the

“Demand for flame retardants in construction products is projected to grow 8.7 percent per annum to 465 million pounds in 2016, valued at \$455 million. This will represent a rebound from the double-digit annual declines between 2006 and 2011 caused by the housing crisis and economic recession. Best opportunities are expected for flame retardants in insulation, based on good growth in residential building construction expenditures and resultant demand for insulation.”
 --Section V, pg. 129

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OTHER STUDIES

Custom Thermoplastic Compounding

US demand for custom compounded thermoplastics is forecast to rise 5.0 percent annually to 11.4 billion pounds in 2017, valued at \$14.3 billion (resin content only). Construction will offer the best market prospects, as the industry recovers from recession. PVC represents the largest and fastest growing compounded thermoplastic. This study analyzes the 8.9 billion pound US custom compounded thermoplastic industry, with forecasts for 2017 and 2022 by resin and market. The study also evaluates company market share and profiles industry players.

#2991 February 2013 \$5100

World Insulation

Global insulation demand is forecast to rise 5.5 percent annually to 23.1 billion square meters of R-1 value in 2016. The Asia/Pacific region will remain the largest and fastest growing market, followed by North America. The best growth opportunities will be found in foamed plastic and fiberglass insulation. This study analyzes the 17.7 billion square meter global insulation industry, with forecasts for 2016 and 2021 by material, market, world region and for 21 major countries. The study also evaluates company market share and profiles industry players.

#2956 October 2012 \$6300

Fluoropolymers

US demand for fluoropolymers is forecast to increase 5.3 percent annually to \$2.4 billion in 2016. Polytetrafluoroethylene (PTFE) will remain the largest and most valuable segment, while polyvinyl fluoride (PVF) and polyvinylidene fluoride (PVDF) will grow the fastest. The construction and electrical/electronics markets will be the fastest growing outlets. This study analyzes the \$1.9 billion US fluoropolymer industry, with forecasts for 2016 and 2021 by product, application and market. The study also evaluates company market share and profiles industry players.

#2938 August 2012 \$4900

World Hydrogen

Global demand for hydrogen is projected to increase 4.1 percent annually through 2016 to 286 cubic meters. Chemical manufacturing will be the fastest growing market while petroleum refining will remain dominant. The Asia/Pacific region will continue as the largest market and grow the fastest. This study analyzes the 233.7 billion cubic meter world hydrogen industry, with forecasts for 2016 and 2021 by market, source, world region and for 17 major countries. The study also evaluates company market share and profiles industry participants.

#2895 July 2012 \$5900

Silicones

US demand for silicones is forecast to climb 5.6 percent annually to \$4.1 billion in 2016. Silicone resins and elastomers will be the fastest growing products, with elastomers overtaking silicone fluids as the largest segment by 2016. The industrial market will remain dominant while the construction segment grows the fastest as it rebounds from previous declines. This study analyzes the \$3.1 billion US silicone industry, with forecasts for 2016 and 2021 by product, market and application. It also evaluates company market share and profiles industry players.

#2879 April 2012 \$4900

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