

Alexium International Group (AJX)



Multiple pathways to success in huge addressable market

Overview: Alexium International Group Limited (“Alexium”, “the Company”) is an ASX-listed, South Carolina USA based performance chemicals provider for advanced materials applications. The Company has a focus on flame retardancy and thermal management, with an innovation model to address market gaps with patent-protected technologies. These environmentally friendly solutions have applications for several industries and can be customised to meet customer needs. Key markets for Alexium are bedding products, military uniforms, and workwear. Alexium brands include Alexicool® and Alexiflam®. The Company’s strong management team and revitalised capital structure is driving the commercialisation of its flame retardant and thermal management products.

START UP

GROWTH

MATURITY

Catalysts: Alexium has two main product lines: Alexiflam® products, a portfolio of fire retardant products for applications in fabrics including uniforms and bedding, and Alexicool® products, a portfolio of products for thermal management and cooling applications. The Company has a defined set of near-term growth pillars which, when realised, will create an attractive portfolio of patented products servicing large global markets. These are the expansion of Alexicool® products in the US bedding market; Alexiflam® NF-treated cotton socks for the protection of foam mattresses; expansion of applicable markets for Alexiflam® products; and flame retardation of nylon/cotton (NyCo) fabrics for military applications. Alexium has multiple products in development and commercialisation, addressing unmet needs for flame retardant and thermal management products.

Hurdles: The impact of COVID-19 pandemic on the economy did impact sales of Alexicool® products to the US bedding industry in the previous quarter. While the Company is not aware of any limitations in its supply chain due to COVID-19, the situation remains ongoing in the US and could impact supply and customer demand. Demand for Alexium’s products relies on the strength of its target market and its partner agreements.

Investment View: A new advanced materials sciences team was brought in less than two years ago, re-engineering Alexium’s product suite with a focus on innovative, high margin, customer-centric products. Alexium signed a supply agreement in April with Soft-Tex International, a supplier to mattress industry leader Serta Simmons Bedding (“SSB”) to exclusively purchase Alexicool® products. The innovation partnership combines technical and commercial strengths of Alexium and Soft-Tex. A supply and evaluation agreement has also been signed with Israel Chemicals Ltd (TASE/NYSE: ICL), a major flame retardant chemical company, for the market launch of fire retardant product Alexiflam® NF. ICL will actively evaluate the potential market for Alexiflam® NF with existing and new customers. Alexiflam® NF is also in trials with the US military via an exclusive development agreement with Pine Belt Processing for Alexiflam® FR NyCo for flame retardant applications for military uniforms. While reporting a net loss, the company recorded an improved EBIT in the 1H 2020 from sales growth and cost containment from lower operating expenses. It also saw a margin improvement, with margins of just under 40%.

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31 July 2020

INITIATING COVERAGE

Price: \$0.059

DISCLOSURES

REPORT COMMISSIONED BY	AJX
COMPANY OWNS THIS SECURITY	Yes

CORPORATE SUMMARY

TICKERS	AJX.ASX
INDUSTRY	Metals & Mining
SHARES ON ISSUE (PRO FORMA)	634.46m
OTHER SECURITIES	3.45m Performance Rights 3.83m unlisted warrants ex \$0.35 1.5m unlisted options ex \$0.75
MARKET CAP (PRO FORMA)	\$34.89m
CASH ON HAND (at 30 June)	\$4.74m
ISSUED CAPITAL	\$62.18m

FINANCIAL OVERVIEW H1 FY20

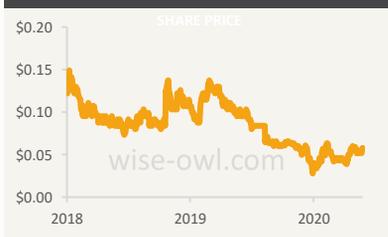
REVENUE	US\$ 3.18m
NET PROFIT/(LOSS)	US\$ (4.38m)
REVENUE GROWTH	105%
PE	-
DIVIDEND YIELD	-

BOARD OF DIRECTORS/MANAGEMENT

NON-EXEC CHAIRMAN	Ms Rosheen Garnon
MANAGING DIRECTOR	Dr Bob Brookins
NON EXEC DIRECTOR	General Stephen Cheney
NON EXEC DIRECTOR	Dr Paul Stenson
CHIEF FINANCIAL OFFICER	Jason Lewis

SHAREHOLDERS

COLINTON CAPITAL PARTNERS	11.21%
SANDHURST TRUSTEES	9.27%
JP MORGAN NOMINEES	7.97%
PHILLIPS (FS & SJ PHILLIPS PENS)	5.37%
TOP 20	56.11%



26 July 2020

COMPANY OVERVIEW

Alexium International Group Limited (“Alexium”, “the Company”) has a focus on flame retardancy and thermal management, with an innovation model to address market gaps with patent-protected technologies. These environmentally friendly solutions have applications for several industries and can be customised to meet customer needs. Key markets for Alexium are military uniforms, workwear, and bedding products. Alexium brands include Alexicool® and Alexiflam®.

Alexium has established programs in the US bedding market for both its Alexicool® and Alexiflam® technologies and the commercialisation of Flame retardant (FR) nylon/cotton (NyCo) fabric blends.

A key A\$22.3 million capital raising completed in December 2019, allowed the Company to repay its existing expensive mezzanine style debt facility and provide working capital to support Alexium's growth. Sydney-based institutional investor, Colinton Capital Partners, participated, taking a cornerstone investment in the company, investing a total of A\$9.2 million for a 20% shareholding, while Colinton Capital Partners senior partner, Simon Moore, joined the AJX Board in February 2020.

The recent appointment to the Board of Dr Paul Stenson as a Non-Executive Director brings deep expertise in advanced material sciences and with fire retardants. He has experience in research and development, commercialising products and leveraging third party distribution networks in the US. CEO Dr Bob Brookins has experience in organic synthesis, materials chemistry, and chem/bio decontamination. At the US Air Force Research Laboratory, Dr Brookins developed decontamination methods for chemical and biological threats and developed novel synthetic routes for reactive and functional surfaces.

PRODUCT OVERVIEW

Alexium has a globally unique and patent protected product range including Alexicool®, Alexiflam®, and Alexiflam® NF, providing multiple pathways to commercial success.

The Company's Alexicool® technology works by absorbing and releasing thermal energy to maintain a cool outer temperature that is comfortable against the skin. In its solid form, Alexicool® products are fully encapsulated phase change materials (“PCMs”) which absorb body heat and begin to melt into a liquid — drawing heat away from the skin and containing it in the core of the PCM capsule. This is a regenerative process, so when the skin is no longer in contact with Alexicool® technology, it will transform back into a solid form, ready to be used again and again. The Alexicool® Total Mattress Cooling System (TMCS) is an innovative systems approach to total mattress cooling that leverages its materials science expertise and analytical tools to enable leading edge unique products.



Environmentally friendly solutions have applications for many industries

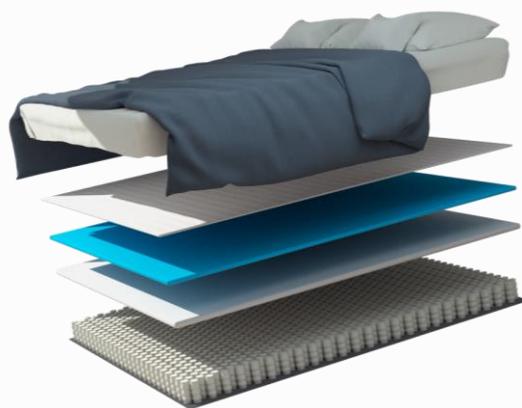


Image: Total Mattress Cooling System

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PRODUCT OVERVIEW cont'd

Alexiflam® is Alexium's environmentally friendly flame retardant (FR) chemistries for fabrics. Alexiflam® NF is Alexium's proprietary FR for the treatment of cotton and cellulose-based textiles, while Alexiflam® FR NyCo is a proprietary set of chemistry for wash durable flame retardation of nylon/cotton fabrics that are commonly used for US military uniforms. One application is in Alexiflam® NF-treated cotton socks for protection of foam mattresses. Current FR sock solutions use fiberglass technology to pass fire standards, but the Alexiflam® NF sock provides the required flame retardant qualities without the problematic fiberglass shards in the bedroom. Prototype foam mattresses using FR socks treated with Alexiflam® NF have passed flammability testing required by US federal safety standards. The product will be low-cost and safer than incumbent products.

MARKET OVERVIEW

Alexium's products lend itself to multiple consumer industries and its treatments are compatible with other fabric attributes such as anti-microbial and stain repellent. Both its phase change material (cooling) and flame retardant products have a crossover of their applications. Plus, each product line has some major customers in common, making for easier cross sell and introduction of new products. Geographically, Alexium derives a majority of revenue from the US, a market that offers major growth potential, while the Company also has a presence in Australia and Cyprus.



Alexium has a channel to some of the world's biggest retailers, including Bed Bath & Beyond, Amazon, and US department stores.

Alexium has an exclusive Supply Agreement and Innovation Partnership with industry leading US bedding product manufacturer, Soft-Tex for them to exclusively purchase Alexicool® phase change material (PCM) products for bedding systems, based on Soft-Tex's Reactex®. Soft-Tex has an exclusive partnership with Serta Simmons Bedding (SSB) — the biggest mattress brand in the US — to add new technologies to SSB's mattress lines. This provides Alexium with a channel to some of the world's most recognisable retailers, including Bed Bath & Beyond, Amazon, and US department stores J.C. Penney and Dillard's.

Key milestones ahead for Alexicool® include finalising testing of Total Mattress Cooling System (TMCS) and finalisation of agreements TMCS commercialisation this year, followed by TMCS initial sales in 2021.

Flame retardant cotton is a prominent segment of the protective fabrics market and presents a huge potential for Alexium. The Company has signed an agreement with Israel Chemicals Ltd (TASE/NYSE: ICL), major flame retardant chemical company, for the market launch of Alexiflam® NF.

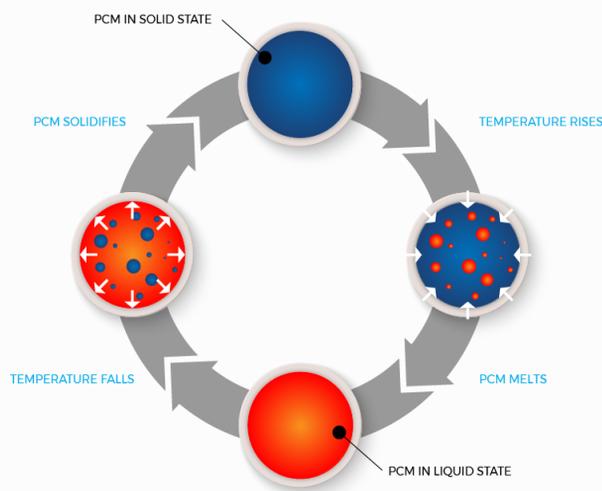


Image: Phase-Change Material (Pcm): How the Cooling Effect Works



Flame retardant cotton is a prominent segment of the protective fabrics market

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MARKET OVERVIEW cont'd

The partnership will actively evaluate the potential market for Alexiflam® NF, develop new applications, and based on market feedback will target their sales into global FR cotton markets, including workwear. Alexium will market Alexiflam® NF for FR socks used in foam mattresses, cotton fleece, and military uniforms.

There is no current incumbent solution of nylon/cotton flame retardation, so the commercialisation of the Company's Alexiflam® FR NyCo, for nylon/cotton fabrics will solve a long standing problem for the US and international militaries. Alexium has an exclusive development agreement with Pine Belt Processing for Alexiflam® FR NyCo for flame retardant applications for military uniforms. This is a huge market opportunity with an addressable US market worth US\$90 million.

OUTLOOK

Alexium International's revitalised capital structure and strong management team is driving the commercialisation of its flame retardant and thermal management products. It has multiple product development programs and strategic growth opportunities underway.

The Company has a defined set of near-term growth pillars which when realised will create an attractive portfolio of patented products servicing large global markets. These are the expansion of Alexicool® products in the US bedding market; Alexiflam® NF-treated cotton socks for the protection of foam mattresses; expansion of applicable markets for Alexiflam® products; and flame retardation of nylon/cotton (NyCo) fabrics for military applications.

Alexium has adjusted to the impact of the COVID 19 pandemic on its key markets. The bedding market, which accounts for the bulk of the Company's sales, has seen significant swings in customer orders with a notable recovery as customers are climatized to the circumstances. Schedules for total mattress cooling systems (TMCS) and FR sock are going well. Pandemic related delays had affected work on FR NyCo with Pine Belt since they were designated an essential business by the US military, but this has since been resolved and production work at their facility is now underway.



New shareholders and Board members to drive future direction

New institutional investor Colinton Capital, along with the recent addition to the board of Colinton's Simon Moore, are working closely with Alexium, providing support and assistance in strategically assessing the current economic climate and undertaking scenario planning.

The recent addition of Dr Paul Stenson to the Board brings significant advanced material sciences and fire retardants expertise. Stenson's experience in research and development, commercialising products and leveraging third party distribution networks in the US will also be highly valuable.

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Image: Alexiflam® NF patent pending flame-retardant design can be used in a wide variety of cotton applications: workwear, fleece and other clothing apparel.



Multiple product development programs and strategic growth opportunities underway

THE BULLS AND THE BEARS



THE BULLS SAY

- The global partnership with ICL for the commercialisation of Alexiflam® NF and the evaluation of the potential market is progressing well.
- Exclusive Supply Agreement and Innovation Partnership with industry leading US bedding product manufacturer, Soft-Tex which has an exclusive partnership with Serta Simmons Bedding (SSB), the biggest mattress brand in the US.
- Production optimisation for Alexiflam® FR NyCo for military uniforms is being finalised at Pine Belt's facility. Testing and evaluation will be initiated by the US military.
- Revenue growth anticipated to accelerate in 2021 from growth in Alexicool® product sales through innovative product development and first revenues from Alexiflam® FR sock.
- The Company is well capitalised following its December 2019 capital raising that allowed for the repayment of its existing expensive debt facility.
- Support from new institutional investor, Colinton Capital Partners, and addition of Colinton's Simon Moore to the Board, plus the addition of Paul Stenson brings relevant US chemicals industry knowledge.



THE BEARS SAY

- Sales of Alexicool® products to the bedding industry were down in Q3 FY20 versus the prior quarter, driven by the impact of COVID-19 on the global economy.
- While the Company is not aware of any limitations in its supply chain due to COVID-19, the situation remains ongoing in the US and could impact supply and customer demand.
- Unforeseen delays from partners could interrupt supply and development plans.
- Provision of technology for US military uniforms is dependent on an ongoing relationship with the provider, Pine Belt Processing.

GLOSSARY

Buy	Increasing value of established business operations is likely to yield share price appreciation
Speculative Buy	Increasing value of a new or developing business operation is likely to yield share price appreciation.
Hold	There exists an even balance of risks.
Sell	There is elevated risk of share price depreciation.
Stop	Our recommended, pre determined sell price, to be executed if the share price fails to appreciate
Start Up	The earliest phase of a company's life cycle, and typically the most risky as new ventures are tested in the market place. These businesses are usually reliant on external capital to fund day to day operations.
Growth	Refers to companies that are seeking to expand their presence after achieving a degree of market success. External capital may be required to fund their expansion.
Maturity	Refers to companies that are well established in their market place with little to no external capital requirements.

ARCHIVES**ALEXIUM INTERNATIONAL GROUP (AJX)**

JUL - 20	INITIATING COVERAGE
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