



ASX Announcement

15th February 2023

Lithium Testing Agreement with Yongxing Thailand Lithium Projects

HIGHLIGHTS

- Matsa has signed a cooperation letter agreement with Yongxing Special Materials Technology Co., Ltd, in the Jiangxi province, China to conduct testwork on samples from Matsa's Thailand lithium projects for conventional lepidolite processing
- Yongxing, one of China's largest lepidolite miners and processors, (current market cap of A\$8.96B) have been producing battery grade lithium carbonate from lepidolite since 2019. Yongxing processes locally sourced low grade lepidolite ore and, in the 2022 calendar year, generated sales of A\$3.26B and a net profit of A\$1.33B¹

The common misconception that lepidolite is difficult or too expensive to process is false. Four producers in Jiangxi province, China, (referred to as "the lithium capital of Asia") produce battery grade lithium carbonate exclusively from lepidolite

- Yongxing Material, Jiangte Motor, Nanshi Lithium and Feiyu New Energy all produce lithium carbonate exclusively from lepidolite. Their lithium carbonate end product from lepidolite is comparable to lithium carbonate produced from spodumene at comparable cost
- This follows on from the excellent lithium results announced earlier this week where LIBS analyser testing confirmed 3.45% Li (7.4% Li₂O) in lepidolite bearing pegmatites at the Kanchanaburi project²
- Matsa is in the process of collecting representative samples from each prospect to transport to China and to meet with Yongxing representatives at their head office

CORPORATE SUMMARY

Executive Chairman

Paul Poli

Directors

Frank Sibbel

Pascal Blampain

Andrew Chapman

Shares on Issue

412.00 million

Listed Options

49.22 million @ \$0.17

Unlisted Options

23.55 million @ \$0.08 - \$0.21

Top 20 shareholders

Hold 55.38%

Share Price on 14th February 2023

3.7 cents

Market Capitalisation

A\$15.24 million

¹ YONGXING SPECIAL MATERIALS TECHNOLOGY CO.,LTD : 002756 Stock Price | CNE100001XB3 | MarketScreener

² ASX Announcement 14 February 2023 - Excellent Preliminary Lithium Results Received In Western Thailand

Matsa Resources Limited (“Matsa” or “the Company” ASX: MAT) is pleased to announce that it has signed a lithium sample testing cooperation agreement letter with Yongxing Special Materials Technology Co., Ltd (“Yongxing”), in the Jiangxi province, China to supply four 20kg samples of lepidolite and other lithium ores to Yongxing who will treat the samples in their processing facilities in Jiangxi to confirm:

1. The ability to process the ore from Matsa’s lithium projects using the Yongxing processing plant;
2. The recovery grade of the lithium ore; and
3. The potential for beneficiation to produce a concentrate in any future development scenario.

Matsa’s lithium project in Western Thailand covers a total of 1,160km² (Figure 1).

Matsa Executive Chairman Mr Paul Poli commented:

“It is really pleasing to have entered in to a Lithium Sample testing Cooperation Agreement with Yongxing, who have confirmed their strong interest in our Thailand lithium projects. Yongxing is currently mining their own low grade lepidolite and have stated Matsa’s lepidolite ore would be highly desirable due to the indicative higher grade and close proximity to China. To this end we are making travel arrangements to meet the board of Yongxing at their head office.

I want to raise an important note here regarding Matsa’s Thailand lithium micas, both lepidolite and polyolithionite can be and are being processed using existing technology to extract the lithium.

China has been mining lepidolite for many years in Jiangxi province. In fact, Jiangxi is so significant that the province is called “the lithium capital of Asia”. There are four processing facilities who solely rely on lepidolite ore. Kanchanaburi micas appear to be typically 3 to 4 percent lithium (up to 8% Li₂O), so we are confident that a commercial grade concentrate from these lithium micas is possible.

Additionally, the Thai media have stated that the Thai government are embarking on developing a lithium processing facility near Bangkok. With this in mind, I am highly encouraged on the potential for mining and processing these types of minerals should we define a resource in the not too distant future.”

About Yongxing Special Materials Co., Ltd

Yongxing Special Materials Co. Ltd (Yongxing) has been producing lithium carbonate from lepidolite since 2019. The processing plant has been processing 1.2Mtpa of locally sourced lepidolite ore running at 0.6% lithium oxide and for the 2022 calendar year, generated sales of A\$3.26B and a net profit of A\$1.33B.

Yongxing are upgrading the processing facilities to lift output to above 30ktpa of lithium carbonate. This upgrade will require a feed rate of 3.6Mtpa of lepidolite ore.



The Yongxing processing plant located in Jiangxi Province of China, produces a battery grade lithium carbonate

Yongxing Materials has developed its own low-temperature roasting technology using composite salts, together with advanced fluorine fixation technology, to greatly reduce equipment corrosion as well as reduce costs. The company also created a “one-step” battery-grade lithium carbonate production line, instead of upgrading industrial grade carbonates, as most smelters would do. This has shortened the production period and further reduced costs. Current carbonate production costs from lepidolite are around RMB35,000/t, which is competitive with the average cost producing lithium carbonate from spodumene³.

An agreement has been signed between Matsa and Yongxing to process four metallurgical samples for initial characterisation and product specifications. In addition, it is expected the processing results may provide direction for potential onsite beneficiation of any future mining operations.

As it stands, Matsa believes the grade and grain size of the lepidolite found at both Phang Nga and Kanchanaburi is more than capable of producing a DSO (direct shipment ore) given the grades (LIBS and conventional laboratory assays) seen to date.

Whilst some test work would be needed, research⁴ has demonstrated that lepidolite should be amenable to electrostatic separation to beneficiate the lithium mica pegmatite rocks.

³ <https://www.cru.com.au/knowledge-and-insights/insights/2022/scrutinising-the-lithium-technology-boom-part-3/> 11 March 2022

⁴ Electrostatic Shape Separation of Mica from Pegmatites, Magnetic and Electrical Separation, Vol.6, pp. 135-149

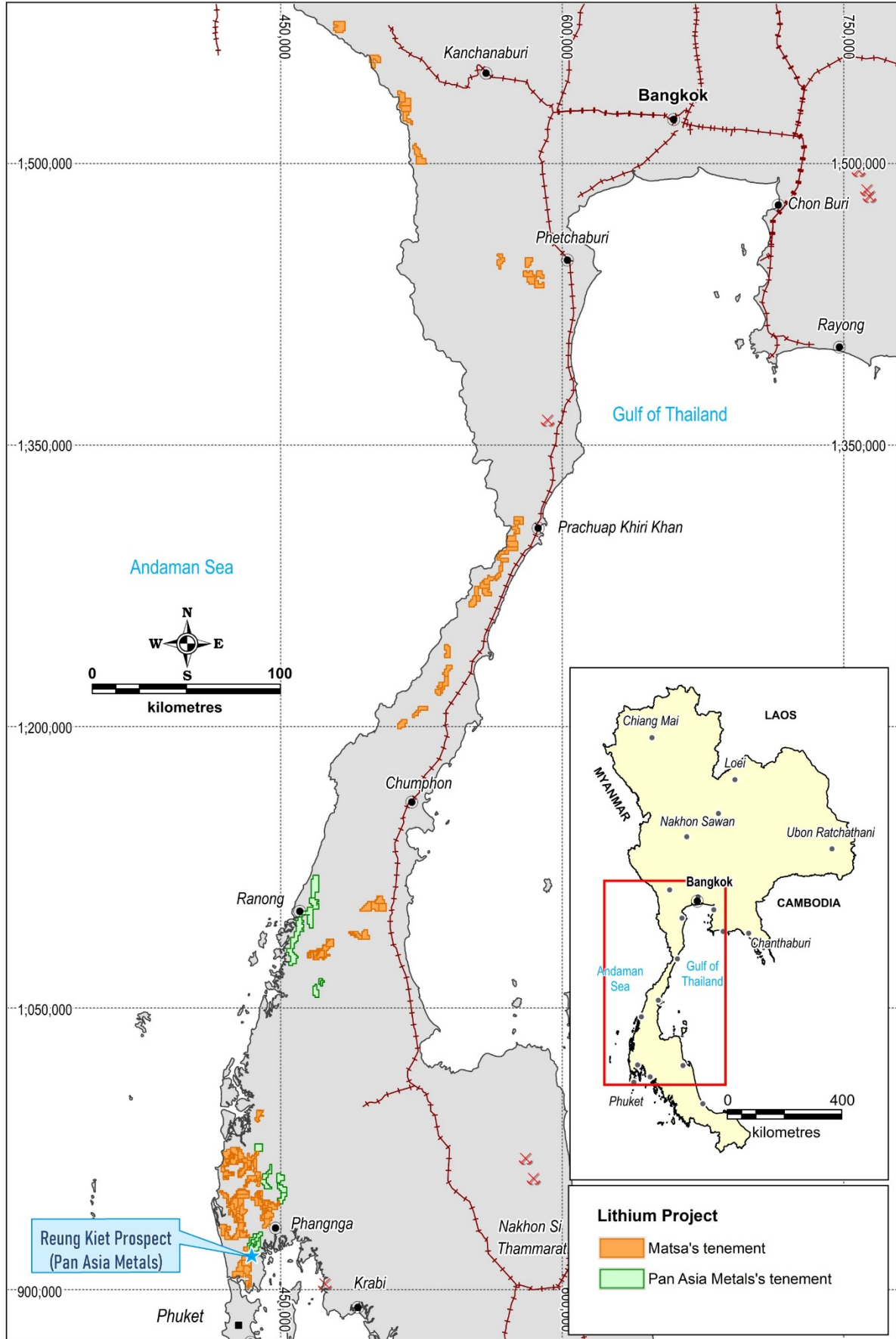


Figure 1: Matsa's SPLA coverage in western Thailand

Lepidolite processing

Recovery of lithium from lepidolite has long been demonstrated⁵ and currently, four producers in Jiangxi province produce lithium exclusively from lepidolite concentrate: Yongxing Material, Jiangte Motor, Nanshi Lithium and Feiyu New Energy. A variety of technologies are used, primarily at the roasting stage, to support the economic feasibility of using lepidolite. These are being continually advanced in an effort to reduce production costs and increase extraction efficiency⁶.

Most of the published literature⁷, outline the prevalent technique of lithium extraction from lepidolite involves one-step high-temperature (850°C - 1000°C) roasting with additives followed by water leaching and research suggests lithium extraction from polyolithionite processing⁸ can produce a commercial lithium product.

Elsewhere, Lepidico Ltd are advancing their lepidolite project in Namibia and is planning to use proprietary technology to produce a battery grade lithium carbonate from lepidolite and other lithium micas with mining production commencing in FY2024⁹.

Composition and properties of lepidolite and polyolithionite

Lepidolite is a member of the polyolithionite-trilithionite series¹⁰, and has a chemical composition that ranges in a solid solution series from that of polyolithionite $KLi_2Al(Si_4O_{10})(F,OH)_2$ to that of trilithionite $K(Li_{1.5}Al_{1.5})(AlSi_3O_{10})(F,OH)_2$. This compositional range of lithium mica is known as the lepidolite series.

Lepidolite is the major source of the alkali metal rubidium and a source of lithium.

Next steps

Matsa is in the process of collecting the lithium samples to ship to Yongxing's processing facility in Jiangxi and plans are being put in place to have Matsa representatives travel to China in the near future and visit the Yongxing head office.

In addition, Matsa has the following key work plan to advance its lithium discoveries:

- Obtain appropriate approvals to progress the SPLAs to granted licences ("SPLs")
- Obtain relevant approvals and agreements to enable Matsa to subsequently conduct first pass drilling at select prospects before the onset of the rainy season (monsoon), which typically occurs between July and October
- Gridded soil sampling and mapping covering area of lepidolite & polyolithionite discovery at Kanchanaburi
- Assay regional stream sediment sampling for Chumphon and Phetchaburi projects areas

⁵ Recovery of Lithium from Lepidolite by Sulfuric Acid and Separation of Al/Li by Nanofiltration, by Lin Gao, Huaiyou Wang, Jinli Li and Min Wang in *Minerals* 2020, 10, 0981

⁶ <https://www.cruargroup.com/knowledge-and-insights/insights/2022/scrutinising-the-lithium-technology-boom-part-3/> 11 March 2022

⁷ Extraction of Lithium from Lepidolite and Spodumene Doctorate thesis by James Mulwanda, Murdoch University College of Science, Health, Engineering and Education Western Australia 2021

⁸ Efficient Extraction of Lithium and Rubidium from Polyolithionite via Alkaline Leaching Combined with Solvent Extraction and Precipitation by Yingwei Lv, Peng Xing, Baozhong Ma,* Yubo Liu, Chengyan Wang,* Wenjuan Zhang, and Yongqiang Chen in *ACS Sustainable Chem. Eng.* 2020, 8, 14462–14470

⁹ <https://lepidico.com/> (website home page)

¹⁰ <https://www.mindat.org/min-2380.html>

MINERAL RESOURCES

The global Mineral Resource Estimate for the Lake Carey Gold Project remains at **886,000oz @ 2.4g/t Au** as outlined in Table 2 below. At the date of this report, there are no reportable lithium resources within the Matsa Group.

	Cutoff	Measured		Indicated		Inferred		Total Resource		
	g/t Au	('000t)	g/t Au	('000t)	g/t Au	('000t)	g/t Au	('000t)	g/t Au	('000 oz)
Red October										
Red October UG	2.0	105	8	483	5.7	411	6.3	999	6.2	199
Red October Subtotal		105	8.4	483	5.7	411	6.3	999	6.2	199
Devon										
Devon Pit (OP)	1.0	-	-	341	4.8	102	3.6	443	4.6	65
Olympic (OP)	1.0	-	-	-	-	171	2.8	171	2.8	15
Hill East (OP)	1.0	-	-	-	-	748	2.0	748	2.0	48
Devon Subtotal		-	-	341	4.8	1021	2.3	1362	2.9	128
Fortitude										
Fortitude	1.0	127	2.2	2,979	1.9	4,943	1.9	8,048	1.9	489
Gallant (OP)	1.0	-	-	-	-	341	2.1	341	2.1	23
Bindah (OP)	1.0	-	-	43	3.3	483	2.3	526	2.4	40
Fortitude Subtotal		127	2.2	3021	2.0	5,767	1.9	8,915	1.9	553
Stockpiles		-	-	-	-	191	1.0	191	1.0	6
Total		232	5.0	3,845	2.7	7,199	2.2	11,467	2.4	886

Table 2: Lake Carey Resource*

*Matsa confirms that it is not aware of any new information or data that materially affects the Resource as stated. All material assumptions and technical parameters underpinning the Mineral Resource estimate continue to apply and have not changed since the last release.

***Special note:** The Resources of the Devon Pit project, representing 65koz, are subject to the profit share Joint Venture Agreement announced on 23 December 2022¹¹.

This ASX announcement is authorised for release by the Board of Matsa Resources Limited.

For further information please contact:

Paul Poli
Executive Chairman
T 08 9230 3555
E reception@matsa.com.au

Competent Person Statement

Exploration results

The information in this report that relates to Exploration results is based on information and compiled by Pascal Blampain, who is a Member of the Australasian Institute of Mining and Metallurgy and the Australian Institute of Geoscientists. Mr Blampain serves on the Board and is a full time employee, of Matsa Resources Limited. Mr Blampain has sufficient experience which is relevant to the style of mineralisation and the type of ore deposit under consideration and the activities undertaken to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Blampain consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

¹¹ ASX Announcement 23rd December 2022-Settlement of Devon Pit JVA With Linden - Devon Gold Project