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ANNOUNCEMENTS:

- Key Representation by Alexium Sales Team at IFAI
- Successful Conference Leads to Increased Sales Leads
- PO Received in New Market (Plastics) Ahead of Schedule
- Alexium Wins New Client with Second Major Bedding Brand
- Grant Extension Awarded with ICL
- US DoD Selects Alexium as Key Partner for New FR Uniform

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October has been another very productive month for the Alexium team especially in relation to the success with our evolving military efforts.

This month resulted in major achievements in the military sector as Alexium was selected by the U.S. Department of Defense (DoD) to be the key partner for new Fire Retardant (FR) uniform fabric. This final stage—funded by the DoD— is to finalize development of the new Alexiflam™ treated 50/50 NyCo fabrics leading to field trials on US Army uniforms in real world situations.

Alexium is now positioned to build into a major defense sector provider with recent performance milestones including: 100 wash durability and Alexiflam™ treated NyCo uniform fabrics full-uniform PyroMan™ testing.

These results further validate that our extensive three year FR focus—with developments in the Alexiflam™ FR treated NyCo. Alexiflam™ is becoming a competitive FR solution to meet the strict FR standards of US Military specifications while adhering to the Berry Amendment Act and staying within Alexium's environmentally-friendly commitment.

In addition to the DoD selection, Alexium also received an extension to collaboration with Israel Chemicals Limited (ICL) resulted in an additional grant by South Carolina Research Agency (SCRA). This partnership will facilitate FR developments with nylon-rich military fabrics.

“
The results of projects and initiatives undertaken by the Alexium team has validated our commitment to US Military efforts.
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MESSAGE FROM THE CEO



Nicholas Clark
CEO



Dr. Dirk Van Hying
President

OPERATIONS UPDATE

For several months now, we have commented multiple times, both here in the newsletter and in press releases, on our progress in the military arena. However, we, at Alexium, can sometimes forget how confusing it can be for an outside observer to understand how government programs work, what the process looks like and where Alexium fits in. So, a few words on this very exciting area of opportunities for us, around the subject of a program we have discussed several times, the Army FRACU.

In 2006, there was an expansive effort to create a flame retardant army combat uniform (FRACU), to deal with a marked increase in IDE burn injuries. In that effort, 24 different technologies were screened and fully tested, not just on FR performance and durability, but on the critical, difficult-to-quantify, metric of *comfort*. What the military had come to realize is that due to the extreme and rigorous environments our soldiers have to operate in, if a garment is not comfortable and breathable, there is a good chance they won't wear it, regardless of how it protects them. This critical observation necessitates that before a new fabric goes to the broader military, it must undergo a limited user evaluation (LUE) on several hundred soldiers to simply ensure the soldiers find it comfortable and breathable.

That year, the DoD selected a fabric called Defender™ M for the FRACU, but it has two critical issues – 1) the FR Rayon that gives Defender™ M its performance contains halogenated compounds, which are under increasing scrutiny for their health and environmental effects, and 2) it can only be sourced from Austria, which is in direct conflict with the Berry Amendment requiring all materials for military uniforms be sourced domestically. Defender™ M has received a waiver for the Berry amendment every year since, and Senator John Isakson from Georgia, in a 2009 defense of this exemption due to there being no American competitor who can meet the performance requirements of the FRACU, told the U.S. Senate that “if there were, that waiver would go away and [the United States] could compete, but at this time they do not.”

Fast forward to 2015 and to the original point - after a long two years of effort, Alexium is, in the words of Senator Isakson, ***finally allowing the U.S. to compete***. Our selection for a subcontracting position in the effort to produce a non-halogenated FR 50/50 nylon-cotton fabric, and the next steps in the effort, are not to design-in better flammability protection – that is done. It is simply to ensure the breathability and comfort of these fabrics that is critical to our soldiers in extreme combat environments. That means minor modifications to the fabric construction and getting our fabrics on the backs of U.S. soldiers in an LUE to confirm the level of comfort they need.

Because in the end, Senator Isakson and others who share his voice are exactly right. Our men and women in uniform should sacrifice neither FR performance nor their health or comfort as they deserve both. Now, because of Alexium, they are at the cusp of having to sacrifice neither while having the knowledge they are getting both completely within the shores of the U.S.A., a reality and a comfort which is long overdue.

Military

October saw further uniform treatment trials. A new process was utilized to provide additional uniforms to burn. These uniforms, together with previously treated uniforms, were taken to NC State for PyroMan™ burn testing on October 21, 2015. While the trials indicated there is more work to be done, we were able to obtain results that would allow us to pass the NFPA2112 specification for work wear. Our results for military specs were close and we feel confident that modifications to formulations and processing will bring successful results. Based on this information, the uniform supplier has indicated interest in our FR for some of their other business, particularly the tactical vest line. In addition, John Stelling met with several potential customers at the IFAI show to begin discussion about using Alexiflam on the non-fabric portions of the military uniform. Murdock Webbing has begun ordering chemistry to support the strapping business we have finalized and we expect that to grow to the \$1MM to \$2MM a year revenue level. In addition, we have asked Ray Clarke, VP of Sales at Murdock Webbing, to allow us to use a testimonial quote on our website about the Murdock Alexium relationship.

Overseas Military

Plant trials on treating NyCo have been rescheduled to November. These trials are based on strong leads from TechTextil in May. Mark Valdario will be in Europe with representatives from iTextiles to support the trials. We expect to launch product to at least 10 customers with revenue growing to \$2MM to \$5MM in 2016.



MILITARY UPDATE

SALES UPDATE

In addition to the military detailed above, the sales progress in each market is identified below:

Home Furnishings and Bedding

A major mattress supplier has confirmed our selection as their FR source for the border program on one of their upper-end line of beds. The fabric is a high content Polypropylene woven. That fact alone is an amazing accomplishment. We are also working on another program using a branded PCM chemistry and Alexiflam. Forecast numbers are not available yet to project revenue or timing. The initial bedding program is launching and we have begun shipping totes of chemistry instead of drums. The potential revenue from this program is \$2-3MM per year. Lab work continues on samples from other bedding suppliers as we expand our exposure in this market. In addition, work is progressing on treated knitted socks with Alexiflam for FR protection of the foam mattress. Many mattress producers use an FR sock and don't treat the outer ticking fabric at all. This opportunity has an annual potential of \$3-\$4MM dollars.

Outdoor

We have 100% cotton tent fabric on order to run plant scale up trials confirming our finish. In addition, plant trials are scheduled for November in Europe using the same finish. We have a customer that wants us to source and finish the fabric and sell him the FR treated fabric. This opportunity in cotton tenting is forecast for \$200,000 in revenue in 2015 and \$10 million in revenue in 2016.

For polyester tent fabrics, one producer is still in the final selection process for a finisher in the Asian arena.

Transportation

We are currently engaged with 3 different automotive customers. Trials in Europe were completed with Mark Valdario and Jonas Larue present. Early test results are extremely promising. Domestically, an automotive supplier is fine tuning its process parameters to run large scale trials in late October. Another automotive customer will run trials with our participation the second week of November to confirm our formulation. Successful trials could mean potential revenue beginning in the 4th quarter and having addressable revenue of \$3 to \$4 million in 2016.

Other Markets

A larger scale up trial for PET was run this month. This run will be laminated and tested prior to full adoption, but preliminary tests are encouraging and orders could begin in the 4th quarter with 2016 volume estimates being more than 5 million square feet of product.

In late October, we will ship chemistry to a large resin producer for trial work in resin impregnated fiberglass. The product would be used in circuit boards. This customer could yield potential revenue of \$4-5MM in 2016. We ran a plant trial to add Alexiflam into a masterbatch in hopes of spinning FR polyester with Alexiflam. This step looked very good. The spinning of the yarn was successful and the spinner has provided us with enough to knit into a sock for testing. The burn tests are good and we are working on having some yarn woven for further testing. The encouraging aspect of this project is that Alexiflam is scalable to various levels of volume in the Masterbatch process. This attribute is not found with other FR additives.



Steve Gravlee,
VP of Sales

RESEARCH AND DEVELOPMENT UPDATE



*Dr. Bob Brookins
VP of Research & Development*

Due to recent updates to Alexium's website, I recognized that we have been active in flame retardants for a little more than three years. A relatively short time – but with that, significant strides have been made. In this time, our process for flame retarding nylon/cotton blends (NyCo) has progressed from a concept to a commercial product with a wash durability of **100 cycles by industrial laundering**. Beyond that, applications of our chemistry have extended into plastics and resins.

As Alexium now moves into the next stages of development for FR NyCo for military applications, I'd like to offer insight into this effort. Alexium has established a robust platform technology for flame retarding NyCo that offers a number of benefits:

- Excellent FR performance and durability
- Ease of application
- Consistency in manufacturing
- Attractive cost

Obviously, a key focus for Alexium is finalizing the commercialization of this. In parallel, we are looking at other markets that could use this product -- in other segments of the military and in commercial markets. Additionally, we are working with our contacts in these markets to understand where they are headed for future specifications. With this effort, we can integrate products in development by Alexium technical team to provide solutions in these areas.

Providing products that perform at this level and to operate as a team to meet the expectations that come with this is not trivial, and the growth we have had in the technology and in the company sustain us in this.

A View Inside the R&D Lab



FINANCE AND LOGISTICS IMPROVEMENTS

With the release of our best Appendix 4C to date and steadily increases growth of the Alexium brand, the past month has been a very exciting time for the Finance team and the company as a whole. While every team member of Alexium is critical to the Company's success, the administrative functions of the business often make the most impact to sustainable growth by controlling and lowering costs. Managing expenditures is a culture that we have been steadily developing as we grow. The ability to understand which costs add value and which costs can be improved or eliminated, is a critical component of building a lean business model—especially as an emerging growth company that has to be able to rationalize expenses often far in advance of when a return on investment is realized.



Aaron Krech
CFO

Recently, Alexium has had a big win in managing our resources effectively. Earlier in the year Alexium added a brand new position to the business with the hire of our Human Resources Manager, Jessica Hutchison. While this role was born out of a need for more structure for a quickly multiplying staff, Jessica has quickly been able to justify itself in quantifiable cost savings for the company.

In the past, in order to recruit top talent quickly and efficiently, Alexium has relied on recruiters to seek out the highly technical skill sets that we need to be the best at what we do. Since the inception of the HR role, we have been able to use industry expertise to circumvent this process almost entirely without having to sacrifice any degradation of talent. Given that the size of our company is increasing monthly, this has the potential to be a huge savings. Currently, Alexium is on track to realize an \$180,000AUD annual savings based on our current growth rate.

Corporate Headquarters
Alexium International Group Limited
Level 18, Central Park Building,
152-158 St. Georges Tce Perth, WA
6000 Australia
PO Box 512 Cottesloe WA
6911 Australia

Phone: +61 (08) 9384 3160
Fax: +61 (08) 6314 1623
www.alexiuminternational.com

Operating Headquarters
Alexium Inc.
Alexium International Group Limited
8 Distribution Court
Greer, South Carolina 29650 USA

Phone: +1 864 416 1060
Fax: +1 864 551 4555

