ALEXIUM INTERNATIONAL GROUP LTD (AJX)

Exploiting Opportunities Created by RST Technology

SPECULATIVE

3 April 2012

Share Trading Info	
ASX Code	AJX
Current Share Price (Aust. cps)	8.6
Trading Low/High (Rolling Year) (cps)	6.0 - 13.0
Mkt Captalisation (undiluted) $m	11.9
Cash Balance (Post Placement)	~$1.8m

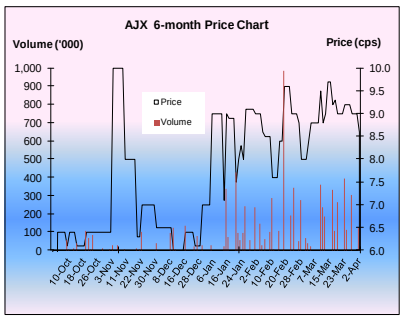
Capital Structure	(m)
Current Shares on Issue	**138.5**
Unlisted Options	46.0
Total Securities on Issue	**184.5**

Directors (Shaded) and Executive Management	
Gavin Rezos	Exec Chairman & President
Stephan Susta	Chief Operating Officer
Craig Smith-Gander	Non Executive Director
Dr Bob Brookins	Chief Technology Officer
Halis Alkis	Textile Consultant
John Almond	Mgr - Business Development Europe
Nick Clark	CFO & Company Secretary

Major Shareholders	
Korcula (BVI) SA	13.2%
HSBC Custody Nom. (Aust) Ltd - A/C 3	12.4%
Piper Buchanan Ltd	10.5%
HSBC Custody Nom. (Aust) Ltd - A/C 2	8.7%
JP Morgan Nominees (Aust)	5.8%

Important Disclosure

Investors should be aware that Alexium International Group Ltd is a corporate client of Alpha and that Alpha will receive a consultancy fee from Alexium International Group Ltd for compiling this research report



EXECUTIVE SUMMARY

Alexium International Group ('Alexium', 'AJX', or 'company') was established to exploit Reactive Surface Treatment (RST) technology developed by the US Department of Defense. RST technology is a unique patented award-winning technology that has the ability to change the surface properties and performance of many everyday materials.

AJX's strategic focus has shifted from providing individual protection for the defence industry, to its current focus, of

i. **Licensing RST technology to commercial partners to jointly develop differentiated products for the military sector and**

ii. **Leveraging RST technology for use in other commercial applications, in order to meet specific requirements and performance standards. AJX has identified several applications where it believes the process offers superior cost, performance and environmental benefits over existing technologies.**

Market Opportunities for RST Technology

- RST technology has the potential for extremely broad applications. Initially, the company will focus on those opportunities in Europe, Australia and the US. Longer term, the economies of the BRIC countries are the obvious prize, with the potential for significantly larger volumes.
- The competitive landscape for surface treatment technologies is constantly changing and new laminating techniques, UV and plasma deposition treatments are currently being commercialised.

  However the multi-billion dollar coating and surface treatment industry demands are diverse and fragmented and it is unlikely that one technology alone will meet all requirements. Success in even niche applications represents an enormous revenue opportunity for a novel disruptive technology.

  Notwithstanding, AJX are well positioned to leverage off the strong level of market demand for surface treatments for many industries including, textiles, leather, paints and glass coatings, plastics packaging and printing.
- Furthermore, in the case of textiles, by giving new properties to conventional fabrics, their value and scope of use may be significantly widened, often replacing more expensive materials.

Revenue and Earnings Potential Enhanced by Products in Development and Cost Advantages over Conventional Treatments

The potential for AJX to ramp-up revenue and earnings over the next 12-24 months is underpinned by the expansion, over the last 12 months, in the number of products in development for commercialisation.

AJX is presently negotiating licensing agreements for two of these products: flame-resistant synthetic fabrics and repellent treatment on ballistics fabrics. AJX anticipate that any licensing agreements will attract upfront payments, milestone payments and royalties.

1. The potential for AJX's **flame retardant treatment** is in high volume/high value applications such as military textiles, tents, sleeping bags, work wear and furnishings. AJX is presently performing larger demonstration runs for interested partners, as well as certification testing for military and commercial customers.

   The company estimates an initial conservative market for flame retardant nylon apparel to be in excess of seven million linear metres p.a. (with a market potential of 20-30 million metres p.a.), a revenue opportunity of at least $10 million p.a. to AJX (with excellent margin potential) and expected to grow at double digits as the technology gains acceptance with specifiers and manufacturers.

   Demand is likely to mostly come from military and commercial customers in the US, Australia and Europe. Asia and the emerging markets represent the major longer-term opportunity, once the technology has been validated commercially.

   AJX's next step is to scale-up and install equipment - specifically for the treatment of flame retardant nylon - at the plants of its commercial partners. The initial installation is most likely to be in the US, where the use of nylon fabrics is particularly widespread, compared to Europe, where polyester fabrics tend to predominate.
2. RST-based **repellent treatments on ballistics fibres** is being developed as an alternative to traditional repellent treatments, which are presently being phased out by industry and regulators for environmental reasons.

A third product, a chemical-biological treatment (*Cleanshell*™ CB), is geared to high-end items for defense (Army, Air Force, Navy) end users and first responders (Fire Brigade, Coast Guard, Police, Emergency Services). AJX has secured two recent purchase orders (totaling 700 yards of various fabric materials for further prototyping and extensive evaluations) from the US Department of Defense's Natick Soldier System Center.

In terms of the company's cost structure, AJX has both a cost and environment advantage over many other treatments as RST technology is a fast, low-heat, low-waste solution. In addition, the cost of developing new RST-based applications in the future is likely to contained, as

i) To date, in excess of US$30 million has been spent developing RST technology by the US Department of Defense with the focus in future will be on optimisation of the RST technology for specific applications.

ii) Many of the key issues associated with a new technology (scale-up, quality control and components supplies) are currently being addressed by AJX.

Robust Revenue Model

The company's revenue model is primarily based on licensing deals with material producers for military markets, with a secondary aspect being the direct fabric sales to the US Department of Defense. In the case of the flame retardant nylon treatment, AJX will seek to license its flame retardant nylon treatment to fabric finishers and in return will receive a license fee, monthly cost share contributions, milestone payments and royalties based on a percentage of sales on the end product. AJX aims to sell the processing equipment, providing initial maintenance and training services and supply the chemistry.

The majority of future revenues will be captured via royalties, based on goods produced and sold via military or commercial contracts. Cash flow is expected to initially improve by clearing technical development milestones, closing licensing deals and with future royalty streams - based on sale of products treated and sold into the manufacturing partner's distribution channels.

The flexibility of the revenue model is underpinned by the company's ability to supply its products (e.g. *Cleanshell*™) to other tenderers, in addition to directly tendering (as part of consortia) to the US Department of Defense.

Patents Granted and Patents Pending Underlines Superiority of RST Technology

The granting of patents in Hong Kong and, more recently, Singapore, provides a platform for the company to pursue partnering opportunities in Asia. Since obtaining a patent in Singapore in June 2011, AJX has begun the commercial roll-out for flame retardant nylon treatments, with the company expecting a first license in the June 2012 quarter and possibly another to follow shortly after. Further, the company anticipates forming a partnership in Asia in 2013, which could also involve chemical producer(s) located in Asia.

In addition, AJX has two patents pending from the European Patent Office and a Patent Cooperation Treaty Area (PCT) patent application for the treatment of paint additives - both of which open up an opportunity for the company to expand into new regions/applications.

Opportunity to Expand into Europe

AJX's flame retardant nylon treatment is being well received in Europe and the company is currently discussing partnerships with several leading integrated European technical textile manufacturers as well as specialist textile finishers, chemical providers and chemical formulation partners.

The company is focused on the commercial roll-out for initial flame retardant nylon treatments, as well as functional treatments of polyolefin fabrics. The initial European patent will provide some IP protection, however AJX is filing new, more product-specific patents based on more recent breakthroughs and developments.

Adequate Access to Funding

The cash balance as at 31 December 2011 was $0.82 million, which has been boosted in the March 2012 quarter by a placement to sophisticated and professional investors that raised $1.2 million[1]. The cash burn rate is extremely low, supported by option-based remuneration for executive staff that is subject to achievement of milestones. The board is also remunerated at a responsible level.

The recent placement allows AJX to commence larger demonstration runs for various customers at its South Carolina facility (in order to speed up the licensing process), enter into certification testing for military and commercial customers and expand the flame resistant technology into other high-margin product areas such as chemical-biological treatments.

AJX also has access to funding via an A$8 million, 3-year equity facility agreement with Centurion Private Equity LLC, formally completed in June 2011[2]. Further, the balance sheet is debt free and has net assets (as at 31 December 2011) of $8.65 million.

Instructively, the company's ability to raise equity from markets outside Australia has recently been bolstered by its listing on the US OTCQX[3] in January 2012, which allows AJX access to US capital markets and potentially improves liquidity of its shares in Australia.

AJX's quotation on the OTCQX is via American Depository Receipts (ADRs) on a 1-for-40 basis, with US investment bank Merriman Capital Inc. as the Principal American Liaison (PAL) and Bank of New York Mellon as the ADR sponsor. Merriman Capital will also assist in introducing AJX to its extensive network of institutions and brokers in the US. In addition, AJX shares have been listed on the Frankfurt Stock Exchange since July 2010. In June 2011, the company raised $1.35 million to both US and European institutional investors.

[1] In February 2012, AJX issued 15 million shares at 8 cents per share, with an attaching 1-for-3 unlisted options that have an exercise price of 12.5 cents per share with an expiry date of 22 August 2013.
[2] To date, there have been no drawdowns on this facility by AJX.
[3] The premier tier of the US OTC market.

1. COMPANY OVERVIEW

1.1 Background

The company was formed in May 2007 for the sole purpose of acquiring the global Intellectual Property rights to RST technology, which had been developed by Dr Jeff Owens at the US Air Force and the US Department of Defense.

The company listed in the shell of ETW Ltd (formerly Evans & Tate) in December 2009 after ETW acquired Alexium on a 100% scrip basis with 50%. As a component of the acquisition ETW raised $4.5 million, including a placement at 20 cents per share and then changed its name to Alexium International Group Ltd.

1.2 Key Partnerships

The key factor enabling AJX to hold rights for the Intellectual Property to RST technology is that the US Department of Defense generally does not commercialise technologies, but encourages commercial entities to assume the commercial and financial risks (and rewards) under US Government-legislated technology transfer programs.

Should the US Department of Defense seek to incorporate the technology into its operations, it will be able to do so through a number of commercial suppliers.

AJX has two key partnerships for fabric supply:

1. In March 2011, AJX entered into an Memorandum of Understanding Agreement with International Textile Group (ITG)[4] which established ITG as the AJX's preferred fabric supplier for the latter's tenders in the commercial and defence markets.
2. In addition, the company is working with SSM Industries in Tennessee, a leading supplier of flame retardant apparel, under a license option agreement.

1.3 Strong Management Structure

AJX has a strong management presence in the key US market, as well as in Australia and Europe, with a number of executives based in the US overseeing critical aspects of the company's operations, in particular product development, IP, commercial partnerships and development.

Please refer to Section 5 of this report (on page 15) for a more detailed discussion of the leadership structure.

[4] ITG is a major fabric manufacturer with worldwide operations.

1.4 Capital Structure

AJX currently has 138.5 million ordinary shares on issue, of which 35.4 million are restricted until 29 March 2012. At the time of writing, the undiluted market capitalisation was $11.9 million. There are an additional 31.8 million unlisted options (at various exercise prices and expiry) which are all out-of-the-money at present.

In addition, as at 21 September 2011, the top 20 shareholders comprise nearly 80% of the total shares on issue and of the 1,008 shareholders on the register, 524 shareholders held less than a marketable parcel of securities.

***Table 1*: AJX Capital Structure**

Shares/Options on Issue	Million	Expiry Date
Listed Ordinary Shares	103.2	
Restricted Ordinary Shares	35.4	29-Mar-12
Total Ordinary Shares	**138.5**	
Performance Shares		
- Class A	26.3	
- Class B	26.3	
Unlisted Options		
- Exercise Price 10c	7.0	31-Dec-12
- Exercise Price 12.5c	5.0	22-Aug-13
- Exercise Price 50c	2.5	26-Feb-14
- Exercise Price 30c	2.5	31-Dec-14
- Exercise Price 15c	12.5	31-Dec-15
- Exercise Price 20c	0.75	31-Dec-15
- Exercise Price 25c	1.0	31-Dec-15
- Exercise Price 10c	0.54	23-Jun-16
Total Unlisted Options	**31.8**	
Total Issued Securities	**222.8**	

Source: AJX, Alpha Securities

***Table 2*: AJX Balance Sheet**

Six Months Ended ($m)	Dec 2011	Jun 2011
Assets		
Cash	0.82	1.97
Trade and Other Receivables	0.06	0.02
Other Current Assets	0.09	0.04
Total Current Assets	**0.97**	**2.03**
Other Financial Assets	0.00	0.00
Property, Plant & Equipment	0.37	0.34
Intangible Assets	10.66	11.10
Total Non Current Assets	**11.03**	**11.45**
TOTAL ASSETS	**12.01**	**13.48**
Liabilities		
Current Liabilities	0.23	0.25
Non Current Liabilities	3.12	3.25
TOTAL LIABILITIES	**3.35**	**3.51**
NET ASSETS	**8.66**	**9.97**

2. OUTLINE OF RST TECHNOLOGY

2.1 Key Features and Advantages

The patented RST technology originated from research conducted by at the US Air Force Research Laboratory (Materials & Manufacturing Directorate), as part of a program for enhanced personal protection against chemical and biological threats. The initial application of RST technology was to treat standard textiles to provide the wearer protection against chemical and biological threats, as well as to provide infection control.

RST technology has received the award of "World's Best Technology 2009" after the technology was presented at the National Association of Seed and Venture Funds in 2009.

The technology uses microwave energy in combination with silane chemistry to attach either individual or multiple functional groups to a wide range of surfaces or substrates. The process has good environmental credentials as it uses commercially available chemicals and only limited energy (heat) and does not use harmful solvents or surfactants

A key distinguishing feature of RST technology over conventional surface treatments is the ability of RST's coatings to:

1. Covalently bond to the surface of the fibre and
2. When (1) is not possible, to form a nanoscopic intractable coating around the individual fibres (known as a 'shrink wrap' effect).

In contrast, most conventional surface treatments rely on chemical bonding with the surface of the material. This can present difficulties as certain fibres (such as aramids, polypropylene and nylon) are relatively inert and typically do not have reactive surfaces to which the coating may adhere.

The RST process is rapid and environmentally friendly, producing stable and durable single or multifunctional coatings that can be applied to most fibres, almost regardless of their surface or chemistry. There are of course other technologies which enable a single function, such as water and oil repellent or flame retardants, to be attached to a surface. By focusing on the treatment of difficult to treat synthetic fibres (nylon, polyester, polyamides, polyolefins) AJX has identified a very significant opportunity as the use of these materials continues to expand into higher performance and valuable uses.

RST technology allows multiple properties to be added simultaneously. AJX have demonstrated this by treating a standard military cotton/nylon fabric so that it is machine washable, oil and water repellent, flame retardant, antimicrobial to protect against infection and also to provide protection against various chemical or biological threats via a single process treatment, which is completed in seconds.

The process is based on organosilanes, which are silicon-containing chemical that have organic and inorganic functionalities in the same molecule. Organosilanes are commercially manufactures and are used widely as coupling agents.

That the process enables multiple functions to be attached simultaneously via a single treatment often means that it may replace multiple expensive, energy and chemically intensive treatments.

RST technology is considered a 'green technology' because the method involves low energy single pass treatment of five to 10 seconds; it is a non-thermal process with low power; the chemical use is lower, and the waste water quantities are low.

Table 3: **Potential RST Technology Applications**

Industry	Potential Application	Concept Tested	Comments
Textiles	Defence	Yes	Tents, masks, filters, boots
	Industrial Filters	No	Oil and water filters, filter membranes
	Furnishings/Upholstery	Yes	Fire retardant treatment, stain and water repellence
	Leather Footwear	Yes	Oil and water repellence
	Composite Fabrics	No	Improve fabric/resin adhesion
	Ballistic Fabrics	No	Improve water repellency/ballistic protection
Paints	Regenerating Antimicrobial	Yes	Hospital and hygiene, longitudinal study
	Marine Antifouling/ballast	No	RST to address regulatory issues faced by the shipping industry
Packaging	Cellulose Packaging	No	Grafting of anti-counterfeit 'watermarking' applied to packaging
Glass	Self Cleaning	Yes	Single and multiple functionality to glass

Source: AJX

2.2 Production and Operational Facility in South Carolina

In order to commercialise RST technology and to deal with the US Department of Defense, AJX established in May 2010 a fabric manufacturing and operational facility in Greenville County, South Carolina - in order to support both US Department of Defense and commercial partner requirements for treating materials for additional development testing.

In return for the substantial investment in the region's employment, the company receives credits on a range of taxes, including property tax, corporate income tax and sales tax, as well as training incentives over five to 10 years. At the time of the May 2010 announcement, AJX anticipated investing $8 million in the South Carolina facility over five years and creating 200 additional jobs.

The facility in South Carolina is used to demonstrate RST technology to prospective licensees, optimise treatments for customers, and enable AJX to offer turn-key systems for licensees operating in full-scale production environments. The product development cycle requires multiple test/evaluation/optimisation phases in order to gain customer acceptance.

The 11,00ft^2 facility was completed in June 2010 and is located in close proximity to leading materials, chemical industry companies, academic establishments and Fortune 500 companies. The first sales of textiles treated with RST-technology to the US Department of Defense were received shortly thereafter, in July 2010.

In early 2011, AJX commissioned a third generation production line for the facility which more than tripled production capacity. The South Carolina facility is capable of trials in runs of thousands of yards and the next stage is to install a line capable of production running into millions of yards.

While the facility has a certain production capacity, the company's strategy is to quickly spin out products to producers/manufacturers with much greater production capacity. More specifically, the intent of the facility is not to develop manufacturing capacity for a single product, but to use it as a site for scaled demonstration runs and production trials and to retain the agility to quickly retool for new product applications. The facility will also continue to be used as the US office, development laboratory, and the facility for assembling and testing microwave production modules to be placed into manufacturing locations.

AJX is also using the facility as its operational headquarters. Operations include the staff offices, a development laboratory, and infrastructure for test and evaluation, treatment module assembly, and limited production to support tenders and commercial partner testing requirements. The facility is regularly used to service small orders from the US Department of Defense, for testing innovative high end applications in textiles.

Figure 1: AJX's Facility in Greer, South Carolina

Figure 2*: Reel-to-Reel Applicator *(Source: AJX)

3. INTELLECTUAL PROPERTY PORTFOLIO

AJX has obtained rights to the US Intellectual Property (IP) for RST technology via an exclusive patent license agreement with the US Air Force. The US Air Force holds the original US patent for RST technology. AJX holds all international patent applications for RST technology.

In June 2011, the company was granted a patent in Singapore for its RST technology. The patent is for the 'Method for Attachment of Silicon-containing Compounds to a Surface and for the Synthesis of Hypervalent Silicon-compounds'. AJX already has equivalent patent grants in the UK and Hong Kong, China (SAR[5]), both granted in September 2010. The expiration dates for the Singapore, UK and Hong Kong patents is 2026.

In addition, the company has two patents pending:

1. The first is a patent from the European Patent Office (for the 'Method for Attachment of Silicon-containing Compounds to a Surface and for the Synthesis of Hypervalent Silicon-compounds').

2. Secondly, AJX has filed a Patent Cooperation Treaty Area (PCT) patent application for the treatment of paint additives. This technology - invented by the US Air Force Laboratory at Tyndall Air Force Base and developed under the original Co-Operative Research & Development Agreement (CRADA) between AJX and the US Department of Defense - is applied to Chemical-Agent Resistant Coating (CARC) coating systems as a means for creating low energy surfaces.

For commercial use of RST technology, AJX has to pay royalties of 2.5% on gross sales to the US Department of Defense and 5.0% on gross sales outside the US payable to Mr Jeff Owens, the inventor of RST technology.

4. PRODUCTS IN DEVELOPMENT

Under a new CRADA entered into in January 2012, both AJX and the US Air Force, both parties agreed to identify new applications and accelerate the availability of RST technology, not only for defence but also for broader non-defence related applications.

In particular, AJX is working with technical textile producers in applying the technology to enhance the performance of a wide range of technical textiles in the areas of ballistic, fire, oil and water protection, as well as dyeing and printing. Other priorities include the treatment of glass, polycarbonates and paints to enhance and expand their properties and functionality.

AJX has the right to patent any new applications developed under the CRADA.

Over the last 12 months, AJX's technical team has expanded the number of products in development for future commercialisation. These include:

[5] Special Administrative Region

1. Flame-resistant synthetic fabrics
2. Repellency treatment on ballistics fabrics
3. Chemical-biological treatments for defence applications
4. Composite fabric treatments and

Each of these products is discussed in further detail below.

4.1 Flame Resistant Synthetic Fabrics

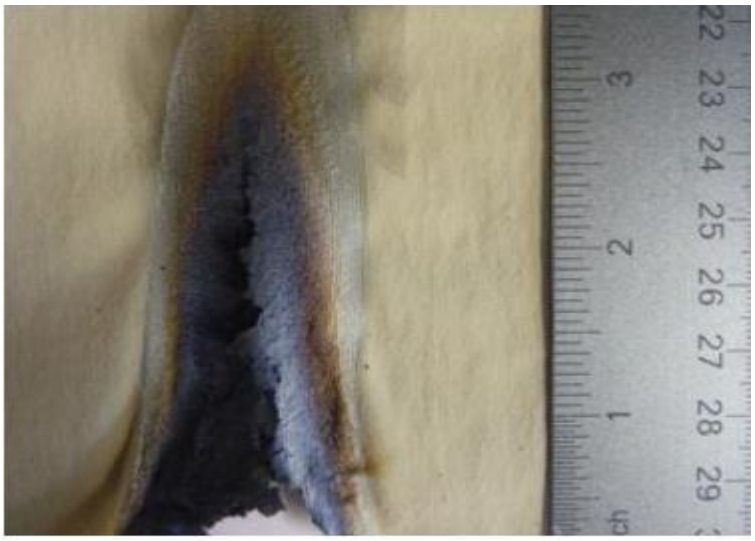
In January 2012, AJX announced that it entered into the commercial rollout phase of its eco-friendly flame retardant, water nylon treatment. The treatment is based on a new flame retardant mechanism that the company has discovered and developed for nylon fabrics. Further, the flame retardant treatment has met key technical milestones for flame retardancy, water repellency and durability.

The flame retardant treatment works by forming a protective nano-composite thermal char layer, which prevents any dripping or melting. This layer also prevents any dripping or melting, which are common problems for many synthetic flame resistant fabrics. Instructively, Notably, the flame retardant treatment is provided without using halogenated chemicals which are under increased scrutiny in the US and Europe because of their potential impact to the environment and public health.

Nylon is a strong, inexpensive material, but it performs poorly when exposed to heat and flame, as it burns, melts and drips easily. To the best of AJX's knowledge, there is presently no topical flame-retardant nylon product of this kind in the market. While heavy back coatings are currently available for rendering nylon flame retardant, they have limited application due to their weight, the use of toxic flame retardants and the loss of breathability.

The potential for AJX's flame retardant product is in high volume/high value applications such as military textiles, tents, sleeping bags, work wear and furnishings. Due to the inherent advantages over other fibres, nylon remains the top choice for many outdoor apparel systems, including the cold weather clothing systems which are issued to each core soldier in the US military.

Figure 3: **Treated Nylon Sample after Vertical Flame Testing**



Source: AJX Newsletter – November 2011

4.1.1 The Path to Commercialisation

AJX is presently performing larger demonstration runs for interested partners, as well as certification testing for military and commercial customers. Demand for the flame retardant treatment is likely to mostly come from military and commercial customers in the US, Australia and Europe.

To meet this demand, AJX plan to negotiate license agreements with partners to deliver flame retardant nylon treatment capabilities to fabric-producing partners.

4.1.2 Market Potential for Flame Retardant Nylon

Nylon is one of the world's most popular and versatile fibres and due to its unique, strength, durability, abrasion resistance and light weight, millions of metres are produced annually. To date, one of nylon fabric's principal weaknesses has been its poor fire performance and is known as flammable. Where fire protection is required, it is generally substituted for significantly more expensive fabrics, including flame retardant polyester.

AJX estimate that sales of each of these fibres are in the hundreds of million dollars annually despite the fact that each has its limitations in terms of cost, durability and versatility compared with nylon.

AJX believes that an environmentally friendly, cost-effective, flame retardant coating for nylon would therefore pose a significant threat to each of these alternatives. The company estimates an initial conservative market for flame retardant nylon apparel to be in excess of seven million linear metres p.a. (with a market potential of 20-30 million metres p.a.), a revenue opportunity of at least $10 million p.a. to AJX (with excellent margin potential) and expected to grow at double digits as the technology gains acceptance with specifiers and manufacturers.

Importantly, this does not include the potential from wider use of flame retardant nylon in other applications, such as furnishings, bedding electronics, aviation and public transport. AJX conservatively estimate that such additional applications could generate an additional 20-30 million linear metres annually, depending on final performance characteristics.

A key strategic and technical aim is to extend the work developed for synthetic fabrics for topical treatments on a range of synthetic/natural fiber blends (such as Nyco- Nylon /Cotton), a market opportunity that is much larger than the 100% nylon market.

4.2 Repellency Treatment on Ballistics Fabrics

AJX has introduced RST-based repellency treatments as an alternative to traditional repellency treatments which are presently being phased out by industry and regulators for health reasons. Traditional repellency treatments contain acids, including perfluorooctanoic acids (PFOAs) and/or perfluorooctanesulfonic acids (PFOSs), which are harmful to mammalian species[6].

AJX's repellency treatments do not contain such harmful acids. The advantage with AJX's offering is that it is utilises an environmentally-friendly alternative, and applies nanoscopic coatings that are expected to improve ballistics performance. The nanoscopic coatings can be applied onto a wide range of fibres in a continuous reel-to-reel process.

The company has partnered with Bruck Textiles to develop and apply its repellency treatment to Bruck's ballistic fibres for the defence and commercial sectors in the Australiasian market. Bruck is a major supplier of combat and non-combat apparel fabrics for the Australian Defence Forces and a key supplier to leading workwear brands in Australia.

AJX is presently negotiating with Bruck an exclusive licensing agreement for Australasia (for the repellency treatment and for future products, (e.g. vehicle protection)), including the delivery and commissioning of a production unit, as well as milestone and royalty payments.

Figure 4: **Para Aramid Fabric used for Ballistic Protection**

Source: AJX Newsletter – November 2011

[6] PFOA is a carcinogen, liver toxicant, a developmental toxicant, an immune system toxicant, and also exerts hormonal effects including the alteration of thyroid hormone levels. PFOS is a man-made fluorosurfactant and global pollutant.

4.3 Chemical-Biological Treatments for Defence Applications

At the end of April 2011, AJX partnered with Tennier Industries, Inc (Tennessee, US) and Stedfast Inc[7] (Quebec, Canada), to submit a US$129 million bid to the US Department of Defense to supply proprietary PANTHER Tactical Chemical Biological Protection Suits under the requirements of the Uniform Integrated Protection Ensemble Increment 1 (UIPE I1) program. Unfortunately for AJX, the submission, via Tennier Industries, was unsuccessful, due to the technical performance of an integrated carbon layer and not related AJX's processes and production.

Despite this setback, AJX have remained focused on developing chemical/biological treatments, with key opportunities for future tenders being the US Department of Defense (military and other chemical/biological protection), Police, Ambulance and Fire and Emergency Services.

Technology demonstrations are crucial to AJX securing further orders from the US Department of Defense. To this end, the company has developed a newer version of repellency treatment, *Cleanshell™ CB*, optimised to repel chemical-biological agents, such as tributylphosphate (TBP)[8].

Outer shell fabrics treated with *Cleanshell™ CB* protect the outer shell fabric from TBP penetration for days and is more superior to conventional water/oil-based repellency treatments, which only offer minutes of TBP protection.

In a sign of positive endorsement of the new *Cleanshell™ CB* treatment, the company is currently filling a material additional purchase order from the US Department of Defense for 100 yards of specially treated materials to be used by the US Department of Defense's Natick Soldier System Center in a technology demonstration to develop next generation protective equipment for soldiers.

In addition, AJX has recently secured a new purchase order to supply the Natick Soldier System Center with a further ~600 yards of various fabric materials for further prototyping and extensive evaluations.

[7] Tennier Industries is a leading US defence contractor, while Stedfast is a leading developer and supplier of innovative flexible protective materials throughout the world.
[8] The commercial rollout of *Cleanshell™* was commenced in January 2011, as an advanced water-and-oil textile repellent for a number of liquids, including gasoline, diesel, jet fuel, cooking oils, acids, solvents, oxidizers and water.

Figure 5: **Chemical-Biological Agent Stimulant (TBP) Droplets Four Days After Application**

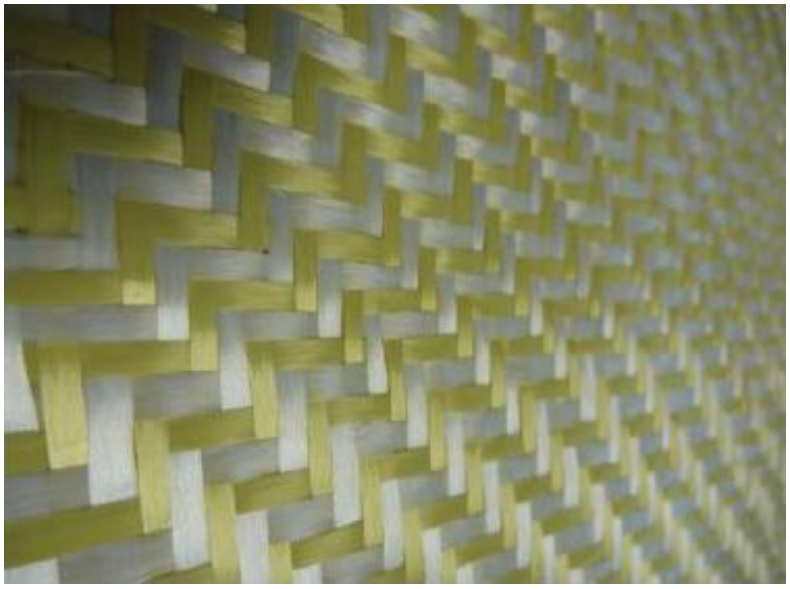
Source: AJX Newsletter – November 2011

4.4 Composite Fabric Treatments

AJX are optimising this treatment in order to demonstrate an increase in the adhesion of composite fibres to the resin matrix. The aim of this treatment is to reduce the number of mechanical failures from composite manufacturing.

Furthermore, for heat-sensitive composite fabrics, such as polyolefins, the 'cold' microwave process also offer distinguishing capabilities over conventional heat-curing techniques, which can damage heat-sensitive fibres.

Figure 6: **Composite Fibre for Alexium Treatment**



Source: AJX Newsletter – November 2011

5. LEADERSHIP STRUCTURE

AJX has a strong management presence in the key US market, as well as in Australia and Europe, with a number of executives based in the US overseeing critical aspects of the company's operations, in particular product development, IP, commercial partnerships and development. Executives in the US include:

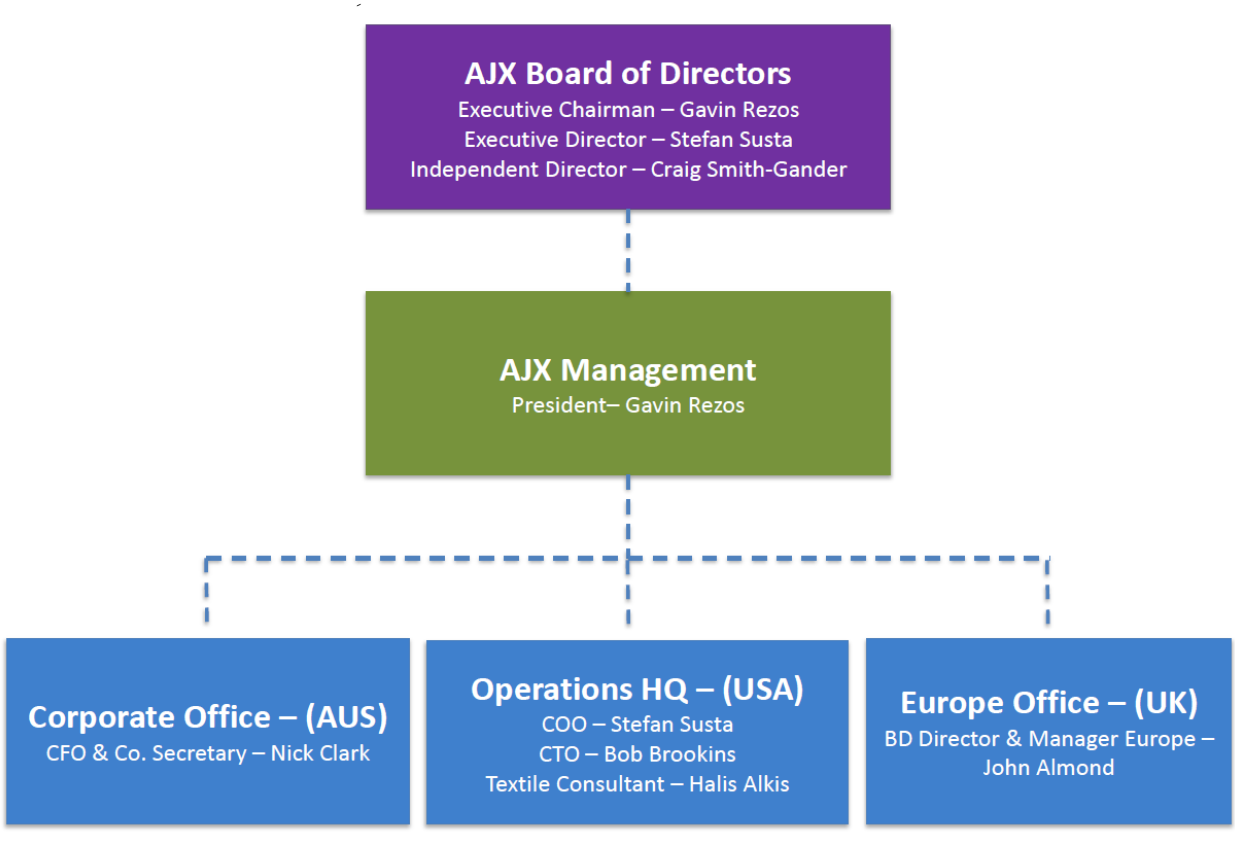
- ***Stefan Susta*** *(Director and Chief Operating Officer),* who is responsible for the US operations, Defense Business, commercial partnerships and commercial business development in the US.
- ***Dr Bob Brookins*** *(Chief Technology Officer),* who is responsible for product development and support, IP and the Co-Operative Research and Development Agreement with the US Air Force.
- ***Halis Alkis*** *(Textile Consultant).* Mr Alkis continues in his role as a textile consultant and allows the company to leverage off his extensive experience and network in the textile industry. Mr Alkis recently completed a 12-month interim term as CEO, following his appointment to the latter position in March 2011.

Following the completion of Mr Alkis' interim period as CEO and continuing in his role as Textile Consultant, The Executive Chairman and President, Mr Gavin Rezos has assumed greater responsibility for overseeing the operational and commercial aspects of the company's US and European businesses, as well as engaging the US investment community (following on from the recent OTC QX quotation in the US).

Mr Rezos remains based in Australia, together with Nick Clark (CFO and Company Secretary), who is responsible for AJX's financial, administrative and regulatory requirements in Australia, as well as liaison with the investment community in Australia.

The company's European operations are led by John Almond (Manager Business Development, Europe).

Detailed biographies of the Board and Executive Management, as well as AJX's current management structure are detailed below.



5.1 Board of Directors

DIRECTOR	BACKGROUND
Gavin Rezos *Executive Chairman and President* *Interest in AJX:* (Including related entities) Shares ~12.53m ord shares (2.5m restricted until 29 Mar 2012) 2.5m Performance Shares Unlisted Options: 1.65m @ 10c exp 31 Dec 2012; 2.5m @ 30c exp 31 Dec 2014; 2.0m @ 15c exp 31 Dec 2015	Mr Rezos has extensive Australian and international investment banking experience in a range of industries, as well as in cross-border merger and acquisitions, corporate finance and banking. He is a former Investment Banking Director of HSBC Group with regional roles during his HSBC career based in London, Sydney and Dubai. Mr Rezos has held CEO positions and executive directorships of companies in the technology sector in Australia, the UK, the US and Singapore, and was also an adviser to the Dubai Financial Market, Oman Stock Exchange and Bahrain Stock Exchange. He is currently a Director of Iluka Resources Limited (an ASX Top 50 company) and Principal of Viaticus Capital P/L.
Stephan Susta *Executive Director –* *Chief Operating Officer* *Interest in AJX:* Unlisted Options 2.0m @ 15c exp 31 Dec 2015	Mr Susta has spent over 14 years working with the US Department of Defense on Technology Insertion, Technology Transfer and Commercialisation. Mr Susta leads Alexium's US office operations and US Department of Defense business development efforts. His qualifications include a Bachelor of Science degree from Virginia Tech in Chemical Engineering and Chemistry in 1996, and a Master of Business Administration degree from Wright State University in 2001.
Craig Smith-Gander *Non Exec Director* *Interest in AJX:* Shares 114,286 ord shares; Unlisted Options 1.0m @ 15c exp 31 Dec 2015	Mr Smith-Gander is a graduate of the Royal Military College Duntroon and served as an officer in the Australian Regular Army. He worked in the Offshore Group at Clough Engineering Group and was appointed as the Group's first Risk Manager. He has extensive investment banking and corporate finance experience and is a former Director, Investment Banking at CIBC World Markets. Mr Smith-Gander is now the owner and Managing Director of Kwik Transport and Crane Hire P/L.

5.2 Executive Management

EXECUTIVE	BACKGROUND
Dr Bob Brookins *Chief Technology Officer*	Dr Brookins has broad experience in organic synthesis and materials chemistry. He received his PhD from the University of Florida under research advisor John R. Reynolds. Dr. Brookins' graduate work was in the synthesis and characterization of conjugated polyelectrolytes and polymers. Upon completion of his PhD, he worked at the Air Force Research Laboratory at Tyndall AFB where he developed decontamination methods for chemical and biological threats and novel synthetic routes for functional surfaces.
Halis Alkis *Textile Consultant*	Mr Alkis has over 36 years international business experience in general management, business development, manufacturing, operations, research and environmental and energy savings in the textile and related industries. He has held Board positions and senior management roles in both large and small US textile companies, including Milliken & Company and Kusters Corporation (as President and CEO) and has also acted as a consultant to International Textile Group.
John Almond *Manager Business Development - Europe*	Mr Almond has extensive experience in international banking in London, Switzerland, Saudi Arabia and the Middle East for several major banks, principally in investment management and advisory roles. He was also a Principal of a Paris and New York-based hedge fund group until 2002, and in his early career spent eight years in various international roles for a Fortune 500 diversified manufacturing group. Over much of his career his focus has been on identifying investment opportunities in emerging companies and new technologies.
Nick Clark *CFO and Company Secretary*	Mr Clark has over 18 years commercial and management experience, in the minerals and petroleum and industrial sectors. He has held senior and executive management roles overseeing contract (legal), commercial (finance and risk) and investor relations departments. Mr Clark has worked on various large scale projects both within publicly listed and private companies in WA and overseas in regions such as the US, Indonesia, China, Africa and the Middle East. He is a commercial specialist in the field of risk, strategy and mergers & acquisitions.

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