Flame Retardants

US Industry Study with Forecasts for **2013 & 2018**

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The Freedonia Group

767 Beta Drive

Cleveland, OH • 44143-2326 • USA

Toll Free US Tel: 800.927.5900 or +1 440.684.9600

Fax: +1 440.646.0484

E-mail: info@freedoniagroup.com

www.freedoniagroup.com

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US Industry Study with Forecasts for ***2013 & 2018***

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MARKET ENVIRONMENT

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Flame retardant advances will reflect renewed vigor in key markets such as insulated wire and cable, and construction, as well as more stringent fire codes and flammability requirements.

US demand to reach $900 million in 2013

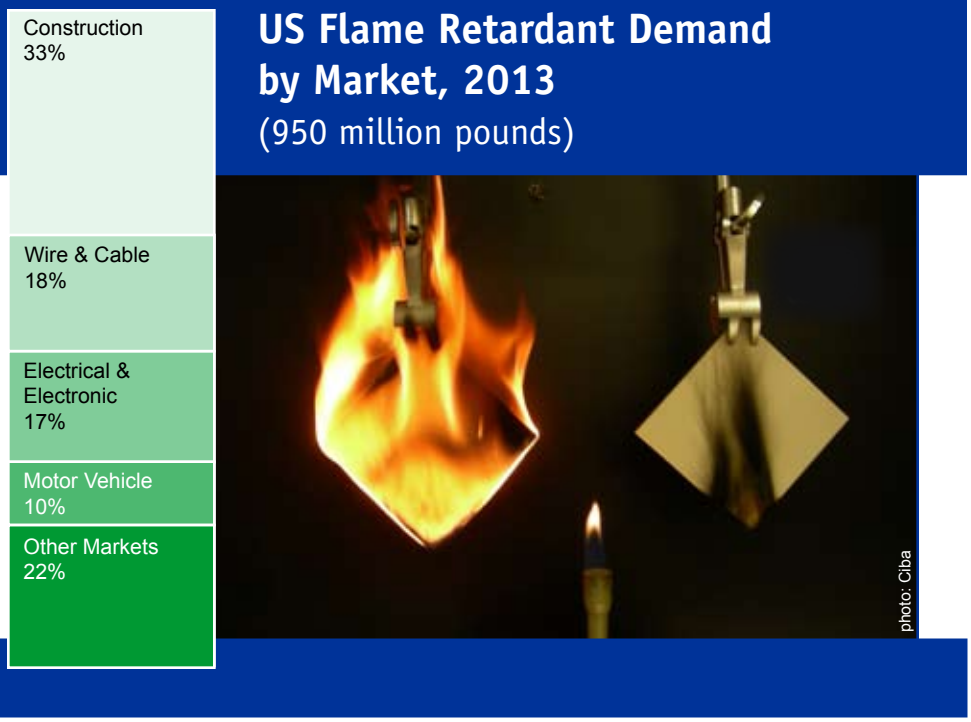
US demand for flame retardants is expected to reverse its decline and is forecast to expand 2.7 percent per annum to 950 million pounds in 2013, valued at $900 million. Flame retardant advances will reflect renewed vigor in key markets such as insulated wire and cable, and construction. Other stimulants include more stringent fire codes and flammability requirements. Price increases will moderate significantly due to more normal energy and raw material costs.

Phosphorus compounds to be fastest growing type

The industry will continue to be impacted by trends away from halogenated flame retardants due to health and environmental concerns. Alumina trihydrate will continue to be the most widely used flame retardant type, accounting for 43 percent of total demand due to its low cost, excellent performance and widespread applications. Best growth is expected for phosphorus-based flame retardants. Growth will be driven by non-halogenated phosphorus grades, which have a more benign environmental footprint than brominated compounds, which will rise at the slowest pace, restrained by legislative mandates and customer demands for more environmentally-friendly materials. Demand for chlorinated compounds will decrease through 2013 due to their adverse health and environmental impacts.

US Flame Retardant Demand by Market, 2013

(950 million pounds)



Wire & cable to be fastest growing market

Construction products accounted for one-third of total flame retardant demand and will grow at an average pace to 313 million pounds in 2013, driven by insulation and cushioning opportunities for flame retardants used in foamed polyurethane and polystyrene. Insulated wire and cable will exhibit the fastest growth in light of rapidly rebounding wire and cable production. Motor vehicle markets will be buoyed by rising production levels, elevated temperatures in under-the-hood applications and increased use of lighter weight plastic materials, which offer improved fuel efficiency. Flame retardants used in electrical and electronic products will grow at a slow pace through 2013 due to the continued exodus of electronics production to offshore countries with lower labor costs and governmental incentives, particularly in Asia. Textile markets for flame retardants will also exhibit slow growth due to the cost advantages of offshore producers. Smaller aircraft and aerospace markets will be stimulated by stricter flame retardance standards, the aging of the commercial aircraft fleet and growing military aircraft procurement levels.

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Sample Text, Table & Chart

TABLE IV-3

CONSTRUCTION PRODUCTS MARKET FOR FLAME RETARDANTS (million pounds)

Item	1998	2003	2008	2013	2018
Building Construct Expend (bil 2000$)	6				0
lb FR/mil $ construction expend					
Flame Retardants in Construction	2				
Insulation					
Roofing Material					
Wood Panel Binder Resins					
Other Construction Products	1				
$/lb					
FR Demand in Construction (mil $)					
% construction					
Flame Retardant Demand (mil $)					

SAMPLE TABLE

PRODUCTS

Alumina Trihydrate

Demand for alumina trihydrate (ATH) flame retardants i
to million pounds in 2013, v
$ t opportunities in key mar
as ts and rugs, and residentia
ti ted flame retardants will a
A cations previously using ha
c e threatened by the high A
req ich can compromise the me
strength of the material to which it is added. Additionally, A
relatively low upper-use temperature, which prohibits its use
with high processing temperatures such as polypropylene an

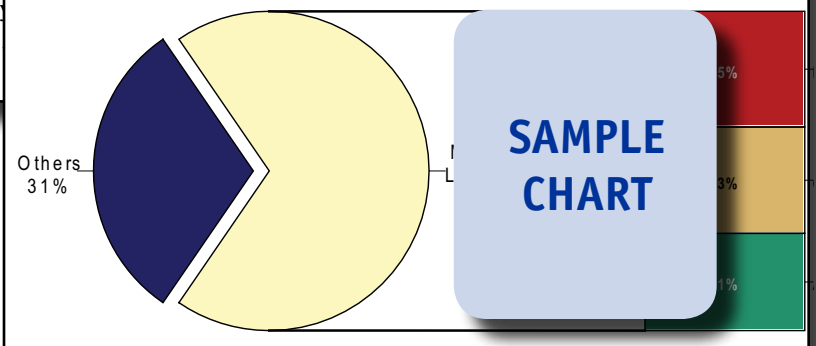
SAMPLE TEXT

By volume, alumina trihydrate accounted for 43 percent
retardants used in the US in 2008, yet only 14 percent of market value.
ATH is the least expensive product on the market on a per pound basis,
although larger quantities are needed to achieve the same level of flame
retardance as lesser quantities of other products. In plastics applications,
ATH often functions as a filler and extender in addition to a flame re-
tardant. As a flame retardant, ATH releases its contained moisture when
exposed to fire, which helps to absorb heat energy as well as release
moisture into the air, which dilutes combustible gases and toxic fumes.
ATH thus functions as both a flame retardant and a smoke and fume sup-
pressant.

Despite ATH's popularity as a flame retardant in plastic
tions, it does have its drawbacks. For example, ATH cannot
if the plastic processing temperature exceeds 390 degrees Fa
Additionally, the high loading factors required can lead to a
in the mechanical and electrical properties of the plastic. In
number of producers have introduced surface modified grad
usually with silicone compounds, that improve processabilit

CHART VI-1

US FLAME RETARDANT MARKET SHARE, 2008 ($750 million)



SAMPLE CHART

Flame Retardants

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Sample Profile, Table & Forecast

TABLE III-4

POLYOLEFINS DEMAND FOR FLAME RETARDANTS
(million pounds)

Item	1998	2003	2008	2013	2018
Polyolefins Demand	375				00
lb FR/000 lb polyolefins					.3
Flame Retardants in Polyolefins					.4
Alumina Trihydrate					.0
Brominated Compounds					.2
Chlorinated Compounds					.5
Antimony Trioxide					.2
Other Flame Retardants					.5
$/lb					83
FR Demand in Polyolefins (mil $)					98
% polyolefins					.2
Flame Retardant Demand (mil $)	505	600	730	900	1070

SAMPLE TABLE

COMPANY PROFILES

Eastern Color & Chemical Company
35 Livingston Street
Providence, RI 02904
401-331-9000
http://www.easterncolor.net

Annual S
Employr

Key Proc stics

Eas manufacturer of pig-
ment dis r, paper, textiles and
plastics i ucts include foaming
agents, th icating materials
and wetting agents, among other industrial chemicals. Eastern Color & Chemical operates through five main divisions: Pigment, Pulp and Paper Chemical/Pigment, Chemical, Lenox Chemical and International.

The Company competes in the US flame retardant market via the Pulp and Paper Chemical/Pigment division and the Chemical division. Among other products, these divisions make flameproofing agents. Eastern Color & Chemical's flameproofing agents are marketed under the ECCO FLAMEPROOF and ECCOGARD brand names.

ECCO FLAMEPROOF flameproofing agents from Eastern Color & Chemical include several grades designed to insure flame retardance when used in textiles. Examples of these products are ECCO FLAMEPROOF LB-2 liquid flameproofing agents for dry-clean-only fabrics; ECCO FLAMEPROOF CPE semi-durable organic phosphate reaction formulations for synthetics and cellulosics; ECCO FLAMEPROOF

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SAMPLE PROFILE

"Demand for flame retardants used in polystyrene plastics will expand 1.5 percent yearly to 54 million pounds in 2013, valued at $93 million. Opportunities are anticipated for construction products such as flame retardant polystyrene insulation panels, with further growth constrained by a sluggish nonresidential construction market. Demand for flame retardant polystyrene in electrical and electronics applications will be restrained due to ..."
--Section III, pg. 47

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Other Studies

Construction Chemicals

US on-site construction chemical demand will rise 3.4% yearly through 2013. Gains will be driven by a rebound in the housing market, a shift to higher value products and solid home improvement and repair spending. Caulks and adhesives will surpass protective coatings and sealers as the largest product segment by 2013. This study analyzes the $7.7 billion US construction chemical industry, with forecasts for 2013 and 2018 by product and application. It also evaluates company market share and profiles industry players.

#2569 ..... 01/2010 ..... $4700

Specialty Gases

US specialty gas demand will rise 3.5% yearly through 2013. Manufacturing will remain the largest market while health care grows the fastest. Analytical gases will outpace other applications due to the increasing need to monitor pollutants, maximize production efficiency, monitor product quality, render diagnosis, etc. This study analyzes the $2.9 billion US specialty gases industry, with forecasts for 2013 and 2018 by product, market and application. It also details market share and profiles industry players.

#2519 ..... 08/2009 ..... $4700

Wood Protection Coatings & Preservatives

US demand for wood protection products is forecast to increase 2.2% per year through 2013. Higher value formulations will continue to gain market share, primarily due to environmental and performance issues. Interior wood applications will achieve the best gains, promoted by a rebound in both housing starts and remodeling. This study analyzes the $2.7 billion US wood protection industry, with forecasts for 2013 and 2018 by product, application and market. It also evaluates market share and profiles industry players.

#2509 ..... 07/2009 ..... $4800

World Hydrogen

This study analyzes the world market for merchant hydrogen. It presents historical demand data for the years 1998, 2003 and 2008 and forecasts for 2013 and 2018 by hydrogen application (e.g., petroleum refining, chemical manufacturing), world regional market (e.g., North America, Western Europe, Asia/Pacific), and for 15 major national markets. The study also considers market environment factors, details industry structure, evaluates company market share and profiles industry participants.

#2605 ..... 02/2010 ..... $5300

World Textile Chemicals

Global demand for textile chemicals will reach $19 billion in 2012. Colorants and auxiliaries will remain the biggest product segment, while faster gains will be seen in finishing chemicals. The Asia/Pacific region, particularly China and India, will remain the largest consumer of textile chemicals, and is also forecast to grow the fastest. This study analyzes the $16.6 billion world textile chemical industry, with forecasts for 2012 and 2017 by type, world region and for 22 countries. It also evaluates market share and profiles industry players.

#2426 ..... 12/2008 ..... $5700

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