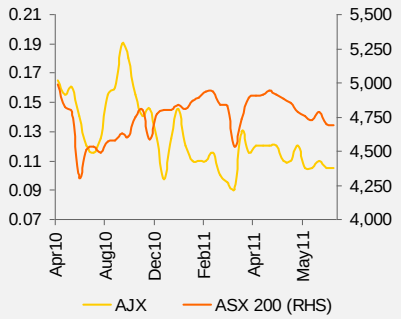
Alexium International Group Limited

(Ticker: ASX:AJX)

May 19, 2011

RB MILESTONE GROUP
EQUITY RESEARCH AND MARKET INTELLIGENCE

Price (A$):	**0.100**
Target Price (A$):	**0.391**
Beta:	**1.10**
Price/Book Ratio:	**1.15**
Debt/Equity Ratio:	**0.00**
Listed Exchange:	**ASX**



Recent News

20/04/2011: Alexium submits US$129 million bid to US DoD with Tennier Industries

28/03/2011: Alexium enters into collaborative agreement (MoU) with ITG

24/03/2011: Announces US$8 million three-year funding commitment from Roswell Capital Partners LLC, USA

03/03/2011: Signs MoU with Bruck Textiles Pty Limited to market and distribute products in Australia and New Zealand

16/02/2011: Extends cooperative R&D Agreement (CRADA) with the US Air Force

14/02/2011: Alexium and Steadfast Inc. execute teaming agreement

Shares in Issue

107.87 M

Market Cap

(A$M) 10.79

52 Week (High): A$0.195

52 Week (Low): A$0.080

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Defense and Civilian Deals to Offer Significant Upside

Alexium International Group Limited (AJX), an Australian company with its principal commercial activities located in the United States, is engaged in the commercialization of Reactive Surface Treatment (RST) technology. The technology involves binding commercially available silanes, which are compounds of silicon and hydrogen, to various surfaces through microwave energy. RST has a wide range of potential applications in textiles (military, technical textiles, medical textiles and multi-functional upholstery/furnishing treatments); air/fluid filters; industrial coatings; composite fibers; leather; and glass. The technology was initially developed by the US Department of Defense (DoD) in order to enhance the performance of specialist garments used to provide protection against Chemical, Biological, Radiological or Nuclear (CBRN) threats. The company's strong relationship with the DoD holds it in good stead to garner contracts under UIPE I1, JFIRE and JSLIST programs to provide protective suits for military personnel. Although initially the programs will lead to a combined annual revenue generation of ~US$37.5 million, the upside to revenues will be significant once the DoD fully adopts the technology as a standard. This would then open the door to the US military textiles market (worth ~US$2.4 billion) as well as the defense markets in allied countries.

Alexium is also actively pursuing partnerships and licensing deals to further commercialize the versatile RST technology. The company has tied up with US-based ITG Inc., a major global fabric manufacturer, to jointly exploit global opportunities in the defense and civilian markets. Moreover, Alexium has also entered into an agreement with Bruck Textiles to offer RST technology-based products for Australasia and with SSM Industries to apply RST technology for NASCAR's personal protection apparel.

Further, Alexium's future joint development of RST with the DoD to expand applications of the technology, which could lead to additional revenue streams and also help keep expenditures related to technology development under control. With a promising pipeline of defense contracts and civilian deals, we believe that moving forward the company is primed to witness a high-growth phase in revenue, margins and profitability.

We have valued Alexium on a Discounted Cash Flow (DCF) basis and initiate coverage with a target price of A$0.391/share, an upside of 291.1% from the last traded price of A$0.100/share.

Investment Arguments

- **Strong Revenue Potential from Defense Deals**. Alexium's RST technology is being evaluated by the DoD under various contracts for the development of new multi-functional CBRN protective suits. The contracts will lead to a strong and steady stream of revenues starting from FY12. The company has submitted a joint bid for the supply of lightweight CBRN suits under the UIPE I1 contract, worth US$129 million. If awarded, the contract will result in corresponding revenue of US$27 million to Alexium over three years at full production rate. Further, under the JFIRE program, Alexium expects revenue to start coming in after 2012, and once awarded the company's revenue share is expected to be ~US$500,000 for each contract year while under the JSLIST program, annual revenue potential is ~US$10 million. Moreover, since CBRN suits have a limited shelf-life and need to be replaced periodically, we believe this will create a billion dollar market opportunity (annual budget for the US military textiles is

~US$2.4 billion). In addition, ballistic fabric treatment also represents a large revenue opportunity for the company as the market is estimated to be ~US$10-15 million annually in the US alone.

- **Civilian Opportunities Offer Significant Growth Prospects**. Alexium is taking initiatives to commercialize RST technology in the civilian space and is looking for opportunities in textiles, filters and paints. In textiles, Alexium is aiming for higher-end market segments such as cashmere, medical textiles and dressings. The company has undergone initial trials which have demonstrated the technology's significant advantage over conventional technologies in terms of performance and cost savings. Paints are another area where RST would offer significant growth prospects by offering solutions such as anti-graffiti; biocidal/anti-microbial; corrosion resistance; and marine and aviation coatings. Filters used for industrial or automotive applications also represent a lucrative opportunity as the market is expected to reach ~US$49 billion in 2011. Water, oil, diesel and air filters typically require a robust surface functionality which can be achieved using RST technology. Further, we believe that Alexium's credentials and experience in the CBRN market would enable the company to get a foothold in the first responder (police, paramedics, etc.) market as well
- **RST Enhances Conventional Technologies**. Currently, there are a wide range of specialist textiles commercially available in the market. For example DuPont produces high performance aramid textiles, while companies such as Gore Tex make specialist breathable membranes integrated into high performance garments. However, the key advantage of RST technology is that it can be used to add new or enhance the properties of a wide range of textiles ranging from cotton to high performance synthetic fibers which, if properly exploited, would open up significant revenue generating options for Alexium. The key to the Alexium RST process is the ability to use the unit to apply lightweight, durable, nanoscopic coatings on to a textile fiber. These coatings may incorporate a wide range of functions including water/oil repellence, flame retardants, antimicrobials or as a combination of each for CBRN textiles. Treatments may be applied on a continuous reel to reel basis, and incorporated with existing production techniques, a necessity for the textile industry.
- **Product Development Efforts to Unlock Additional Revenue Drivers**. Alexium has entered into agreements with leading textile manufacturers to develop innovative products for a wide range of markets. The company has partnered with ITG, a major global textile manufacturer, to jointly exploit opportunities in defense and civilian markets. Further, Alexium has recently extended its ongoing Cooperative Research and Development Agreement (CRADA) with the US Air Force to develop new defense and civilian products and augment the patent portfolio. Although there is a gestation period involved for new RST-based applications to achieve full commercialization, we believe that adoption of the technology by the DoD after successful field trials would unveil significant market opportunities for Alexium to tap into
- **Valuation**. As Alexium is still in the initial phases of corporate development, its share price has decreased from A$0.140 on May 7, 2010 to A$0.100 at present. The company is currently trading at EV/EBITDA multiple of 1.2x for FY13E. Our DCF-based valuation model gives us a price target of A$0.391 with a potential upside of 291.1%. We believe that the stock is attractively priced at current levels with a significant upside potential

Company Overview

Introduction

Alexium International Group Limited, previously known as ETW Corporation Limited, was formed in Perth, Western Australia in May 2007 with the sole purpose of acquiring global intellectual property (IP) rights to RST technology. RST is a grafting technology developed jointly by the research division of the US Air Force (USAF) and the US DoD to enhance protection of its personnel against CBRN threats. The DoD holds the US patent rights for RST, but has given its exclusive US license, as well as the right to file for patents in other countries, to Alexium.

Alexium has two subsidiaries namely Cyprus-based Alexium Limited, which is the IP owner of RST and US-based Alexium Inc., which operates the recently-established manufacturing facility in Greer, South Carolina;

Exhibit 1 : Corporate Structure

Source: Company Reports, RB Milestone

Business Model

Alexium will generate revenues in the future by commercializing its RST technology in global defense and civilian markets. The company intends to generate initial revenues by jointly bidding, along with established defense equipment suppliers, for contracts awarded by the US DoD, especially under its various CBRN-related programs. We believe that once Alexium secures the defense deals, its future revenues would be a share in upfront annual payments received from the DoD, depending on the terms of the respective contracts.

Alexium has entered into partnerships with major global players in the textiles industry for product development as well as marketing and distribution. It is also actively looking for partners in other sectors such as air/fluid filtration and industrial coatings in order to develop and commercialize products. Moreover, Alexium would also be scouting for interested companies who would license the RST technology in return for license fees or royalties.

The company is required to pay the USAF a royalty of 2.5% for sales in the US and a 5% royalty to Dr. Jeff Owens, the inventor of RST technology, for sales only outside the US.

Significant Achievements

Alexium's significant milestones include the establishment of manufacturing facility in the US; an extension of its R&D agreement with the USAF; securing an US$8 million funding commitment; and a joint US$129 million bid for CBRN suits to the US DoD.

Exhibit 2 : Major Milestones

Apr 2011	Submits a joint US$129 million bid to the US DoD for chemical and biological protection suits.
Mar 2011	Signs MoU with Australia-based Bruck Textiles Pty Limited to market and distribute work wear and defense related products in Australia and New Zealand.
Mar 2011	Appoints Mr. Halis Alkis as interim CEO.
Mar 2011	Receives a three-year, US$8 million funding commitment from Roswell Capital Partners LLC, USA.
Mar 2011	Enters into product development agreement with International Textile Group Inc., USA.
Feb 2011	Extends Cooperative R&D Agreement (CRADA) with the US Air Force.
Jan 2011	Expands production capacity at South Carolina facility.
Jan 2011	Development and commercial roll-out of Cleanshell textile treatment process to make textiles water and oil repellent.
Sep 2010	Hong Kong grants patent for smart surface technology.
Sep 2010	Receives US Special Forces order for advanced protective textiles.
Jul 2010	First sales and revenues received from the DoD.
Jul 2010	Shares of Alexium are listed on the Frankfurt Stock Exchange and Xetra, a European trading platform.
Jun 2010	Commissioning of Alexium's first RST textile unit at South Carolina facility.
May 2010	Announces new main operations facility in South Carolina, USA.
Apr 2010	The US DoD short lists Alexium for next generation firefighter ensemble.
Mar 2010	Initial production of Alexium treated textiles was successfully tested by the USAF.

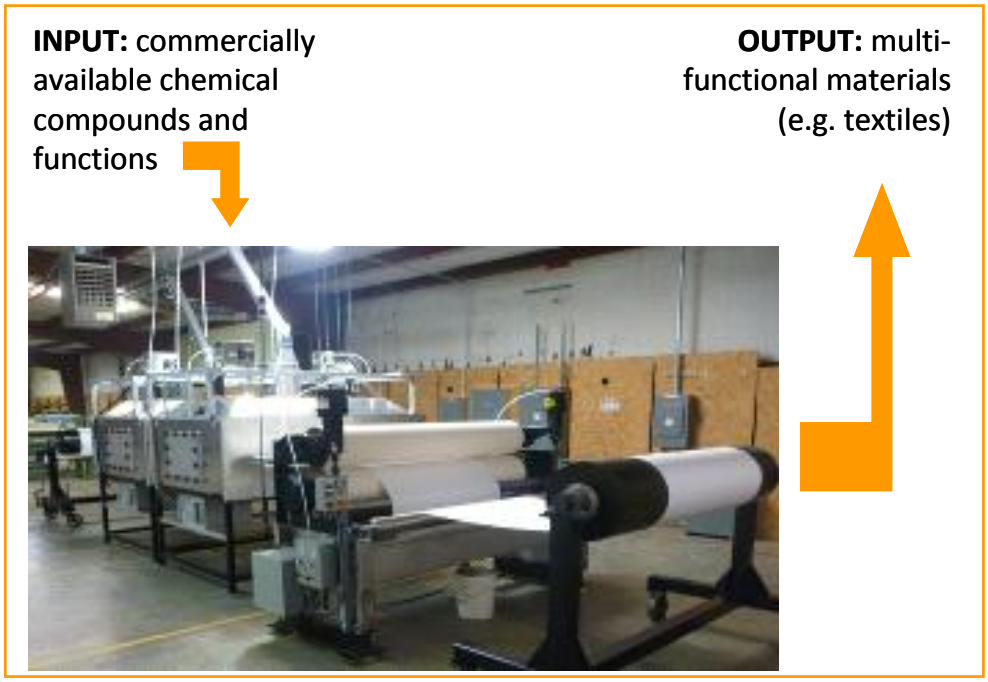
Source: Company Reports, RB Milestone

RST – Versatile Technology with a Wide Array of Applications

Reactive Surface Treatment (RST) technology was developed by Dr. Jeff Owens of the USAF research laboratories. The technology involves binding commercially available silanes, which are chemical compounds of silicon and hydrogen, to various surfaces or substrates through the use of microwave energy technology. As inventor of the technology, the DoD holds the US patent for RST but has given its exclusive US license, as well as the right to file for patents in other countries, to Alexium.

Alexium's RST technology has numerous potential applications across both defense and civilian fields. RST technology has already been tested on surfaces such as wool, cotton, leather and cellulose fibers as well as on a wide range of synthetics including aramids (aromatic polyamide – a class of high performance synthetic fiber) and polyester. The technology is also environment friendly as its latest coatings are surfactants and emulsifier free and uses no harmful solvents. Further, Alexium has entered into a Co-operative Research and Development Agreement (CRADA) with the US DoD to identify more applications of RST for both defense and much larger non-defense markets.

Exhibit 3 : RST Technology – At a Glance



Source: Company Presentations, RB Milestone

RST's competitive advantage arises from its ability to treat surfaces or attach multiple functions simultaneously through a single treatment. This increases the possibility of RST offering an alternative to conventional treatments that are typically less effective as well as energy- and chemical- intensive. A snapshot of RST's key features and capabilities is given below:

Exhibit 4 : RST – A Snapshot

Features	**Properties/Capabilities**
• Significantly enhances performance of ordinary textiles • Machine washable • Self extinguishing in a fire • Super hydrophobic and oleophobic • Antimicrobial • Protection against hazardous chemicals • The entire process is completed in seconds	• Ability to attach multiple functions simultaneously • Suitable for treatment of wide range of materials including glass, rubber, leather, metal oxides, wood and plastic • Process results in a strong 'triple point' durable covalent bonding • Functions exhibiting different properties and performance characteristics compared with attachment with other methods
Environmental Advantages	**Advantages vs. Conventional Technologies**
• Minimal energy consumption • Efficient use of water and chemicals • Environmentally friendly process - Seconds of low energy microwave - Process uses no biodegradable solvents - Minimal non-hazardous byproducts	• Process is fast and takes only seconds • Treatment may be either a batch or continuous process • Highly and easily scalable • Suitable for treatment of delicate materials • Low capital requirement

Source: Company Reports, RB Milestone

RST technology has been extensively tested by the DoD and other organizations for its applicability in various fields:

Exhibit 5 : Potential Applications of RST Technology

Industry	Application	Driver	Tested	Comments
Textiles	Defense	Performance	Yes	CBRN suits, tents, masks, filters, boots
	Industrial Filters	Performance/Cost	Yes	Oil and water filters, filter membranes
	Furnishings / Upholstery	Performance/Cost	Yes	Fire retardant treatment, stain and water repellence
	Footwear	Performance	Yes	Oil and water repellence
	Specialist Apparel	Performance	Yes	Work wear, 'first responders'
Paints	Self-decontaminating	Performance	Yes	Military and industrial applications
	Regenerating Antimicrobial	Performance	Yes	Hospital and hygiene, longitudinal study
	Marine Antifouling/ballast	Performance/Cost	No	RST to address regulatory issues faced by the shipping industry
	Anti-Graffiti	Performance	No	Low surface energy coating from RST
Packaging	Cellulose Packaging	Performance/Cost	No	Grafting of anti-counterfeit 'watermarking' applied to packaging
Glass	Self Cleaning	Performance/Cost	No	Single and multiple functionality to glass

Source: Company Reports, RB Milestone

Although there are a number of competitive surface finishing technologies currently in use for textile finishing, management believes that no single technology is capable of applying such a wide range of high quality lightweight single/multiple functional coatings to such an extensive range of textiles.

Product Applications

Alexium offers its products to both the defense and commercial markets.

Defense Applications

Alexium's technology is currently under evaluation by the DoD for applications in the following defense programs:

Uniform Integrated Protection Ensemble (UIPE)

UIPE program aims to procure a single supplemental system (CB suits) which would enhance the individual protective capabilities of military personnel. If awarded, Alexium would be the exclusive supplier of the CB suits' treated outershell layer (under the brand PANTHER) which will have strong repellency performance that sheds water, oil, and toxic industrial chemicals while exhibiting outstanding breathability. The suits will be evaluated by the DoD over the next six months after which it will award either single or multiple contracts.

The PANTHER Tactical Chemical Biological Protection Suits, available in both FR (flame retardant) and non-FR versions, are designed as a next-to-skin garment that significantly enhance mobility, reduce thermal and weight burden as well as the time taken to wear the entire CB ensemble when needed.

Joint Service Lightweight Integrated Suit Technology (JSLIST)

The DoD-funded JSLIST program is focused on the development of a new CBRN ensemble which is not only thinner, more breathable, more flexible, and lighter than existing suits but also provides identical or improved level of protection. RST's application in the program would be in the form of modifying traditional cotton and nylon fabrics by attaching multi-functional polymers to them, thus providing them with new properties and functions that either replace or reduce the need for conventional materials currently being used.

Alexium is looking to commercialize the new technology by pursuing textile and CBRN suit providers with whom to apply RST in order to achieve the proposed modifications. The market for JSLIST-type suits is huge as GlobalSecurity.org estimates that more than 4.5 million suits are currently under use by the US DoD. Alexium has identified specialist DoD textiles as a key area of focus and has started negotiations with various DoD textile suppliers to license the RST technology for non-CBRN clothing as well.

Joint Firefighter's Integrated Response Ensemble (JFIRE)

The JFIRE program of the US Air Force Fire Emergency Services aims to develop lightweight CB suits that will provide protection to fire fighters against chemical, biological and other potential hazardous substances, enabling them to respond to emergency situations effectively. Alexium's Cleanshell treatment was applied to a 100% cotton outershell, which was laminated to a carbon liner and scrim. The company manufactured five prototype suits which underwent sweating manikin, pyroman, and human subjects testing. The treated material demonstrated excellent repellency, CB protection and thermal properties.

The JFIRE program has already finalized one candidate and Alexium is working with this company (US-based Texshield Inc.) to certify its treated outershell material before the full government solicitation is issued, 12-18 months from now. Alexium also believes that the JFIRE project has applications beyond the USAF for defense and civilian firefighters worldwide who are required to work in a highly-contaminated environment and face numerous potential hazards.

Chemical Agent Resistant Coatings (CARC)

CARC refers to a program funded by the DoD which aims to develop specialized paints for military vehicles, aircraft and ships in order to protect them from chemical and biological threats. The DoD has already used Alexium's technology to modify standard paints and is currently undertaking field trials on aircrafts. Alexium has an advantage in the program which is being developed for the USAF, Army and Navy, as it is being developed under the leadership of the inventor of RST technology, Dr. Jeff Owens. Also, the company stands to benefit immensely if its technology is adopted since it possesses the global rights to RST.

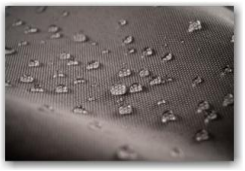
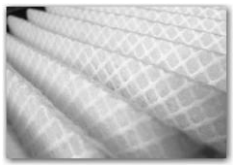
In addition to the programs listed above, Alexium's technology also has applications in the ballistic fabric treatment market. Ballistic fabrics are used to manufacture soft body armor and are provided to every deployed soldier. Alexium is already working with a ballistic fiber manufacturer and downstream finishers to test, evaluate, and implement this treatment.

Civilian Applications

In civilian use, Alexium's technology has applications across various sectors such as commercial textiles, filters, fibers, and paints. In textiles, the company is focused on the higher-end market segments such as workwear and medical textiles. The company has already conducted initial trials which have demonstrated the technology's significant advantage over conventional technologies in terms of performance and cost savings. In paints, the company is currently discussing applications with leading paint companies as

Alexium's technology may offer anti-graffiti, biocidal/anti-microbial and corrosion resistance solutions. In air/fluid filters use, whose global market is estimated to reach US$49 billion in 2011, RST technology could be applied to create a robust surface for industrial or automotive applications that typically require high surface functionality.

Exhibit 6 : Civilian Applications - At a Glance

Textiles  • Multifunctional technical textiles • Flame retardant nylon/cotton • Oil and water repellent aramids • Dyeing PBO	**Air/Fluid Filtration**  • Water and oil repellent Filter Media for increased performance and reduced pressure drop • Antimicrobial (permanent or regenerable)
Industrial Coatings  • Aircraft coatings and military • Anti-corrosion • Self cleaning/Ultra-slick • Antimicrobial • Anti-fouling	**Composite Fibers**  • Ballistic fiber treatments • Structural composite fiber treatment
Leather  • Oil/Water/Fuel/Hydraulic Fluid Repellent treatment • Antimicrobial treatments	**Glass/Lens Surface Treatment**  • Antifog • Anti-scratch • Oil/Water/Dirt repellent treatments • Multi-functional and specialty treatments
Bulk Chemicals  • Micro and Nanoparticle processing	**Thin Films**  • Metal/Polymer Hybrid Films • Conductive Flexible Circuits

Source: Company Reports, RB Milestone

Industry Overview

Alexium's RST technology was developed by the US DoD and most of its initial applications would cater to the US defense market. Hence, we provide a brief overview of the market that the technology would seek to capture in the near term.

During FY08, DoD's expenditure on goods and services was US$393.5 billion which is divided into Supplies and Equipment (S&E: US$191.6 billion or 48.7%) and services (US$201.9 billion or 51.3%). Within S&E, the DoD spent US$57.0 billion in areas such as manpower (which includes clothing, textiles and equipment); weapons and ammunition; and facilities. According to Industrial Fabrics Association International, DoD spending on military textiles and clothing is estimated to be US$2.4 billion in 2010.

The US defense budget for FY10 was US$691 billion, while that for FY11 has been proposed at US$708 billion.

CBRN Snapshot

CBRN pertains to Chemical, Biological, Radiological and Nuclear, and it is usually referred to in conjunction with weapons or equipment associated with those four hazards. Chemical threats refer to gas or vapor-based compounds arising from industrial processes and chemical weapons while Biological threats pertain to hazards from biological organisms, such as bacteria and viruses that can cause serious damage to the human body. Nuclear threats could be in the form of nuclear weapons or accidents in nuclear power plants while Radiological hazards could arise from nuclear threats and devices that combine radioactive materials such as cobalt-60 with conventional explosive substances.

Exhibit 7 : Examples of CBRN Threats

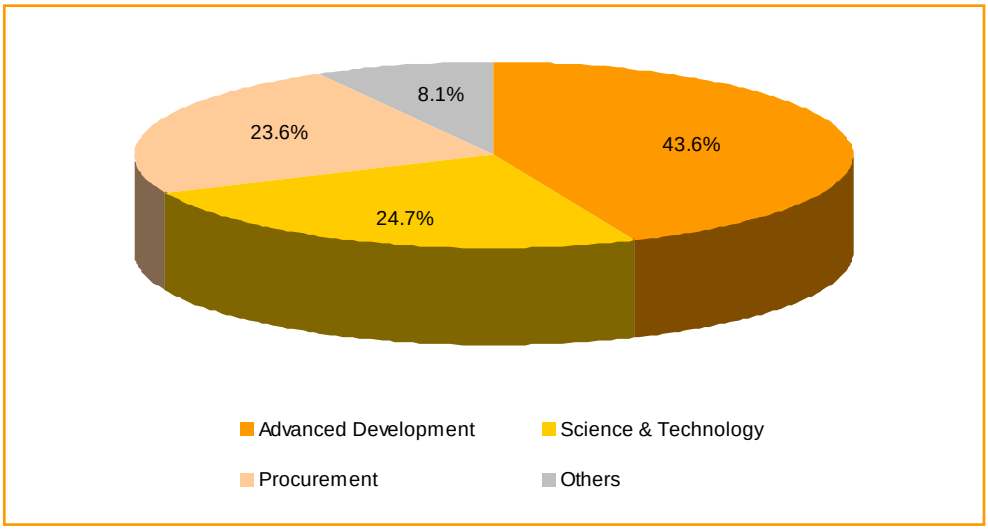
Agents	Symptoms	Characteristics
Chemical		
Cyanide	Rapid breathing, restlessness, dizziness, weakness, headache, nausea, vomiting and rapid heart rate.	The chemical sometimes gives off a "bitter almond" smell. However, it does not always emit an odor and not everyone can detect it.
Sulfur Mustard	Develops blisters on skin and mucous membranes, usually within 2 to 24 hours of contact. Other symptoms include redness/itching of skin, irritation, pain and swelling in eyes, runny nose, and abdominal pain.	Smells like garlic, onion or mustard, but at times have no odor. It's typically clear to yellow or brown in color.
Ricin	If inhaled, it causes coughing, tightness in the chest, breathing difficulty and nausea followed by heavy sweating.	It is usually made in the form of powder, mist or pellet and death from Ricin exposure occurs within 36 to 72 hours
Sarin	People are usually exposed to the chemical through skin or eye contact. Exposure causes runny nose; watery eyes; small, pinpoint pupils; eye pain; blurred vision; drooling; excessive sweating, cough, chest tightness, rapid breathing, diarrhea etc.	It is a type of nerve agent in the form of a clear and tasteless liquid and is odorless in its pure form. However, the chemical can convert into vapor (gas) and contaminate the environment.
VX	People are usually exposed through skin/eye contact or inhalation and demonstrate symptoms similar to Sarin exposure.	VX is the most potent of all nerve agents. It does not have any odor or taste and comes in an oily liquid form. VX is amber in color and evaporates very slowly.

Biological		
Anthrax	Inhalational anthrax is the most lethal form of the disease whose symptoms include sore throat, fever, muscle ache and malaise.	It is not contagious and the infection can be prevented by a vaccine. Anthrax spores remain dormant in the body for weeks and activate after a long time, causing the disease.
Botulism	Symptoms usually start occurring within 12 to 36 hours after consuming food that contains the toxins. Botulism causes double vision, blurred vision, drooping eyes, slurred speech, swallowing difficulty, dry mouth, muscle weakness, etc.	The toxin is produced by a bacterium called Clostridium botulinum and is not contagious.
Smallpox	Initial symptoms include fever (101 to 104 degrees Fahrenheit), malaise, head and body aches, and at times vomiting.	It usually spreads through direct and reasonably prolonged face-to-face contact as well as through direct contact with infected bodily fluids.
Plague	Fever, headache, weakness, quick development of pneumonia, chest pain, cough, and at times bloody or watery sputum. In certain cases nausea, vomiting and abdominal pain could also occur.	Infected person becomes ill within one to six days, and the disease typically spreads through close and direct contact.
Radiological/Nuclear		
Dirty Bomb	Refers to a mix of explosives, such as dynamite, coupled with radioactive substances. The blast set off by the explosive carries radioactive material into the surrounding area.	Radiation emitted by bombs cannot be detected by humans. Washing the entire body reduces the amount of radioactive contamination which effectively reduces total exposure.

Source: Centers for Disease Control and Prevention (USA), RB Milestone

The importance of effectively countering CBRN threats is gaining momentum in the US due to factors such as global advancement in weapons technology, involvement in foreign conflicts and rapid upgradation of defense capabilities by hostile states such as North Korea. The DoD's Chemical Biological Defense Program (CBDP) would receive a total funding of US$1.6 billion in FY11 of which US$369.9 million (23%) would be used for procurement. The program aims to provide support and capabilities that enable the US Armed Forces to effectively counter CBRN threats. The program has become an essential component of the DoD's efforts to combine chemical and biological defense activities.

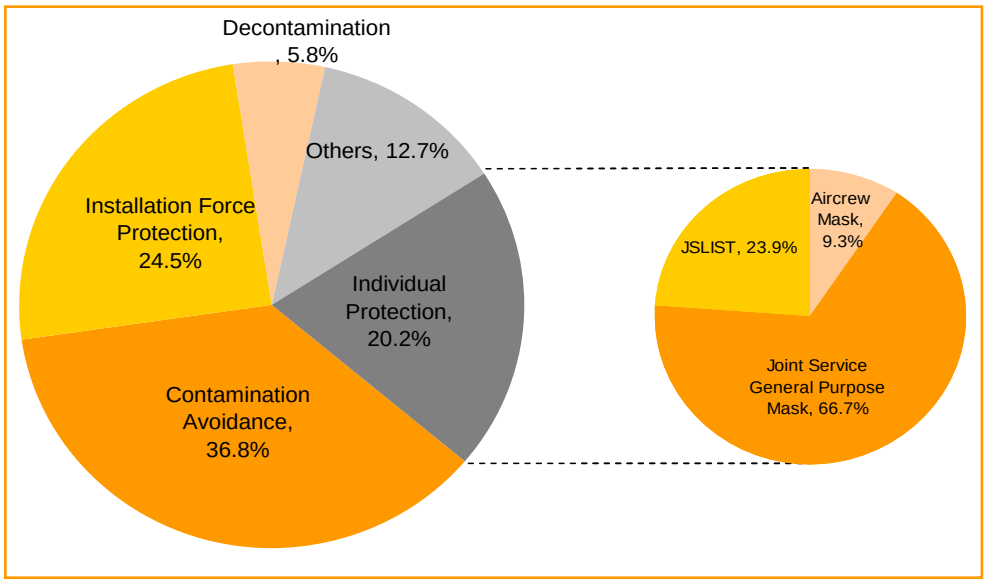
Exhibit 8 : CBDP FY11 Resource Allocation



Source: US DoD, RB Milestone

Within the funding earmarked for CBDP procurement, US$74.7 million or 20.2% will be spent on Individual Protection. Within Individual Protection, the CBDP has allocated US$17.9 million or 23.9% towards the JSLIST program.

Exhibit 9 : CBDP FY11 Procurement Funding Breakdown



Source: US DoD, RB Milestone

The CBRN clothing space already has a few players that offer suits designed for defense purposes. Among these players, Alexium is working with Tex-Shield Inc., a subsidiary of Blücher GmbH, to certify the Cleanshell-treated outershell materials to be used in the suits.

Exhibit 10 : Players Offering CBRN Suits

Company	Brief Overview	CBRN Suits
Lion Apparel, Inc.	Lion is a family-owned organization based in Ohio, USA. It offers products aimed at enhancing safety and performance of first responders. The company's customers include the US Marine Corps and the German armed forces.	The company offers four CBRN ensembles: MIGZ3 – a mass incident garment; ICG – a top entry technical rescue CBRN ensemble; MT94 – a back entry CBRN ensemble that provides vapor, liquid and fire protection from chem/bio accidents; and ERS – an Extended Response Suit that offers protection from the highest level of threats.
Remploy Frontline	UK-based Remploy is engaged in the design, development and production of CBRN products for global military and civilian markets. The firm's customers include the UK Ministry of Defense, the US Chemical Stockpile Emergency Preparedness Program and the Australian Army.	The firm offers the Frontliner, Cougar, Panther and MKIV brand CBRN ensembles.
Paul Boyé Technologies	Paul Boyé is a France-based company involved in the research, development and production of CBRN suits for armed forces and civil defense.	The company offers TLD ARI3 – a lightweight decontamination and protective suit; CLD 130 – a lightweight decontamination and protective overall; and T.O.M., FLIGHT T3P and S.W.A.T. – all of which are permanent wear CBRN protective suits.
Blücher GmbH	Germany-based Blücher is engaged in the development and manufacture of systems that filter out toxic and other undesirable substances from gases and liquids. The company has manufacturing facilities in Germany and the US.	The firm offers the Saratoga brand air-permeable CBRN protective material for both defense and civilian markets.

Source: Company Websites, RB Milestone

Growth Drivers

Strong Potential Revenue Streams from Defense Contracts

Alexium's RST technology is being actively evaluated by the DoD under various contracts for the development of new multi-functional CBRN protective suits. The contracts will lead to a strong and steady stream of income generated via orders for CBRN suits starting in 2012. Further, CBRN suits typically have a limited shelf-life and have to be replaced periodically which offers Alexium opportunities to generate recurring revenue streams. Alexium is currently participating in four tenders conducted by the DoD and has already been shortlisted for three.

UIPE I1 program: Alexium, together with Tennier Industries and Stedfast, has bid for the supply of lightweight CBRN suits (PANTHER Suit) under the UIPE I1 contract which is worth US$129 million. The PANTHER suit is manufactured by Tennier, a producer of quality end-items for the US military, and is available in a flame retardant (FR) version and a non-FR version. Alexium is the exclusive supplier of the PANTHER suits' treated outershell layer.

We expect that these suits will be a strong contender for the contract as the RST technology (used in the suits) was initially developed by the DoD itself. If a single tender is awarded to Tennier Industries under this IDIQ contract, the corresponding revenue to Alexium is estimated at US$27 million over three years at full production rate. Apart from this, opportunities exist for Alexium to offer CBRN suits to other US agencies and allied foreign defense forces as well as to first responders and emergency services.

JFIRE program: Alexium has already been selected to provide the chemical protective suit component for the JFIRE program of the USAF. In July 2010, it received an order from the DoD for additional Cleanshell-treated fabric materials which will be sewn into suits for field trials. Alexium expects revenue stream from JFIRE only after 2012, subject to government procurement solicitation and certification with Texshield's carbon liner material.

The order would be for 6,000 suits per year for three years. Alexium's revenue share, if the contract is awarded, is expected to be ~US$500,000 for each contract year. The company also believes that the JFIRE project has applications beyond the USAF for defense and civilian firefighters worldwide who are required to work in a highly-contaminated environment and face numerous potential hazards.

JSLIST program: The JSLIST program is one of the most promising revenue drivers for Alexium. The US DoD is actively evaluating the technology for the program which is made evident by the fact that it has already placed an order with the company for its treated multi-functional fabrics that will be demonstrated for the JSLIST protection system.

The market for JSLIST-type suits is huge as GlobalSecurity.org estimates that more than 4.5 million ensembles are currently under use by the US DoD. In addition to the eventual replacement contract, routine replenishment contracts present a more immediate target for Alexium. The average number of suits purchased each year is estimated at 50,000. Other CB-protective suits such as the Joint Protective AirCrew Ensemble - JPACE, in total, represent an equivalent opportunity. These suits have annual revenue potential of ~US$10M.

CARC program: Significant work has been undertaken on applying the RST technology to paint coatings. Alexium's technology is a candidate for use by the US DoD in a multi-million dollar military paint program to develop high-performance coatings for military planes, ships, and vehicles. We expect additional news on progress with this program in 2012.

Ballistic Textiles: The unique lightweight properties of the Alexium treatment are of great potential interest in the treatment of aramid soft ballistic fabrics, a market valued at more

than US$10-15M annually and growing rapidly. The company is already working with a ballistic fiber manufacturer as well as downstream finishers to test, evaluate, and implement this treatment. This application also opens the door to the much larger aramid composite market used not only in personnel protection but also in vehicle protection.

Pursuing Opportunities in the Civilian Market

Alexium is taking initiatives to commercialize its RST technology in the civilian space and is looking for opportunities in textiles, filters and paints.

- Alexium would be focusing on the higher-end market segments in textiles such as workwear, medical textiles, dressings and multi-functional upholstery/furnishing treatments. The company has already conducted initial trials which have demonstrated the technology's significant advantage over conventional technologies in terms of performance and multi-functionality.
- Further, paints also appear to be a major opportunity for RST and Alexium is currently discussing applications with leading paint companies. Alexium believes that the RST technology can offer solutions to some of the critical challenges facing the global paints and coatings industry including the anti-graffiti, biocidal/anti-microbial, corrosion resistance, marine and aviation coatings
- The global filters market is estimated to reach US$49 billion in 2011, according to the Freedonia Group. Filters are used not only for industrial or automotive applications that require high surface functionality but also more specialized and higher performance uses including pharmaceutical, medical and cosmetics. The significance of the RST technology to attach a wide range of functions to the surface of an even wider range of filter media has not been lost to the industry or Alexium.
- Alexium is also working with SSM Industries in Tennessee, a leading US textile manufacturer, to supply the technology to be used in NASCAR's personal protection apparel under a licensing deal
- With its credentials and experience in CBRN equipment, Alexium would have a competitive advantage to get a foothold in the first responder market (police and fire services)
- Alexium is also in the process of identifying potential commercial customers in the textile, filters and glass markets and it expects to conclude license or partnership agreements during 2011-12

Unique RST Technology with Fewer Commercial Comparables

Alexium's RST technology was developed, under a US$30 million R&D program of the US DoD, to add multi-functional properties such as providing chemical and biological protection; water and oil repellency; flame retardation; and anti-microbial protection to a wide range of surfaces. The technology has been extensively tested as a clean, cost-effective, low-energy process which could be completed in seconds and eliminates the use of harmful solvents.

Currently, there are only a few comparable surface treatments commercially available in the market. For instance, DuPont offers its Kevlar high-performance textiles whereas Gore Tex makes breathable waterproof garments. However, the key advantage of RST technology is that it can be used to enhance the properties of a wide range of textile products, which, if properly exploited, would open up immense revenue-generating options for Alexium. Similarly, for repellency, plasma treatment companies like P2i offer competition but their focus is increasingly towards electronics and items, which can be treated on a batch basis. However, RST provides a competitive advantage in terms of scalability particularly for materials where continuous treatment is preferable and more cost effective.

Product Development Efforts to Provide New Revenue Drivers

Alexium has entered into agreement with leading textile manufacturers to develop innovative products for a wide range of markets. The company is partnering with ITG, a major global fabric manufacturer, to jointly exploit opportunities in commercial and defense markets. Both firms have agreed to develop new product lines that incorporate the RST technology in textiles in order to provide multifunctional properties such as chemical and biological protection; water and oil repellency; flame retardation; and anti-microbial protection. Further, Alexium has also partnered with Bruck textiles in the Australasian market to provide treated products on a commercial scale for a variety of protective, military, industrial, automotive and household applications.

Alexium is also actively involved in the ongoing Cooperative Research and Development Agreement (CRDA) with the US Air Force to develop new defense and civilian products and augment the patent portfolio. Although there is a gestation period involved for new RST-based applications to achieve full commercialization, we believe that the adoption of the technology by the US DoD after successful field trials would unveil significant market opportunities for Alexium to tap into.

SWOT

Strengths

- Alexium has developed a strong relationship with the DoD which is evident from the fact that it is currently under evaluation for three defense contracts
- Commercialization of RST technology in civilian applications is already underway as the company's products are currently being evaluated by well-established textile players such as ITG, SSM Industries and Bruck Textiles
- Alexium has entered into a co-operative research agreement with the DoD for developing further applications of the technology which would keep R&D expenses low for the company
- RST technology has several applications which can be easily applied by using commercially-available chemicals with minimal energy and without using any harmful solvents. This offers the RST a competitive advantage over other conventional technologies
- The company has already secured a three-year, US$8 million funding commitment from Roswell Capital Partners, LLC which would help the company to aggressively commercialize its technology across the world

Weaknesses

- Alexium is yet to record substantial revenues since its incorporation in 2007, which could be due to the fact that it is still in the initial phases of corporate development and the commercialization of RST technology. The technology is in the final stages of evaluation by the DoD and, once adopted, revenues will soon start to come in
- RST technology has limited commercial viability for civilian markets as the technology is currently under evaluation by major textile manufacturers for commercialization

Opportunities

- Alexium's technology has a wide range of applications such as technical textiles, filters, fibers and paints which the company could look to capitalize on
- The annual US military textile budget of ~US$2.4 billion would encourage the company to aggressively look for opportunities in this space through partnerships and licensing deals with established players in the industry
- Once RST technology is widely adopted in defense markets, it will enable the company to effectively exploit civilian markets (such as first responders, law enforcement, etc.) as well

Threats

- Alexium is expected to face stiff competition from bigger and more well-established players offering similar products. However, RST technology is unique and was initially developed and tested by the DoD which offers the company a slight edge over other players in the defense market
- Any delay in securing contracts from the DoD could hamper the company's growth prospects

Latest Financial Results

Exhibit 11 : Annual and Half-yearly Income Statements

Australian $	FY09 Jun 30, 09	FY10 Jun 30, 10	1HFY10 Dec 31, 09	1HFY11 Dec 31, 10
Revenue	**-**	**50,923**	**-**	**-**
Cost of Sales	-	(173,822)	-	(184,226)
Gross Profit / (Loss)	**-**	**(122,899)**	**-**	**(184,226)**
General and Administrative	-	-	(300,858)	(465,252)
Employee Expenses	(151,949)	(433,862)	-	(587,623)
Depreciation and Amortization	-	(239,652)	-	(366,556)
Share Based Payments	-	(746,195)	-	(51,418)
Impairment	-	(3,465,442)	-	(1,989)
Other Expenses	(179,183)	(810,803)	-	-
Profit/ (Loss) from Operations (EBIT)	**(331,132)**	**(5,818,853)**	**(300,858)**	**(1,657,064)**
Interest Income	25,482	42,149	-	-
Other Income	4,545	-	4,384	64,384
Profit/ (Loss) Before Income Tax (PBT)	**(301,105)**	**(5,776,704)**	**(296,474)**	**(1,592,680)**
Income Tax Credit /(Expense)	-	-	-	-
Net Profit/ (Loss)	**(301,105)**	**(5,776,704)**	**(296,474)**	**(1,592,680)**
Basic and Diluted EPS (in cents)	(0.95)	(9.92)	(0.09)	(1.48)

Source: Company Filings, RB Milestone

Financials for FY09 and FY10 are not comparable as Alexium was formed by acquiring 100% of Alexium Limited on February 26, 2010. Prior to the acquisition, the company existed under the name of ETW Corporation Limited, an operating wine distribution business in Australia.

Post acquisition, Alexium operates as a holding company engaged in the development and commercialization of RST Technology. The company was listed on the ASX on March 29, 2010 by raising equity of more than A$3.5 million.

Alexium is currently involved in four tenders being conducted by the DoD and has been shortlisted for three. It is expected that two of these tenders will be finalized this year.

During FY10, Alexium reported a net loss of A$5.8 million (2009: A$301,105) mainly due to prior acquisitions. The transaction resulted in a share-based payment expense of A$746,195 (2009: Nil) and a deferred tax liability of A$3.5 million arising from the business combination which was subsequently impaired in FY10. As of 30 June 2010, Alexium had 107.9 million shares on issue.

Alexium did not generate any revenue during 1HFY11 as the company's military applications are still in the final phase of getting accepted to large-scale production. Over the next 12 months, we believe Alexium would witness favorable announcements in relation to the DoD contracts and US grants, as well as commercialization of civilian applications of RST with industry partners and licenses in the US, Europe and Australia. Accordingly, we expect Alexium to generate meaningful revenue from 2HFY11 onwards.

Valuation & Investment View

DCF Valuation Analysis

Alexium will generate revenue through the royalty income by commercializing its RST technology. It is the exclusive licensee of this particular patent and has applied for additional patents in its own capacity around the world.

We believe the company has the capability to generate strong cash flow from operations from FY12 assuming that the DoD contracts will enter the production phase, and some significant revenue will come in from commercial applications. We also expect that in 2011, Alexium will still be executing trial orders for military and commercial applications. Hence, we use the DCF valuation model with explicit forecasts until FY15 to value the company's operations. We have not considered peer valuation in our analysis as it is very difficult to find publicly traded specialist chemical companies that are comparable to Alexium.

Exhibit 12 : WACC Computation

Cost of debt	
Average pre-tax interest cost of debt	
Average tax rate	30.0%
Average post-tax interest cost of debt (k_d)	0.0%
Debt/(Debt+Equity) (W_d)	0.0%
Weighted average cost of debt ($W_d \times k_d$)	**0.0%**
Cost of equity (CAPM)	
Risk free rate (R_f)	5.5%
Market rate of return (R_m)	12.0%
Beta (β)	1.10
Risk premium β(R_m-R_f)	7.2%
Cost of equity (k_e)	12.7%
Equity/(Debt+Equity) (W_e)	100.0%
Weighted average cost of equity ($W_e \times k_e$)	**12.7%**
Weighted average cost of capital	**12.7%**

Source: Company Filings, Bloomberg, RB Milestone

Exhibit 13 : Per Share Value

Value per common stock	
Sum of PV of FCFF	5,670,789
PV of terminal value	35,529,608
Value of operations	**41,200,396**
Adjusted for	
Total debt	0
Cash and cash equivalents	992,512
Minority interest	0
Value available to common stockholders	42,192,909
Shares outstanding	107,872,000
Value per share	**0.391**
Current Market Price	0.100
Upside/downside	**291.1%**

Source: Company Filings, RB Milestone

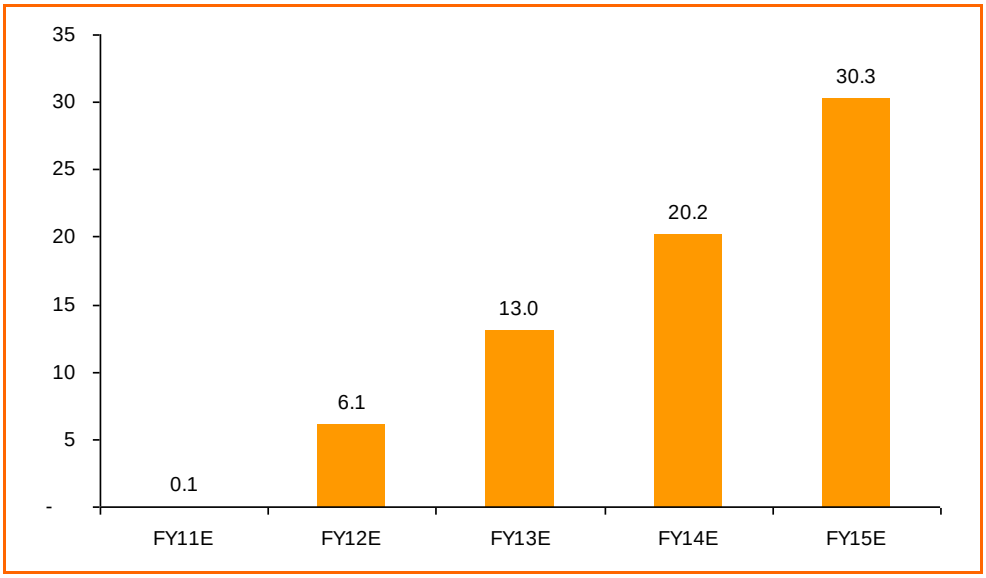
Exhibit 14 : Sensitivity Analysis

	Weighted average cost of capital						**Step**	**2.00%**
Perpetual growth		**6.7%**	**8.7%**	**10.7%**	**12.7%**	**14.7%**	**16.7%**	**18.7%**
	0.3%	0.824	0.598	0.461	0.369	0.303	0.254	0.216
	0.5%	0.856	0.616	0.472	0.376	0.308	0.258	0.219
	0.8%	0.891	0.634	0.483	0.383	0.313	0.261	0.222
	1.0%	0.929	0.654	0.495	**0.391**	0.319	0.265	0.225
	1.3%	0.970	0.675	0.507	0.399	0.324	0.269	0.227
	1.5%	1.016	0.698	0.520	0.407	0.330	0.273	0.231
	0.25%							

Source: Company Filings, RB Milestone

We expect Alexium's revenues to reach A$6.1 million in FY12, from the DoD orders for CBRN suits as well as commercial applications which are expected to pick up significantly. Most of the defense contracts are in the final stages of testing and will start generating revenues after their expected roll-out this year. By FY15, we anticipate revenues to reach A$30.3 million as the company expands its reach into both military and commercial markets across the globe.

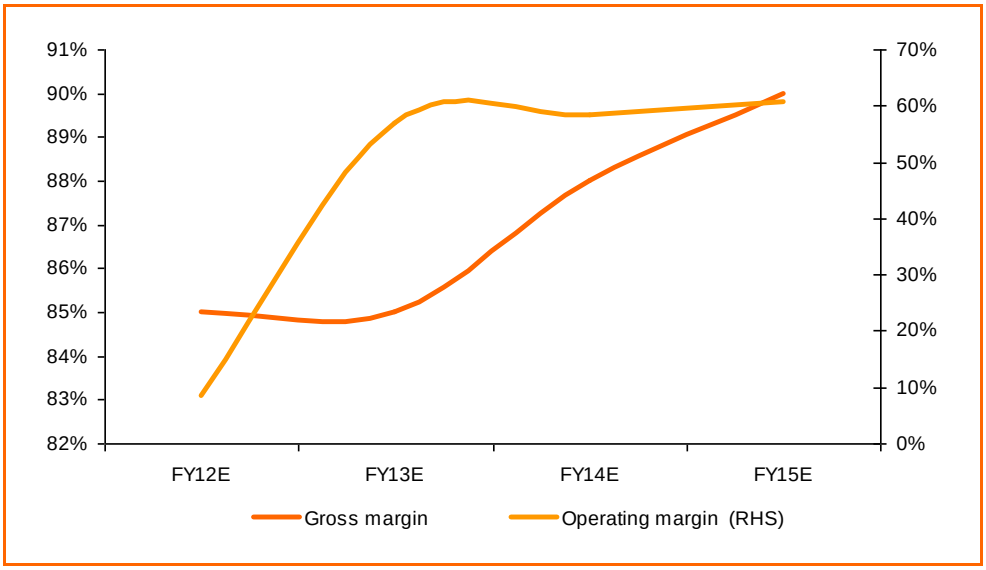
Exhibit 15 : Revenue Forecast (A$ mn)



Source: RB Milestone

Alexium's major cost driver originates from sourcing various compounds or chemicals (silanes) for commercial application of RST technology in defense and civilian markets. Further, we expect R&D expenses to remain low as the DoD has already spent more than US$30 million on developing the RST technology and new applications in the future will be jointly developed with the DoD. Moving forward, with large-scale production of CBRN suits and other commercial applications, we anticipate EBITDA and EBIT margins to come in at 65.0% and 60.7%, respectively, in FY15.

Exhibit 16 : Margins



Source: RB Milestone

DCF valuation gives an upside of 291.1% based on the last traded price of A$0.100 and we believe that at the current price level, there is significant upside potential.

Key Risk Factors

- **Heavy Reliance on the DoD**. Alexium is currently in the initial stages of commercialization of the RST technology and would rely heavily on the DoD contracts for meaningful revenues. Accordingly, any delay in securing the contracts would materially impact the company's financial performance
- **Disruption in Sourcing Compounds**. Alexium needs to source various compounds or chemicals for commercial application of RST. Any disruption sourcing these compounds would adversely impact the company's ability to undertake large-scale production and execute future contracts
- **IP Risk**. The company's sole source of revenue is through the commercialization of its RST technology. Although Alexium is the exclusive global holder to the IP rights of the technology, competing technologies could infringe upon these rights thus leading to protracted disputes, which could limit RST's growth potential
- **Reduction in R&D Spending**. Alexium would be initially dependant on the DoD for further R&D to develop the RST technology. If the DoD is unable to deploy sufficient resources for the same, it will become difficult for the company to exploit further opportunities for commercializing RST
- **Intense Competition**. RST technology faces stiff competition from similar products, some of which are offered by well-established and financially-strong players with access to much greater resources. This could adversely impact the company's ability to garner favorable deals in both defense and civilian markets
- **Regulatory Risk**. Alexium's efforts to commercialize the technology are exposed to changes in the regulatory environment. Consequently, any unfavorable change in regulation could make it extremely difficult for the company to effectively market its products or derive substantial margins from the same, which in turn could significantly impact financial results

Management and Board of Directors

Mr. Gavin Rezos, Executive Chairman

Mr. Rezos has extensive Australian and international investment banking experience and is a former Investment Banking Director of HSBC Group with regional roles in London, Sydney and Dubai during his HSBC career. Mr. Rezos has held CEO positions and executive directorships of companies in the technology sector in Australia, the UK, the US and Singapore. He is currently a Director of Iluka Resources Limited and Principal of Viaticus Capital Pty Limited.

Mr. Halis Alkis, Interim CEO

Mr. Alkis has over 35 years' experience in the textile and manufacturing industry. He has been involved with international business relating to strategic planning; profit and performance enhancement; optimization; business and operations turn around; new business start-up; and leadership development and executive coaching. Mr. Alkis is also experienced in general management; operations; sales and marketing; finance; and supply chain management. Mr. Alkis was previously with Kusters Corporation in Spartanburg, South Carolina as the President and CEO. Mr. Alkis holds a Master of Science in Textile Chemistry from North Carolina State University.

Mr. Stefan Susta, Executive Director

Mr. Susta has spent over 14 years working with the US DoD on Technology Insertion, Technology Transfer and Commercialization. Mr. Susta leads Alexium's US office operations and DoD business development efforts. Mr. Susta received 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.

Mr. Craig Smith-Gander, Non-executive Director

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 of Investment Banking at CIBC World Markets. Mr. Smith-Gander is now the owner and Managing Director of Kwik Transport and Crane Hire Pty Limited.

Mr. Nicholas Clark, CFO and Company Secretary

Mr. Clark has a background in economics and law with significant experience in contractual and commercial management and risk and strategic management. He is a Certified Public Accountant with the American Institute of CPA and the CPA Association UK. Mr. Clark is also a CFTP (Certified Finance and Treasury Professional) with the Finance and Treasury Association Australia. Before joining Alexium, he held senior positions in various parts of the world in a range of industries, most recently with Citic Pacific Mining Management.

Dr. Robert Brookins, Chief Technical 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.

Mr. John Almond, Director of Business Development – Europe

Mr. Almond has spent most of his career working 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. Mr. Almond holds a BA (Hons) in Economics and Economic History from the University of Nottingham, UK.

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