

Alexium International Group Limited

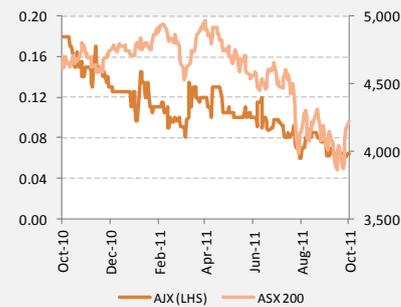
(Ticker: ASX:AJX)

October 11, 2011

RB MILESTONE GROUP 
Equity Research and Market Intelligence

Price (A\$):	0.064
Target Price (A\$):	0.350
Beta:	1.00
Price/Book Ratio:	0.7
Debt/Equity Ratio:	0.00
Listed Exchange:	ASX

* Initiated coverage on May 19, 2011



Recent News

15/09/2011: Alexium receives additional purchase order from US DoD to provide materials for new technology demonstration project

01/09/2011: Alexium appoints Merriman for an OTCQX listing of Alexium securities via an ADR in the United States

24/06/2011: Alexium's Smart Surface technology granted patent in Singapore

23/06/2011: Alexium completes formal A\$8 million facility agreement with Centurion Private Equity LLC

22/06/2011: Alexium raises A\$1.35 million by placing 13.5 million shares at 10 cents each to US and European institutional investors

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

Shares in Issue

123.458 M

Market Cap

(A\$M) 7.9

52 Week (High): A\$0.195

52 Week (Low): A\$0.060

Improved Prospects with RST Patent Grant in Singapore and Additional Purchase Order from US DoD

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 company holds proprietary patent applications for RST which was developed initially by the US Department of Defense (DoD). RST allows for the surface modification and attachment of nano particles or multiple chemical functional groups to surfaces or substrates to provide functions such as water proofing, oil proofing, antimicrobial, non-stick and UV protection. Applications under development include, but are not limited to, textiles, paints, packaging, glass, and building materials. 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 approximately 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 approximately US\$2.4 billion) as well as the defense markets in allied countries.

During FY11, the company was granted a patent for its technology in Singapore. This has enhanced the Intellectual Property (IP) portfolio of the company which already has equivalent patent grants in the UK and Hong Kong, China (SAR). Further, an additional purchase order was received from the US DoD for 100 yards of specially treated materials. This expedites the company's march towards generating significant revenues once the defense deals materialize by this year's end. The company has partnered with a few textile companies in order to explore both military and civilian opportunities in the US as well as across the globe. With such 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 revisited our Discounted Cash Flow (DCF) valuation based on FY11 annual results, and accordingly, revise our target price to A\$0.350/share, an upside of 446.4% from the last traded price of A\$0.064/share.

Investment Arguments

- **Patent Grant in Singapore Demonstrates RST's Superiority over Conventional Treatment Processes.** In June 2011, the Singapore patent office granted Alexium a patent for the "Method for Attachment of Silicon-containing Compounds to a Surface and for the Synthesis of Hypervalent Silicon-compounds". The company has been granted equivalent patents in the UK and Hong Kong, China (SAR). The award of the patent in Singapore further strengthens the company's IP portfolio, and recognizes the unique technical advantages that RST has over conventional treatment processes. The key advantage of RST technology over conventional treatments 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 Chemical, Biological, Radiological, and Nuclear (CBRN) textiles. Treatments may be applied on a continuous reel-to-reel basis, and incorporated with existing production techniques, which is a necessity for the textile industry.

- **Additional Purchase Order from DoD Further Strengthens Strong Revenue Potential from Defense Deals.** In September 2011, Alexium received an additional purchase order from the US DoD for 100 yards of specially treated materials to be used by DoD's Natick Soldier System Center in a technology demonstration to develop next generation protective equipment for soldiers. The Natick program would serve as a test platform for Alexium to collaboratively develop its capabilities for the DoD and the industry. Further, DoD is in the process of evaluating Alexium's RST technology 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 also submitted a joint bid for the supply of lightweight CBRN suits under the UIPE I1 contract, worth US\$129 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 approximately US\$10-15 million annually in the US alone.
- **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 the 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 the 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 phase of corporate development, its share price has decreased from A\$0.180 on October 11, 2010 to A\$0.064 at present. Our revised DCF-based valuation based on recent annual results gives us a target price of A\$0.350/share with a potential upside of 446.4%. With such huge upside potential, we believe that the stock is attractively priced at current levels.

Patent Grant in Singapore Demonstrates RST's Superiority over Conventional Treatment Processes

In June 2011, the Singapore patent office granted Alexium a patent for the "Method for Attachment of Silicon-containing Compounds to a Surface, and for the Synthesis of Hypervalent Silicon-compounds". The company has been granted equivalent patents in the UK and Hong Kong, China (SAR). The award of the patent in Singapore further strengthens the company's IP portfolio and recognizes the unique technical advantages that RST has over conventional treatment processes. 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 over the conventional treatments 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, which is a necessity for the textile industry.

Further, 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. Another key technical advantage is that Alexium's repellency treatments do not impact the flame retardant performance of fabrics. Alexium's nanoscopic coatings have also demonstrated a very significant increase in breathability of fabrics and fabrics preserve their flexibility or hand.

With western world doomed by economic crisis, Asian economy is on a continuous growth path with increasing dominance in manufacturing and hefty appetite for cleaner, sustainable, advanced technologies. Under this situation, grant of patent in Hongkong SAR and Singapore will serve as a valuable platform for Alexium, opening up excellent business opportunities.

Additional Purchase Order from DoD Further Strengthens Strong Revenue Potential from Defense Deals

In September 2011, Alexium received an additional purchase order from the US DoD for 100 yards of specially treated materials to be used by DoD's Natick Soldier System Center in a technology demonstration to develop next generation protective equipment for soldiers. The Natick program would serve as a test platform for Alexium to collaboratively develop its capabilities for the DoD and the industry. 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.

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.

Recent Financial Results

Exhibit 1 : Income Statement Snapshot

Australian \$	FY10 June 30, 2010	FY11 June 30, 2011	YoY % change
Revenue	50,923	72,034	41.5%
Cost of sales	(173,822)	(212,075)	22.0%
Gross profit	(122,899)	(140,041)	13.9%
General and Administrative expenses	(810,803)	(855,398)	5.5%
Employee expenses	(433,862)	(1,313,919)	202.8%
Depreciation & Amortization	(239,652)	(794,273)	231.4%
Share based payments	(746,195)	(154,696)	-79.3%
Impairment	(3,465,442)	(24,694)	-99.3%
Profit/(Loss) from operations (EBIT)	(5,818,853)	(3,283,021)	-43.6%
Interest income	42,149	79,277	88.1%
Loss before income tax expense (PBT)	(5,776,704)	(3,203,744)	-44.5%
Income tax credit / (expense)	-	274,380	NM
Net Profit/(loss)	(5,776,704)	(2,929,364)	-49.3%
Basic and Diluted EPS (in cents)	(9.92)	(2.37)	-76.1%

Source: Company Reports, RB Milestone

During FY11, revenues grew by 41.5% to A\$72,034 over A\$50,923 in FY10. However, the company remained in the red with a net loss of A\$2.9 million (2010: A\$5.7 million) mainly due to prior acquisitions. Loss per share stood at 2.37 cents as against 9.92 cents in FY10.

Alexium has a strong balance sheet to support its US Department of Defense (DoD) and commercial sector product developments, which include the US\$129 million DoD tender for the Uniform Protective Integrated Ensemble (UIPE) for the light weight PANTHER protective garment against chemical and biological warfare agents. For this, Alexium is working with Stedfast Inc of Canada, and Tennier Industries Inc of Tennessee, Alexium raised A\$1.35 million (before costs) by placing 13,500,000 shares at 10 cents each to U.S. and German institutional investors. Consequently, issued capital as on June 30, 2011 increased to A\$18.5 million (A\$17.1 million as on June 30, 2010). The company also completed an A\$8 million, 3-year equity facility agreement with Centurion Private Equity LLC of Alpharetta, Georgia, USA which was announced on March 24, 2011. The facility was arranged by Roswell Capital Partners, LLC.USA. As at June 30, 2011, Alexium had A\$1.9 million of cash (2010: A\$3.3 million) on its books and 123.5 million (2010: 107.9 million) shares on issue.

Over the next 12 months, we believe Alexium would witness favorable announcements in relation to the DoD contracts and U.S. grants, as well as the commercialization of civilian applications of RST with industry partners and licenses in the US, Europe, and Australia. Accordingly, we expect Alexium to witness mammoth growth in revenues from FY12 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.

With strong revenue growth in FY11, 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 also significant revenue contribution from commercial applications. Hence, we have used the DCF valuation model with explicit forecasts till FY16 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 2 : WACC Computation

Cost of debt	
Average pre-tax interest cost of debt	
Average tax rate	30.0%
Average post-tax interest cost of debt (kd)	0.0%
Debt/(Debt+Equity) (Wd)	0.0%
Weighted average cost of debt (Wd x kd)	0.0%
Cost of equity (CAPM)	
Risk free rate (Rf)	4.3%
Market rate of return (Rm)	14.7%
Beta (β)	1.00
Risk premium β(Rm-Rf)	10.4%
Cost of equity (ke)	14.7%
Equity/(Debt+Equity) (We)	100.0%
Weighted average cost of equity (We x ke)	14.7%
Weighted average cost of capital	14.7%

Source: Company Filings, Bloomberg, RB Milestone

Exhibit 3 : Per Share Value

A\$	
Sum of PV of FCFF	9,237,817
PV of terminal value	31,963,033
Value of operations	41,200,851
Adjusted for	
Total debt	0
Cash and cash equivalents	1,972,737
Minority interest	0
Value available to common stockholders	43,173,588
Shares outstanding (nos.)	123,458,402
Value per share	0.350
Current Market Price	0.064
Upside	446.4%

Source: Company Filings, RB Milestone

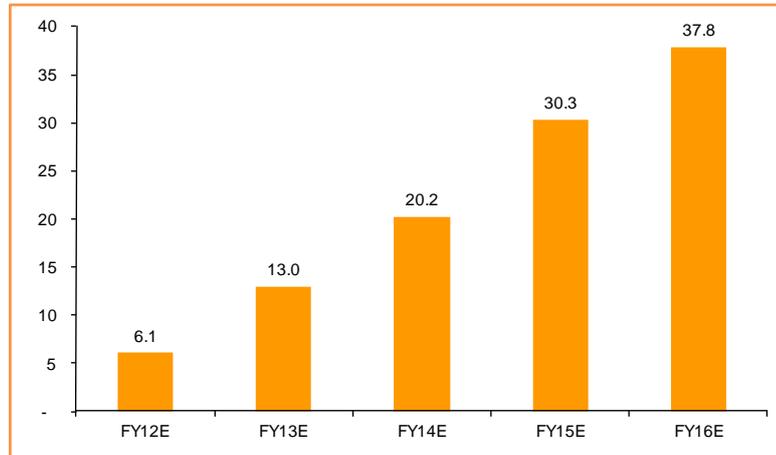
Exhibit 4 : Sensitivity Analysis

Perpetual growth	Weighted average cost of capital						Step	2.00%
	8.7%	10.7%	12.7%	14.7%	16.7%	18.7%	20.7%	
1.5%	0.611	0.470	0.379	0.317	0.271	0.236	0.209	
2.0%	0.652	0.493	0.394	0.327	0.278	0.242	0.213	
2.5%	0.700	0.519	0.410	0.338	0.286	0.247	0.217	
3.0%	0.755	0.549	0.428	0.350	0.294	0.253	0.222	
3.5%	0.822	0.583	0.448	0.363	0.303	0.260	0.227	
4.0%	0.903	0.622	0.471	0.377	0.313	0.267	0.232	
0.50%								

Source: Company Filings, RB Milestone

We have revisited the estimates for our forecast model based on FY11 annual results. Accordingly, for FY12, we maintain our revenue estimate of A\$6.1 million which is expected to be generated from the DoD orders for CBRN suits as well as commercial applications as they 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. We have explicitly forecasted revenues for the next five years and accordingly anticipate revenues to reach A\$37.8 million in FY16, as the company expands its reach into both military and commercial markets across the globe.

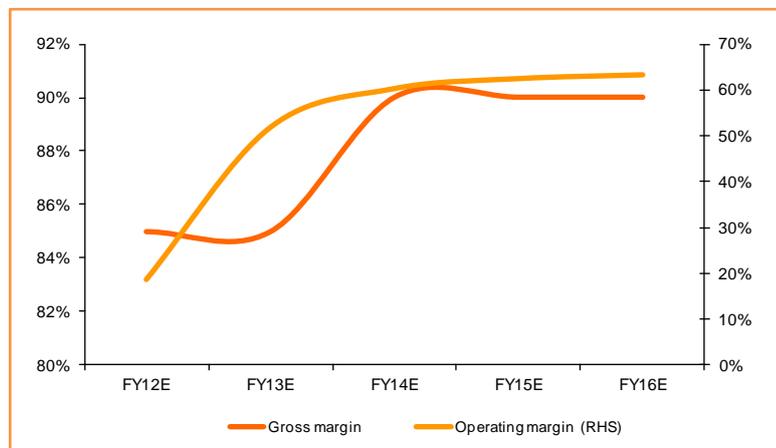
Exhibit 5 : Revenue Forecast (A\$ mn)



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 gross margin and operating margin to come in at 90.0% and 63.2% respectively in FY16.

Exhibit 6 : Margins



Source: RB Milestone

Based on our revised forecasts and DCF valuation, we revise our target price to A\$0.350/share indicating an upside of 446.4% from the last traded price of A\$0.064/share. With such huge upside potential, we believe the stock is attractively priced at current levels.

Disclaimer

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