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ALEXIUM

**QUARTERLY ACTIVITIES REPORT
FOR THE PERIOD ENDED**

31 March 2023

Q3 FY2023 Update Contents:

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Introduction by CEO, Billy Blackburn:

Last quarter, we reported a revised strategy that included an approach where Alexium would prioritize and focus its business and product development efforts to maximize short-term results where there was the most historical investment, the best chance of near-term revenue growth, and where we could expect sustained success. Those areas are detailed in the diagram below:

Business & Product Development – FY23 & FY24 Focused Priorities

Core Focus Areas (70%):

PCM, DelCool & Eclipsys applications:

- Innerspring Mattress
- Foam Mattress
- Low-cost/HiVolume Mattress Applications (“bed in a box”)
- Top of Bed- Pillows and Mattress Toppers

Adjacent Focus Areas (20%):

Alexiflan & Alexigaur applications:

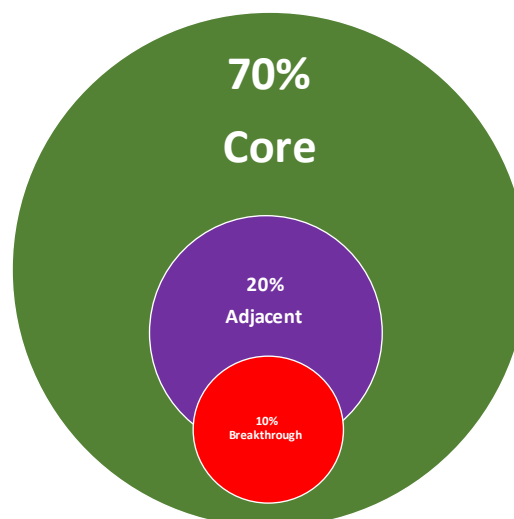
- FR NyCo – US Army
- FR NyCo – US Marine Corp
- Mattress

Eclipsys applications:

- Body Armor/Tactical Vests

Breakthrough Focus Areas (10%):

- Eclipsys for Helmets (military, law enforcement, sports)
- Eclipsys for Footwear
- Eclipsys for Electronics
- Eclipsys and/or PCM for Cold Chain Packaging
- Alexiflan sold as a textile softener
- Alexiflan for workwear and/or PPE



This focused approach has been adopted by the entire team at Alexium. It provides a framework for the team to clearly understand the priorities so they can apply a disciplined approach to their daily duties. Currently, Alexium has a business development pipeline with active projects and qualified leads on more opportunities than the organization can focus on at once given our limited resources. This disciplined approach stops the company from chasing too many opportunities all at once, which would dilute our effectiveness and prolong financial success. Our focus is on securing near term revenue opportunities.

Core Focus

Currently, Alexium's primary revenue source is from PCM sales in the bedding market. For that market segment, our strategy is simple: **Grow and diversify Revenue**. To **grow** revenue, we are working on new placements with key customers across all parts of the bedding market:

- 1) foam mattress producers in addition to our historical focus on textile/inner spring mattress producers,
- 2) Top-of-bed accessories (pillows & mattress toppers), and
- 3) lower price point, higher-volume mattress applications ("bed in a box" e-commerce and big-box retail floor placements).

In parallel and to **diversify** revenue, we have launched product lines to complement PCM sales:

- 1) Eclipsys™ for continuous cooling through heat dissipation, and
- 2) DelCool™ for thermal comfort through heat index (humidity) reduction.

This means that we are applying two or three of our products to a customer's single product line.

Lastly, we are **growing and diversifying** revenue by expanding sales to regions outside of the USA for all three product lines. I am happy to report that we have our first PCM placement in Europe and will begin shipping in Q4 FY23. There is enough growth potential in this approach for Alexium to increase current sales volumes in the coming fiscal years.

Adjacent Focus

Concurrently, the company is focused on opportunities that are adjacent to the core focus in the bedding market. These opportunities require less company resources at this stage in their development, particularly as the customer is responsible for the incorporation of our product line into their own end-product and our required resources support the customer endeavours including testing of the end customer product. That said, the team at Alexium is nimble and ready to shift priority focus to these opportunities should the lead times to significant revenue growth meaningfully shorten (i.e. to within FY23 & 24). The Adjacent Focus opportunities are FR NyCo for next generation uniforms for the US Military and Eclipsys™ for thermal comfort in tactical gear for law enforcement and military.

Breakthrough Focus

Lastly, the company has a smaller focus on a few active breakthrough opportunities. These are active development projects that get a tertiary focus. These projects are:

1. PCM and Eclipsys™ in a cold chain packaging application in the medical field, and
2. Eclipsys™ in a military boot application.

We are managing customer expectations on these projects so there is a clear understanding that these initiatives will take longer to develop as we tackle the workload in our Core and Adjacent Focus areas. Focus will shift to these projects as other projects are completed and resources become available.

In summary, the Alexium team has a clear priority focus, and the company has a robust pipeline of opportunities to tackle. This approach is designed to deliver meaningful results on a timely basis.

Q3 FY2023 Cash Flow Commentary

Cash receipts for the period were US\$2.0m with revenue of US\$1.8m. Cash receipts increased by US\$0.5m versus the previous quarter. Current quarter cash receipts included US\$0.4M of accounts receivable that were due in the last week of December 2022.

Sales for the quarter were down by US\$0.2m versus prior quarter. Overall US mattress market conditions remained soft with the consumer confidence index continuing to be low due to dynamics such as high US consumer inflation, rising interest rates and geo-political concerns with the Russian/Ukraine war. Customer retention and engagement remains high.

Operating activity outflows (refer to Appendix 4C Item 1.2) primarily consist of raw material purchases, manufacturing costs, staffing costs, and corporate/administrative costs. The Company experienced quarter over quarter increase of raw material purchases and production related costs of US\$0.2M due to timing of raw material replenishments. Other cash outflows are in line with typical quarterly expenses. Total aggregate payments to related parties for the quarter equal US\$201K which include payments to non-executive directors and compensation for executive directors, Bob Brookins, CTO, and Billy Blackburn, CEO.

Line of credit outstanding balance at the end of the period was US\$521K on the total eligible borrowing base of US\$1,334K leaving US\$822K available for use. This line availability plus the cash on hand of US\$577K gives the company total available funding of US\$1,399K.

Market Update

Mattress Market: Overall, the US mattress market remains depressed due to low consumer confidence leading to a continued slump in sales. Alexium sales in the space have been “lumpy” over Q3 FY23. January and February sales were soft, with a modest uptick in March 2023. Q4 CY22 mattress market statistics were released in March:

Q4-2022 Quarterly
Issued: March 2023

FIGURE 1 – TOTAL MARKET OF MATTRESSES, FOUNDATIONS AND MOTION FOUNDATIONS

	DOLLAR VALUE (millions)						Units (thousands)					
	4th Quarter			Year-To-Date			4th Quarter			Year-To-Date		
	2021 ^f	2022	% Change	2021 ^f	2022	% Change	2021 ^f	2022	% Change	2021 ^f	2022	% Change
TOTAL MARKET	\$2,874.2	\$2,215.0	-22.9%	\$11,324.9	\$9,962.2	-12.0%	12,128.1	8,737.7	-28.0%	51,168.1	41,996.5	-17.9%
Mattresses (U.S.-Produced & Imports)	\$2,507.0	\$1,956.7	-22.0%	\$9,712.2	\$8,689.7	-10.5%	7,950.9	5,513.8	-30.7%	32,252.8	26,937.8	-16.5%
U.S.-Produced Mattresses (Oct-Dec)	\$2,249.3	\$1,793.5		\$8,904.5	\$7,694.3		5,758.3	4,198.4		24,688.7	18,708.8	
Data Reported by U.S. Producers	\$1,635.2	\$1,303.8	-20.3%	\$6,473.5	\$5,593.8	-13.6%	3,098.0	2,258.7	-27.1%	13,282.5	10,065.3	-24.2%
Projection for Other U.S. Producers ^f	\$614.1	\$489.6		\$2,430.9	\$2,100.6		2,660.3	1,939.7		11,406.2	8,643.5	
Imported Mattresses (Sep-Nov)	\$257.7	\$163.2		\$807.7	\$995.4		2,192.5	1,315.4		7,564.1	8,229.0	
Official Import Statistics	\$214.7	\$136.0	-36.7%	\$673.1	\$829.5	23.2%	2,192.5	1,315.4	-40.0%	7,564.1	8,229.0	8.8%
20% Wholesale Equalization Factor	\$42.9	\$27.2		\$134.6	\$165.9							
Foundations (U.S.-Produced & Imports)[*]	\$367.2	\$258.3	-29.7%	\$1,612.7	\$1,272.5	-21.1%	4,177.3	3,223.9	-22.8%	18,915.3	15,058.7	-20.4%
U.S.-Produced Foundations (Oct-Dec)	\$216.3	\$157.5		\$1,033.4	\$726.5		2,674.4	1,777.0		12,287.3	8,458.5	
Data Reported by U.S. Producers	\$131.0	\$95.4	-27.2%	\$626.2	\$440.2	-29.7%	1,361.3	904.5	-33.6%	6,254.2	4,305.4	-31.2%
Projection for Other U.S. Producers ^f	\$85.2	\$62.0		\$407.2	\$286.2		1,313.1	872.5		6,033.1	4,153.1	
Imported Foundations (Sep-Nov)	\$151.0	\$100.8		\$579.3	\$546.0		1,502.9	1,446.8		6,628.0	6,600.1	
Official Import Statistics	\$125.8	\$84.0	-33.2%	\$482.8	\$455.0	-5.8%	1,502.9	1,446.8	-3.7%	6,628.0	6,600.1	-0.4%
20% Wholesale Equalization Factor	\$25.2	\$16.8		\$96.6	\$91.0							

Official Import Source: International Trade Commission (see Figure 2 for category breakdown)
U.S. Production Source: Aggregated data provided by participants in ISPA's Bedding Market Quarterly (see Figure 3)
^{*} includes foldable foundations
^{**} summary data and percentages calculated prior to rounding

In 2021, the reporting U.S. producers accounted for the following percentages of U.S. mattress and foundation output:

	Value	Units

(Source: ISPA – Bedding Market Quarterly – Q4 2022 Report)

These statistics demonstrate that the overall slump in mattress sales volumes continued in Q4 CY22, and we expect much of the same when the Q1 CY23 results are published in a few months. Several Alexium customers have reported that the benchmarked sales through to US President's Day (FEB 20th) had remained depressed. To weather these slow market conditions, Alexium will continue its business development efforts to grow mattress application sales by broadening its target market approach across all segments, globalization, and new product launches. If the US does not fall into a recession or even if there were to be a mild recession, we expect a recovery in this market by the first half of 2024.

Military Market: Alexium has had numerous new product application requests from the military segment. Many recent reports point to a rebuilding of the US military supply chain as geopolitical tensions grow. This is also a global trend (see article below).

“Global Defense Spending on Historic High: Global defense spending has been on a clear upswing for almost a decade and is at a historic high now, having breached the \$2 trillion threshold in 2021, led by the whittling down of traditional, rule-based world order and the return of great power competition among leading geopolitical powers marked by sustained geopolitical instability, rising political tensions and conflict. The Russia-Ukraine war has been a watershed moment geopolitically having brought back the spectre of war over Europe back to life after almost 3 decades following Russia's military resurgence & is showing no signs of abating even after heading into its second year and the U.S.-China faceoff further escalating with the U.S. considering China as its strongest & most serious long-term rival & threat. The traditional West vs. East fault line & rivalry, thus, is visible clearly once again.” (Source: March 21, 2023 – businesswire.com article: Global Aerospace & Defense Market Report 2023)

This uptick in demand has culminated in increased Alexium opportunities for the application of Eclipsys™ in tactical gear and the flame-resistant nylon/cotton fabric (“FR NyCo”) for US Military uniforms. We will provide regular updates of progress in these high potential target markets.

Business and Product Development Updates

PCM – Bedding: PCM for mattress and top-of-bed applications remains Alexium's largest source of revenue. These revenues are down year over year (FY23 YTD and Q3 FY23) due to the current soft market conditions. Alexium has made significant improvements to its PCM product, which led to enhanced thermal effusivity with BioCool™ and AlexiCool™. These enhancements have allowed for breakthrough developments in wet-cake PCM and dry powder PCM, both of which open new market opportunities in foam mattress and top-of-bed applications. As a result, Alexium has five new foam application opportunities live in its new business development pipeline. Alexium is in the final approval stages of two PCM placements in Europe, both of which are scheduled to start shipping in Q4 FY23.

DelCool™ – Bedding: Alexium received the first commercial order for DelCool™ in March. It was for a pillow liner application and the initial order was for 18,000 units. Production began shortly thereafter in March with low-rate-initial-production ramping up through April into May when the first 6,000-unit batch will be delivered to the customer. We anticipate that the sales of this pillow liner will grow throughout the remainder of the calendar year.

We have multiple mattress customers currently reviewing the DelCool™ technology for use in mattresses. Two of these market leading mattress customers have received samples from Alexium and commenced testing in March. Alexium expects significant revenue growth from the DelCool™ technology. It has a best-in-class thermal comfort claim, and it is priced so that it can be added to mattresses with a high-volume price point.

Eclipsys™ – Bedding: Alexium executed a Supply Agreement for Eclipsys™ based mattresses in FY22. The commercialization of these new mattress builds by the customer has taken longer than expected to materialize but we are pleased to announce that we have recently supplied Eclipsys™ materials to the customer for test mattresses that will be constructed in April. From there, we expect more Eclipsys™ materials to be ordered this summer for the manufacture of floor models, with a commercial launch now scheduled for January 2024. Additionally, Eclipsys™ materials are now being tested by two further large national mattress brands for inclusion in their high-end mattresses.

FR NyCo – Military Uniforms: Alexium is in active discussions with two branches of the US Military for the development and testing of a next generation flame-resistant (FR) fabric for all their respective enlisted personnel. Fabric has been treated and tested internally at Alexium's South Carolina laboratory. Portions of that same batch have been submitted for testing at the Military's performance lab in Massachusetts. The military's goal is to acquire an advanced fabric that can be cut & sewn at a viable cost for fatigue uniforms to be supplied to all enlisted personnel.

The current option used by these two branches is very expensive, which limits it to only a small percentage of the enlisted personnel deployed to specific areas in particular roles. The goal is to deliver a fabric that meets the desired FR, fabric weight, tear strength and breathability attributes at an affordable price. Alexium has met the Military's initial criteria but must have passing results for the Military's more stringent second-level criteria in the next phase of testing and trials.

Eclipsys™ for Tactical Gear: Alexium has several customers testing prototypes of tactical/ballistic vests utilizing Eclipsys™ material sewn into the construction. Alexium has leveraged early prototypes and the resulting learnings from the early launch of Eclipsys™ materials in tactical gear in 2022. These learnings have resulted in significant increases in cooling performance from the improved Eclipsys™ substrate. The cooling performance has also been aided by the provision of better technical guidance to the tactical gear manufacturers as they incorporate the Eclipsys™ materials into their finished product. In many cases, these are established customer product lines where the version incorporating Eclipsys will be a value-add feature to be sold at a higher price point. Currently, we are testing the efficacy of proposed final products for several customers. We expect orders from these customer product development activities this calendar year. We will release a market update as soon as we receive an order with meaningful revenue.

Outlook – Q4 into FY 24

In summary, Alexium is well positioned to succeed and grow. The Company has enough qualified opportunities in its new business development pipeline to deliver meaningful increases in sales and Alexium has the staff and experience to convert these pipeline opportunities.

The Company has proven, patented technologies that are being leveraged for growth. Alexium has a positive company culture that rewards innovation and initiative. There are many Alexium employees stepping forward to propel the Company to its next successful chapter. As sales and manufacturing volumes increase, the Company will recruit new talent to bolster the team for sustained growth. Alexium has moved from the stage of developing, testing, and introducing new intellectual property to commercializing those technologies to catalyse significant revenue and profit growth. This process is a journey for the entire organisation, and it is one which is well underway. It is a very exciting time for Alexium and its employees, customers, supply and manufacturing partners, and shareholders.

Appendix 4C

Quarterly cash flow report for entities subject to Listing Rule 4.7B

Name of Entity	
ALEXIUM INTERNATIONAL GROUP LIMITED	
ABN	Quarter ended
91 064 820 408	31-March-2023

Consolidated statement of cash flows	Current quarter \$US'000	Year to date (9 months) \$US'000
1. Cash flows from operating activities		
1.1 Receipts from customers	2,023	4,737
1.2 Payments for		
(a) research and development	(79)	(284)
(b) product manufacturing and operating costs	(1,064)	(2,753)
(c) advertising and marketing	(4)	(5)
(d) leased assets	(22)	(63)
(e) staff costs	(641)	(1,797)
(f) administration and corporate costs	(381)	(1,127)
1.3 Dividends received (see note 3)		
1.4 Interest received	5	8
1.5 Interest and other costs of finance paid	(31)	(99)
1.6 Income taxes paid		
1.7 Government grants and tax incentives		
1.8 Other (GST received)	9	24
1.9 Net cash from / (used in) operating activities	(185)	(1,359)

2. Cash flows from investing activities		
2.1 Payments to acquire or for:		
(a) entities		
(b) businesses		
(c) property, plant and equipment	(15)	(18)
(d) investments		
(e) intellectual property	(91)	(284)
(f) other non-current assets		

Appendix 4C
Quarterly report for entities subject to Listing Rule 4.7B

Consolidated statement of cash flows		Current quarter \$US'000	Year to date (9 months) \$US'000
2.2	Proceeds from disposal of:		
	(a) entities		
	(b) businesses		
	(c) property, plant and equipment		
	(d) investments		
	(e) intellectual property		
	(f) other non-current assets		
2.3	Cash flows from loans to other entities		
2.4	Dividends received (see note 3)		
2.5	Other (provide details if material)		
2.6	Net cash from / (used in) investing activities	(106)	(302)
3. Cash flows from financing activities			
3.1	Proceeds from issues of equity securities (excluding convertible debt securities)		
3.2	Proceeds from issue of convertible debt securities		1,023
3.3	Proceeds from exercise of options		
3.4	Transaction costs related to issues of equity securities or convertible debt securities		(1)
3.5	Proceeds from borrowings	1,590	4,235
3.6	Repayment of borrowings	(1,822)	(4,033)
3.7	Transaction costs related to loans and borrowings		
3.8	Dividends paid		
3.9	Other (provide details if material)		
3.10	Net cash from / (used in) financing activities	(232)	1,224
4.	Net increase / (decrease) in cash and cash equivalents for the period		
4.1	Cash and cash equivalents at beginning of period	1,103	1,027
4.2	Net cash from / (used in) operating activities (item 1.9 above)	(185)	(1,359)
4.3	Net cash from / (used in) investing activities (item 2.6 above)	(106)	(302)
4.4	Net cash from / (used in) financing activities (item 3.10 above)	(232)	1,224
4.5	Effect of movement in exchange rates on cash held	(3)	(13)
4.6	Cash and cash equivalents at end of quarter	577	577

Appendix 4C
Quarterly report for entities subject to Listing Rule 4.7B

5. Reconciliation of cash and cash equivalents at the end of the quarter (as shown in the consolidated statement of cash flows) to the related items in the accounts	Current quarter \$US'000	Previous quarter \$US'000
5.1 Bank balances	577	1,103
5.2 Call deposits		
5.3 Bank overdrafts		
5.4 Other (provide details)		
5.5 Cash and cash equivalents at end of quarter (should equal item 4.6 above)	577	1,103

6. Payments to related entities of the entity and their associates	Current quarter \$US'000
6.1 Aggregate amount of payments to related parties and their associates included in item 1	201
6.2 Aggregate amount of payments to related parties and their associates included in item 2	
6.1 Total payment of \$201K for non-Executive Directors fees and payroll for Mr Blackburn, Managing Director and Dr Brookins, Director	

7. Financing facilities	Total facility amount at quarter end \$US'000	Amount drawn at quarter end \$US'000
7.1 Loan facilities	4,832	4,832
7.2 Credit standby arrangements	1,334	521
7.3 Other (please specify)	-	-
7.4 Total Financing facilities	6,176	5,354
7.5 Unused financing facilities available at quarter end		822
7.6 Include in the box below a description of each facility above, including the lender, interest rate, maturity date and whether it is secured or unsecured. If any additional financing facilities have been entered into or are proposed to be entered into after quarter end, include a note providing details of those facilities as well.		
7.1 - Colinton Capital Partners 3-year 10% A\$7.0M secured convertible note that matures on 27-Dec-26		
7.2 - Alterna CS - Asset based loan secured with working capital accounts with \$521K drawn on a total availability \$1,334K as of the reporting date. Interest is variable based on Wall Street Journal published Prime Rate + 5% spread for a current rate 13.0%. Loan ends on 05-Apr-25.		

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Appendix 4C
Quarterly report for entities subject to Listing Rule 4.7B

8.	Estimated cash available for future operating activities	\$US'000
8.1	Net cash from / (used in) operating activities (item 1.9)	(185)
8.2	Cash and cash equivalents at quarter end (item 4.6)	577
8.3	Unused finance facilities available at quarter end (item 7.5)	822
8.4	Total available funding (item 8.2 + item 8.3)	1,399
8.5	Estimated quarters of funding available (item 8.4 divided by item 8.1)	7.6
<p><i>Note: if the entity has reported positive net operating cash flows in item 1.9, answer item 8.5 as "N/A". Otherwise, a figure for the estimated quarters of funding available must be included in item 8.5.</i></p>		
8.6	If item 8.5 is less than 2 quarters, please provide answers to the following questions.	
8.6.1	Does the entity expect that it will continue to have the current level of net operating cash flows for the time being and, if not, why not?	
	Answer: N/A	
8.6.2	Has the entity taken any steps, or does it propose to take any steps, to raise further cash to fund its operations and, if so, what are those steps and how likely does it believe that they will be successful?	
	Answer: N/A	
8.6.3	Does the entity expect to be able to continue its operations and to meet its business objectives and, if so, on what basis?	
	Answer: N/A	
<p><i>Note: where item 8.5 is less than 2 quarters, all of questions 8.6.1, 8.6.2 and 8.6.3 above must be answered.</i></p>		

Compliance statement

- 1 This statement has been prepared in accordance with accounting standards and policies which comply with Listing Rule 19.11A.
- 2 This statement gives a true and fair view of the matters disclosed.

Date: 20 April 2023
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Authorised by: The Board of Directors
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Notes

1. This quarterly cash flow report and the accompanying activity report provide a basis for informing the market about the entity's activities for the past quarter, how they have been financed and the effect this has had on its cash position. An entity that wishes to disclose additional information over and above the minimum required under the Listing Rules is encouraged to do so.
2. If this quarterly cash flow report has been prepared in accordance with Australian Accounting Standards, the definitions in, and provisions of, AASB 107: Statement of Cash Flows apply to this report. If this quarterly cash flow report has been prepared in accordance with other accounting standards agreed by ASX pursuant to Listing Rule 19.11A, the corresponding equivalent standard applies to this report.
3. Dividends received may be classified either as cash flows from operating activities or cash flows from investing activities, depending on the accounting policy of the entity.
4. If this report has been authorised for release to the market by your board of directors, you can insert here: "By the board". If it has been authorised for release to the market by a committee of your board of directors, you can insert here: "By the [name of board committee – eg Audit and Risk Committee]". If it has been authorised for release to the market by a disclosure committee, you can insert here: "By the Disclosure Committee".
5. If this report has been authorised for release to the market by your board of directors and you wish to hold yourself out as complying with recommendation 4.2 of the ASX Corporate Governance Council's Corporate Governance Principles and Recommendations, the board should have received a declaration from its CEO and CFO that, in their opinion, the financial records of the entity have been properly maintained, that this report complies with the appropriate accounting standards and gives a true and fair view of the cash flows of the entity, and that their opinion has been formed on the basis of a sound system of risk management and internal control which is operating effectively.

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