



Chemical Innovations

ALEXIUM INTERNATIONAL GROUP LIMITED

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INDEPENDENT MARKET ANALYSIS OF GLOBAL FLAME RETARDANT CHEMISTRY MARKET VALIDATES POTENTIAL OF ALEXIUM

Perth, WA and Greer, South Carolina: Alexium International Group Limited (Alexium) (ASX:AJX, AX:AJX, OTC QX:AXXIY) is pleased to present a summary of a detailed independent market analysis on the size and growth of the global flame retardant (FR) chemistry market opportunity for Alexium, provided by US based MarketsandMarkets, one of the world's leading full service market research and consultant companies.

The MarketsandMarkets analysis details the industries, regions and types of chemistry represented across the globe and will assist Alexium in planning our prioritization of market opportunities from textiles, building materials to electronics and plastics.

The report states that the worldwide chemical flame retardant market was worth US\$7 billion in 2014 and is expected to increase by an average CAGR of 5.7% per year, rising to US\$10 billion by 2019, with organophosphorus flame retardants having the highest rate of annual growth of 7.5% over the next five years. Alexium's proprietary Alexiflam chemistries fall into the organophosphorous category. Although a range of different compounds exist in this broad class of materials, the exact molecular design of the organophosphorous material, as well as how it is integrated into the end-product, has an enormous impact on its performance and durability, and Alexium has routinely shown itself to be unequaled in the marketplace.

Market Drivers:

There are several factors driving the FR market.

1. The economic recovery of the past several years has led to more manufactured goods being produced that require FR treatments, particularly in the construction, textiles/apparel, and automotive and transportation markets, accordingly, the size of the flame retardant chemistry market is expected to continue increasing year on year through to at least 2019;
2. In addition to this economic growth, industries are also implementing more stringent fire safety regulations which has caused companies to look for more effective performance in their FR solutions;
3. However, there are also environmental concerns surrounding some of the chemicals currently used in FR treatments. These concerns have led to growth in eco-friendly flame retardants, particularly organophosphorus solutions. Bans on brominated and halogenated chemicals will directly lead to further growth of eco-friendly chemistries due to companies needing to find new solutions for their products. In fact, organophosphorus flame retardants are expected to have the highest rate of growth between 2014 and 2019 due to regulatory impacts on traditional brominated chemistries.

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A key differentiator for Alexium's environmentally friendly FR products is the ability to treat nylon, polyester and similar materials with an effective FR solution. This will grow the use of such materials in areas requiring FR treatments due to their cost and performance benefits.

Size of the FR Market:

The worldwide flame retardant market is projected to be worth nearly \$10 billion in 2019. This figure includes all the industries where flame retardants are used, including building and construction, electronics, wires and cables, automotive and transportation, flooring and furnishings, and textiles, the last three being the markets that Alexium products currently service. Those three markets are currently worth \$2.5 billion and are estimated to be worth \$3.4 billion in 2019 worldwide.

Europe and North America account for 46.7% of the world's FR chemical consumption. The Asian market is the largest consumer of FR chemicals, but there are yet few regulations on the types of chemicals that can be used, and as such, brominated and halogenated solutions continue to dominate the market. Alexium is poised to enter Asia with our products, and this will accelerate as import bans are placed on any FR products that do not meet destination markets stringent FR regulations.

The textiles, flooring and furnishings, and automotive/transportation markets account for 33% of the entire end use industries for FR chemicals. These industries are also expected to increase by over 5% year on year by 2019. In 2014, the FR chemical market in Europe and North America for the textiles, flooring and furnishings, and automotive and transportation markets was worth \$1.04 billion, and it is expected to rise to \$1.34 billion by 2019.

In North America, the market is expected to increase from \$604 million to \$777.2 million in 2019. In Europe, where there are stringent fire safety regulations as well as laws banning halogenated chemicals, the organophosphorus fire retardant market is expected to increase from \$312 million in 2014 to \$439 million in 2019. The North American organophosphorus fire retardant market is likewise expecting an increase from \$267.3 million in 2014 to \$391.3 million in 2019 however this pace may quicken as new regulations come into force.

Conclusion:

This report verifies what Alexium has observed in the industry regarding fire safety regulations and legislation dictating those chemicals that companies are no longer allowed to use to treat their products. The study also demonstrates how large the FR market is in the industries currently being targeted and shows which industries Alexium can target as we develop more products using our environmentally friendly, patented FR solutions to meet the opportunity in those market segments. It is likely that we will approach markets in the building industry, electronics and plastic markets through joint ventures with existing suppliers in those markets.

To assist this process of expanding outside of conventional textile and transportation markets already targeted, Alexium has contracted the InnovaNet Group, LLC, a business development group based in Atlanta, Georgia, to quickly penetrate into adjacent markets. Alexium expects this relationship to positively impact revenue streams in 2015.

Copyright law prevents Alexium from publishing the report, but it can be purchased and viewed through MarketsandMarkets' website.

About MarketsandMarkets:

US based MarketsandMarkets is one of the world's leading full service market research and consultant companies. MarketsandMarkets produce over 1200 detailed studies per year spanning more than eight industries, and they specialize in business research of high growth industries, cutting edge technologies and new applications.

About the InnovaNet Group:

InnovaNet Group is a consulting firm that assists companies with business growth, technical development, and operations enhancement. They have experience in assessing market opportunities and developing effective business models to enable clients to maximize market share in new markets and industries as well as developing global and domestic growth strategies.

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About Alexium

Alexium International Group Limited (ASX: AJX, AX:AJX OTC QX: AXXIY) holds proprietary patent applications for a process developed initially by the U.S. Department of Defense, which allows for the surface modification and attachment of nano-particles or multiple chemical functional groups to surfaces or substrates to provide functions such as fire retardancy, water proofing, oil proofing, and anti-microbial treatments. Applications under development include but are not limited to textiles, paints, and packaging, glass and building materials. Alexium's fire retardant chemical treatment are currently marketed for different fabric markets under the Ascalon™, Nycolon™, Nuvalon™, and Polytron™, Omnitron™ and Bactron™ trademarks.



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