

ASX Release  
8 July 2019

## AGRIMIN EXPANDS SPECIALTY POTASH PRODUCT RANGE

### Highlights

- **Product development and marketing activities have expanded Agrimin’s range of specialty potash fertilisers with a Sulphate of Potash Magnesia (“SOPM”) product**
- **Agrimin’s SOPM product is a natural chloride-free potash fertiliser<sup>1</sup> for use on high value crops such as fruits, vegetables and tree nuts, as well as for use on pasture for livestock**
- **SOPM application is especially beneficial in Agrimin’s key target markets which suffer from magnesium and sulphur deficient soils**
- **The option to produce SOPM can deliver significant additional value to Agrimin via operational efficiencies and a price premium per potassium unit compared to Sulphate of Potash (“SOP”)**
- **Direct engagement with fertiliser customers has confirmed strong demand for Agrimin’s SOPM product and marketing of the off-take is advancing**
- **Definitive Feasibility Study will incorporate a product mix based on projected customer demand**

Agrimin Limited (ASX: AMN) (“Agrimin” or “the Company”) is pleased to provide an update on product development and marketing activities for its 100%-owned Mackay Potash Project in Western Australia. The Company also provides an update of Definitive Feasibility Study (“DFS”) activities.

**Mark Savich, CEO of Agrimin said:** *“We are excited to expand and diversify our product range with a high-quality SOPM fertiliser. Based on five years of engagement with the fertiliser industry we believe this product has excellent market potential, especially in Agrimin’s key target markets.”*

*“Through the DFS process, we have taken the opportunity to investigate and successfully incorporate the option of SOPM production. This ensures that the DFS development plan can allow the maximum value to be extracted from Agrimin’s globally significant potash deposit.”*

*“A broader product range will allow Agrimin to adapt its product mix to suit market demand and to build strong brand value for our products. Ultimately we expect this to deliver greater market share over the long-term.”*

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<sup>1</sup> Refer to the product description on page 2 of this ASX Release.

## Marketing Strategy

Agrimin's strategy is to become a leading global supplier of specialty potash fertilisers which can support the world's increasing production of high value crops such as fruits, vegetables and tree nuts.

During the course of the Company's marketing activities it has received strong interest from fertiliser customers who would benefit from a completely water soluble potassium fertiliser that also contains magnesium and sulphur. Accordingly, over the past year the Company has completed extensive DFS level processing studies and has successfully developed a process to produce a high-quality SOPM product.

The addition of SOPM to the Company's product range is expected to add considerable long-term value to the Mackay Potash Project. The production of SOPM can potentially deliver the following benefits:

- Higher realised price per potassium unit due to an increased value-in-use for customers in Agrimin's key target markets;
- Lower cost per potassium unit delivered to customers as a result of operational efficiencies and economies of scale throughout the entire logistics chain;
- Broader customer base and reduced long-term pricing risk due to a diversified portfolio of high-quality potash products; and
- Lower environmental impact as a result of decreased power and water consumption.

The Company continues to actively market the off-take for both its SOP and SOPM products. This currently involves collaborating with several potential customers to test demand across a number of markets for Agrimin's SOPM product. In addition, the Company continues to progress discussions with potential strategic partners.

## SOPM Product Description

Agrimin's SOPM product is a low-chloride potash fertiliser with a high content of potassium, sulphur and magnesium. Like SOP, SOPM has a low salt index and is essentially chloride-free. It is fully soluble and pH neutral and is therefore highly suitable for soil application.

SOPM is ideal for a broad range of crops such as fruits, vegetables, grape-vines, coffee, citrus and tree nuts. SOPM can be sold to many of the same markets as SOP, however can offer superior fertiliser blending and cost benefits in some of Agrimin's key target markets which suffer from magnesium deficient soils. In addition, SOPM can be used on pasture as a source of magnesium to prevent grass tetany, a potentially fatal disease in ruminant livestock, and potassium to improve nutritional value and disease resistance of forage.

Agrimin's SOPM product contains<sup>2</sup> 25% K<sub>2</sub>O, 11% MgO, 17% S and less than 2% Cl. These indicative product specifications are based on process testwork and laboratory production of SOPM at the Saskatchewan Research Council using brine from Lake Mackay. The Company has completed a range of processing studies to confirm the potential to produce a SOPM product to meet customer requirements.

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<sup>2</sup> K<sub>2</sub>O stands for potassium oxide, MgO stands for magnesium oxide, S stands for sulphur and Cl stands for chloride.

## SOPM Market Opportunity

### Demand

Growing demand for chloride-free potash is widely recognised given that approximately 30% of potash is applied to chloride sensitive crops, however only 9% of global potash supply is currently chloride-free.

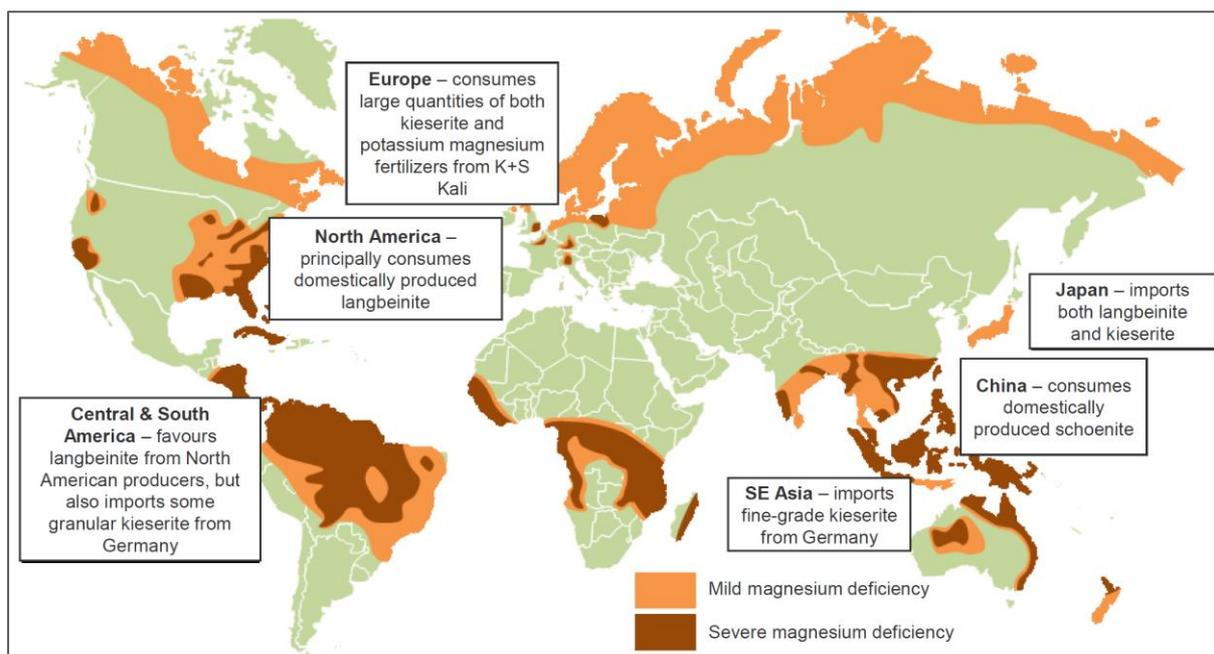
The Company’s direct engagement with the global fertiliser market has also indicated growing demand for secondary nutrients including magnesium and sulphur. This is driven by the adoption of modern farming practices which are increasing the awareness of nutrient deficiencies and are assisting farmers to match fertiliser inputs more closely to crop needs.

Agrimin’s SOPM product will be suitable for chloride sensitive crops, and especially beneficial in regions suffering from magnesium deficient soils such as China, India, Southeast Asia and Latin America (**Figure 1**). These are key target markets for the Company.

Sulphur deficiencies in agricultural soils are also of increasing concern due to more stringent environmental regulations which have resulted in lower sulphur dioxide emissions from power plants. This has reduced atmospheric availability of sulphur, which has been an important historical source for agriculture around industrial areas. Furthermore, sulphur deficiencies in soils are exacerbated by the increasing use of high-analysis sulphur-free fertilisers such as urea and diammonium phosphate, which are replacing traditional fertilisers such as ammonium sulphate and single superphosphate.

Agrimin has received strong interest from fertiliser customers who would benefit from a multi-nutrient product that contains magnesium and sulphur.

**Figure 1. Global Distribution of Magnesium Deficient Soils**



Source: CRU Group

China represents an important target market for Agrimin’s SOPM. Existing production of SOPM in China occurs from salt lake operations in the north-west of the country. This production is entirely consumed within China, with the majority being applied on fruits and vegetables grown in the south of the country where soils suffer from magnesium deficiencies.

During 2019, China’s Ministry of Agricultural and Rural Affairs reiterated the requirements for structural adjustment in fertiliser usage. This included the promotion of organic fertilisers for fruit, vegetable and tea cultivation, replacing chemical fertilisers. The ministry also continues to incentivise China’s farmers to shift away from grain production towards higher value crops.

The enormous acceptance of SOP in China over the past decade has demonstrated that supply of new high-quality fertiliser at the right sales price can stimulate significant new market demand. Agrimin is confident that its SOPM product can gain a high level of acceptance based on the Company’s targeted specifications and price.

The Company has received strong interest for its SOPM product in other regional markets including India, Malaysia, Indonesia, Japan and Korea. While India represents the largest potential market, it currently has a very low application rate of SOP and SOPM due to government subsidies that preferentially support potassium chloride (i.e. MOP).

The Company is also progressing discussions with potential customers for its SOPM product in long-haul markets such as Latin America, the Mediterranean and South Africa. Low application rates of SOP and SOPM in some of these markets is primarily due to a lack of reliable supply. The chloride-free potash market currently suffers from a fragmented supply chain with many small producers which are unable to economically supply long-haul markets. Agrimin’s economies of scale and planned ship loading capabilities for Ultramax bulk carriers (60,000 DWT) allow the Company to target these markets.

### **Supply**

There are very limited production sources of SOPM fertiliser globally. Total production of chloride-free SOPM is approximately 1.9Mtpa (**Table 1** and **Figure 3**) and occurs via the extraction of resources in only four countries worldwide.

**Table 1. Global Suppliers of Chloride-Free SOPM and Estimated Production Rates**

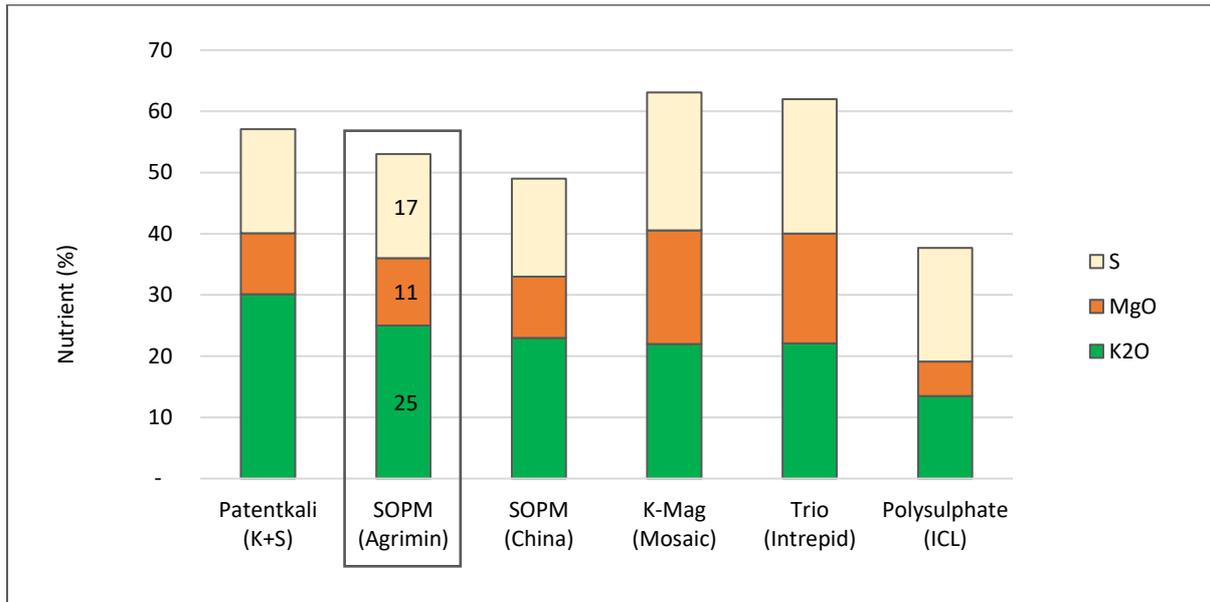
<b>Company</b>	<b>Product Name</b>	<b>Source</b>	<b>Location</b>	<b>Production Rate</b>
Mosaic	K-Mag®	Carlsbad Mine	USA	700ktpa
ICL	Polysulphate®	Boulby Mine	UK	500ktpa
Various	Schoenite	Various Salt Lakes	China	300ktpa
K+S	Patentkali®	Wintershall & Hattorf Mines	Germany	200ktpa
Intrepid Potash	Trio®	Carlsbad Mine	USA	200ktpa
<b>Total</b>				<b>1.9Mtpa</b>

Source: CRU Group, Company Information

In addition to the above suppliers, Sirius Minerals is developing the Woodsmith polyhalite mine in the UK with an initial targeted production rate of 10Mtpa. This development is adjacent to ICL’s Boulby polyhalite mine that is currently in production.

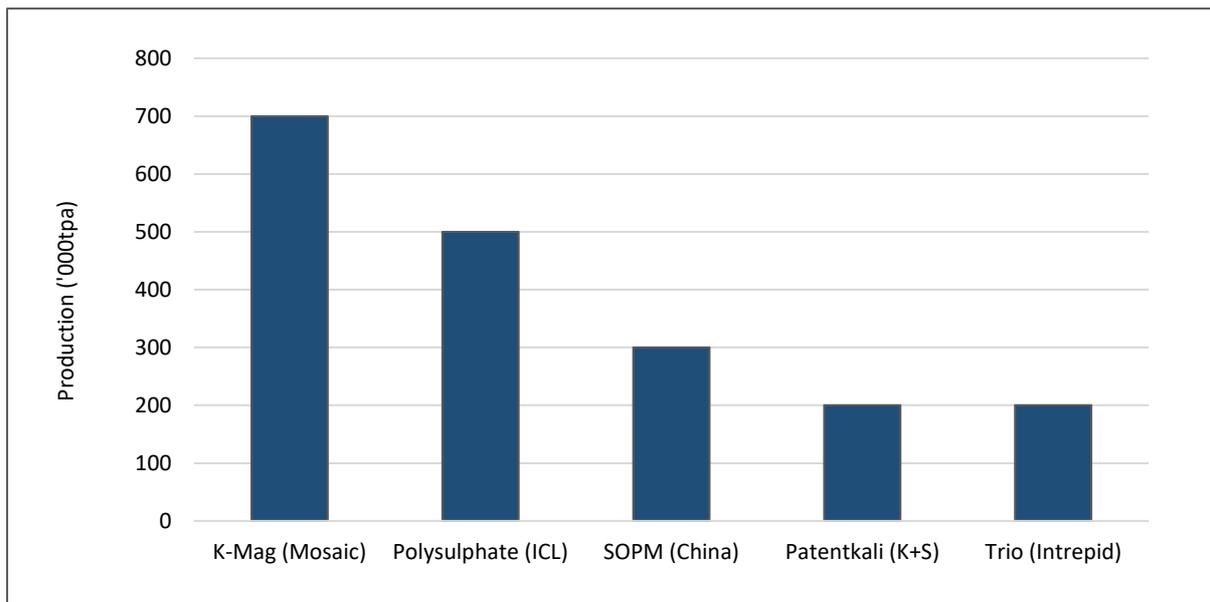
Agrimin is very well positioned to compete with existing and potential SOPM suppliers on the basis of both operating margin and product quality (**Figure 2**). The production of K-Mag, Polysulphate, Patentkali and Trio occurs from mature underground mines which are experiencing declining potash grades. The product qualities from these mines, such as chloride levels, are also subject to natural variations in orebody geology. Additionally, these resources are located in the USA, UK and Germany and are not ideally located to supply the high growth markets of Asia.

**Figure 2. Nutrient Content of SOPM Products**



Source: Product Specification Sheets

**Figure 3. Estimated Production Volumes of SOPM Products**



Source: CRU Group, Company Information

## Pricing

Benchmark prices for SOPM exist for both the USA and China markets.

The current SOPM price in the USA is approximately US\$385/t FOB California (22% K<sub>2</sub>O grade) (*Source: Green Markets®*). While the USA is the largest consumer of its domestic production of SOPM, both Mosaic and Intrepid also export substantial volumes to Canada, Mexico and overseas markets. This makes the USA the world's leading exporter of SOPM products.

The current SOPM price in China is approximately US\$250/t FOB Qinghai (23% K<sub>2</sub>O grade) (*Source: BAIINFO*). China's SOPM production is entirely consumed within the country.

The average price received by K+S for the Patentkali product produced in Germany (30% K<sub>2</sub>O grade) is not publicly available and this product is believed to be exclusively sold within Europe. The price of the Polysulphate product produced by ICL in the UK (14% K<sub>2</sub>O grade) is also not publicly available, however export volumes for this product have experienced very strong growth worldwide in recent years.

## Definitive Feasibility Study Update

The outcomes of the 2018 Pre-Feasibility Study<sup>3</sup> (“PFS”) for the Mackay Potash Project were based on a production target of 426,000tpa of SOP containing 52% K<sub>2</sub>O and 18% S, thus containing 218,000tpa of K<sub>2</sub>O. The Company has now completed the DFS level process testwork, design and modelling studies in relation to the production of SOP.

In addition to SOP, over the past year, Agrimin has successfully completed DFS level process testwork, design and modelling studies to produce a high-quality SOPM product containing 25% K<sub>2</sub>O, 11% MgO and 17% S.

The PFS production target of 218,000tpa of contained K<sub>2</sub>O is not planned to change during the DFS, however the product mix of SOP and SOPM will be based on projected customer demand and this will determine the Project's overall production tonnages. The capital cost and operating margins as reported in the PFS are not expected to materially change with the inclusion of SOPM into the product mix.

The SOPM production process uses the same proven technologies that were applied in the Company's PFS and majority of the unit operations for SOPM are the same as for SOP production (**Figure 4**).

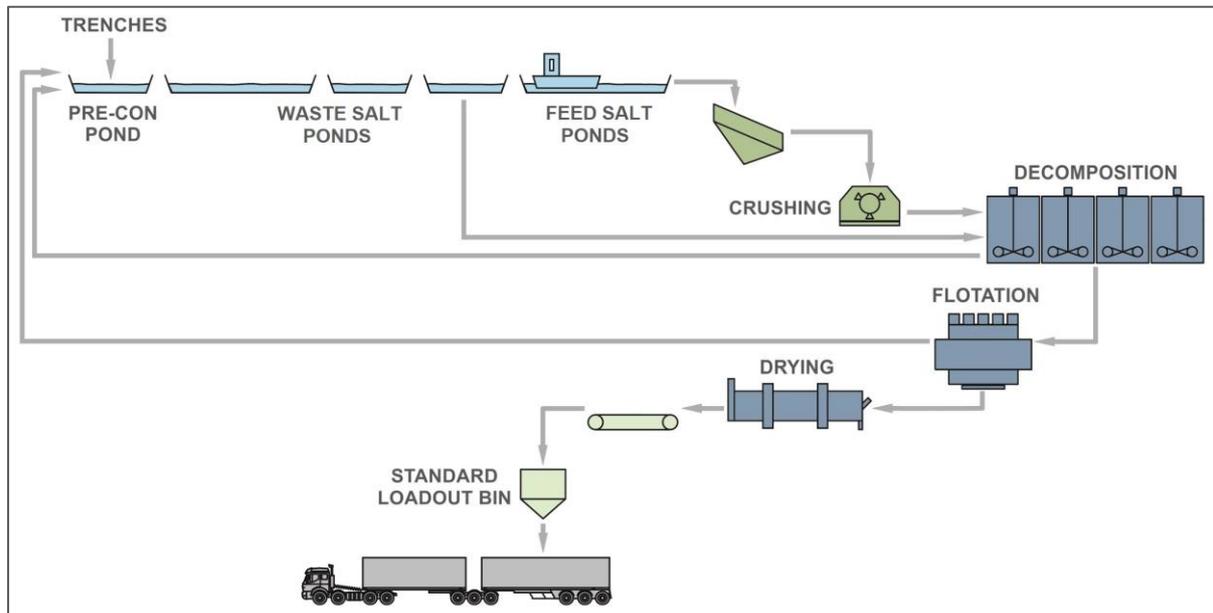
The production method for SOPM starts with trench brine being transferred to the solar evaporation ponds where the final pond will precipitate the targeted potash-bearing salts. These salts will be wet harvested and pumped as a slurry to the process plant. The process plant will include the conventional steps of decomposition and flotation to produce a powdered SOPM product.

The powdered SOPM will be dried at the process plant site and loaded into a dedicated fleet of road trains via a load-out facility. The road trains will transport the SOPM to a storage shed and finishing plant located at Wyndham Port.

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<sup>3</sup> Refer to the ASX Release on 7 May 2018 for full Pre-Feasibility Study details. All material assumptions underpinning the production target and forecast financial information derived from the production target continue to apply and have not materially changed.

**Figure 4. SOPM Process Flow Diagram**



At Wyndham Port the powdered SOPM, as well as SOP, will be processed through a finishing plant to manufacture finished products, comprising standard and granular product types. The overall product mix will be determined based on customer demands. The finished products are planned to be loaded onto cargo ships of up to Ultramax (60,000 DWT) in size and exported to world markets.

The option of including SOPM production into the DFS has the potential to further improve the Project’s highly favourable economics which were demonstrated in the PFS.

**ENDS**

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**About Agrimin**

Based in Perth, Agrimin Limited is a leading fertiliser development company focused on the development of its 100% owned Mackay Potash Project. The Project is situated on Lake Mackay in Western Australia, the largest undeveloped potash-bearing salt lake in the world. Agrimin is aiming to be a global supplier of specialty potash fertilisers to both traditional and emerging value-added markets. Agrimin Limited’s shares are traded on the Australian Stock Exchange (ASX: AMN).

**Forward-Looking Statements**

This ASX Release may contain certain “forward-looking statements” which may be based on forward-looking information that are subject to a number of known and unknown risks, uncertainties, and other factors that may cause actual results to differ materially from those presented here. Where the Company expresses or implies an expectation or belief as to future events or results, such expectation or belief is expressed in good faith and believed to have a reasonable basis. Forward-looking information includes exchange rates; the proposed production plan; projected brine concentrations and recovery rates; uncertainties and risks regarding the estimated capital and operating costs; uncertainties and risks regarding the development timeline, including the need to obtain the necessary approvals. For a more detailed discussion of such risks and other factors, see the Company’s Annual Reports, as well as the Company’s other ASX Releases. Readers should not place undue reliance on forward-looking information. The Company does not undertake any obligation to release publicly any revisions to any forward-looking statement to reflect events or circumstances after the date of this ASX Release, or to reflect the occurrence of unanticipated events, except as may be required under applicable securities laws.