

THE FUTURE OF FERTILIZER

Sugarcane February 2016

Important Notices



BASIS CPD Points - PN/47342/1516/g

This document is produced for information only and not in connection with any specific or proposed offer (the "Offer") of securities in Sirius Minerals Plc (the "Company"). No part of these results constitutes, or shall be taken to constitute, an invitation or inducement to invest in the Company or any other entity, and must not be relied upon in any way in connection with any investment decision.

An investment in the Company or any of its subsidiaries (together, the "Group") involves significant risks, and several risk factors, including, among others, the principal risks and uncertainties as set out pages 33 to 38 of the Company's 2015 Annual Report and other risks or uncertainties associated with the Group's business, segments, developments, regulatory approvals, resources, management, financing and, more generally, general economic and business conditions, changes in commodity prices, changes in laws and regulations, taxes, fluctuations in currency exchange rates and other factors, could have a material negative impact on the Company or its subsidiaries' future performance, results and financial standing. This document should not be considered as the giving of investment advice by any member of the Group or any of their respective shareholders, directors, officers, agents, employees or advisers.

The information and opinions contained in this document are provided as at the date of this document and are subject to amendment without notice. In furnishing this document, no member of the Group undertakes or agrees to any obligation to provide the recipient with access to any additional information or to update this document or to correct any inaccuracies in, or omissions from, this document which may become apparent.

This document contains certain forward-looking statements relating to the business, financial performance and results of the Group and/or the industry in which it operates. Forward-looking statements concern future circumstances and results and other statements that are not historical facts, sometimes identified by the words "believes", "expects", "predicts", "intends", "projects", "plans", "estimates", "aims", "foresees", "anticipates", "targets", and similar expressions. The forward-looking statements contained in this document, including assumptions, opinions and views of the Group or cited from third party sources are solely opinions and forecasts which are uncertain and subject to risks, including that the predictions, forecasts, projections and other forward-looking statements will not be achieved. Any recipient of this document should be aware that a number of important factors could cause actual results to differ materially from the plans, objectives, expectations, estimates and intentions expressed in such forward-looking statements speak only as of the date on which they are made.

No member of the Group or any of their respective affiliates or any such person's officers, directors or employees guarantees that the assumptions underlying such forward-looking statements are free from errors nor does any of the foregoing accept any responsibility for the future accuracy of the opinions expressed in this presentation or the actual occurrence of the forecasted developments or undertakes any obligation to review, update or confirm any of them, or to release publicly any revisions to reflect events that occur due to any change in the Group's estimates or to reflect circumstances that arise after the date of this document, except to the extent legally required.

Any statements (including targets, projections or expectations of financial performance) regarding the financial position of the Company, any of its subsidiaries or the Group or their results are not and do not constitute a profit forecast for any period, nor should any statements be interpreted to give any indication of the future results or financial position of the Company, any of its subsidiaries or the Group.

Introduction to Brazilian sugarcane and soil

Brazil is a world leader for sugarcane production

Brazilian sugarcane



- 1.9 billion tonnes of sugarcane are produced globally, with 40% coming from Brazil, the world's largest producer¹
- 10.2 million ha in Brazil are used to produce sugarcane¹

Brazilian soils



SIRIUS

- Soils are often weathered and low in nutrient capacity (Ferralsols), calcium and sulphur content
- Fertilizer, lime and gypsum are commonly applied on Brazilian soils
- An estimated 970Mt of soil erosion losses cost Brazil US\$5.8 billion annually²

Brazil needs to use fertilizers and soil amendments to remain world leader of sugarcane production

Soil nutrient legacy (Part 1)

Use of POLY4 delivers calcium and sulphur to depth



Post harvest soil nutrient content at depth^{1,2}

(mg/kg)



Key comments

- Improving soil fertility requires replacing aluminium and hydrogen ions in the soil profile
- Applying beneficial calcium ions removes these detrimental aluminium and hydrogen ions
- Mean post trial levels of aluminium and hydrogen ions were 19 mmol_c/dm³ with gypsum compared to 18.2 mmol_c/dm³ with POLY4
- The POLY4 plan resulted in an average of 23% more calcium and 24% more sulphur than the gypsum plan in the 0 – 40 cm soil profile, post cropping

POLY4 nutrient retention at depth improves soil for future crops

Soil nutrient legacy (Part 2)

POLY4's nutrient content penetrates soil deeper than gypsum



Post harvest soil nutrient content at depth^{1,2}

(mg/kg)



Key comments

- The benefits of replacing gypsum as the calcium source with POLY4 is the additional potassium and magnesium supply
- Fertilization with POLY4 improves the soil's potassium and magnesium content post harvest, throughout the soil profile
- The additional potassium and magnesium from POLY4 makes a contribution to all of the soil horizons
- The POLY4 plan resulted in an average of 37% more calcium and significantly, 54% more magnesium than the gypsum plan in the 0 – 40 cm soil profile, post cropping

POLY4 improves nutrient legacy, elevating soil fertility

Nutrient delivery from POLY4

POLY4's nutrients are available to aid plant growth over time



% of added nutrient



Key comments

- In a laboratory study using soil columns, nutrient delivery from POLY4 was examined in order to demonstrate nutrient movement down to a 30cm soil horizon
- Controlled delivery of nutrients over time from POLY4 is an important benefit for low nutrient capacity soils, maintaining fertilization in the root zone and reducing leaching losses
- In this low calcium bearing soil, sustained delivery of calcium and magnesium to the root zone is achieved with POLY4 four months after application
- Potassium delivery within the root zone is continuous for five months
- The sulphate anion follows the established patterns of downward movement passing the 30 cm horizon after three months
- Nutrient availability over a number of months is important for plant development throughout the growth season

POLY4 supplies nutrients at crop appropriate rates

Notes: 1) Amount of water is monthly equivalent to 2 years rainfall based on a 5 year average rainfall of 1385 mm yr⁻¹ in Florida; 2) Fertilizer application rate of 300 kg K₂O/ha. Soil analysis for pH 8.06, K 44 mg kg⁻¹, Ca 1360 mg kg⁻¹, Mg 551 mg kg⁻¹, S 15,642 mg kg⁻¹, OM 0.4%, soil texture: 88.4% Sand, 0.6% Silt, 10.6% Clay Source: University of Florida 2015



Sugarcane yield



POLY4 supplies four macro-nutrients which improve sugarcane yields

Total cane yield^{1,2}

(t/ha)



Key comments

- Sugarcane yield, sugar content and quality are essential to determining crop value
- Gypsum application is commonly used in Brazil to improve soil conditions and supply plant nutrients
- Like gypsum, POLY4 contains calcium and sulphur but also supplies potassium and magnesium in support of crop production
- POLY4's multi-nutrient supply delivered a 9% yield increase over gypsum, even at lower sulphur and calcium rates

POLY4 increases yields more effectively than gypsum through balanced fertilization

Sugarcane nutrient concentration

Nutrient availability is critical for uptake to support plant growth



Cane total nutrient concentration^{1,2}

(g/kg)



Key comments

- Sulphur plays a vital role in plant metabolism and is required for photosynthesis
- Calcium is important for cell division, and stabilising and strengthening cell walls
- Calcium and sulphur uptake was 3% and 29% higher with POLY4 respectively compared to gypsum
- POLY4 also delivers micro-nutrients that are beneficial to sugarcane growth

POLY4 delivers more nutrients to the cane at lower application rates

Value of recovered sugar



Higher sugar recovery can lead to higher economic returns



(US\$/ha)



Key comments

- Local standard practice is to apply 1 t/ha of gypsum after the liquid starter, generating an additional 10% revenue over the starter alone
- The POLY4 option utilises 750 kg of product, generating a 20% increase in revenue over the liquid starter
- The addition of magnesium and potassium from POLY4 differentiates it from the gypsum option
- The POLY4 option generates an additional US\$340/ha applying a more appropriate balance of nutrient compared to the gypsum option
- Further benefits of the POLY4 option are less material to store on farm, guaranteed sugar content plus valuable soil amendments

POLY4 improves sugar recovery generating additional economic returns

Sugarcane quality parameters for industry

POLY4 improves sugarcane characteristics

Sugarcane features^{1,2}

Parameter	Control and S-based fertilizer		
	Control	Gypsum	POLY4
Brix (%)	18	18	18
Sugar recovery (kg/t of cane)	127	128	130
Purity (%)	85	85	86

- Application of fertilizer showed no adverse effects when compared to the control
- Switching to POLY4 showed improvements over gypsum
- Improvements are due to balanced fertilization from POLY4 with the addition of potassium and magnesium

POLY4 maintained quality parameters within appropriate ranges

Sugarcane presentation summary

POLY4 improves sugarcane yield and soil nutrient status

Sugarcane key conclusions

- Brazilian soil is often weathered and low in nutrients requiring inputs of lime, gypsum and fertilizers
- POLY4 is similar to gypsum as it contains calcium and sulphur but also adds potassium and magnesium, supporting balanced fertilization
- A POLY4 fertilizer plan delivers an increased revenue from 100 kg/ha less total nutrients than the standard gypsum fertilizer plan
- Trials using less POLY4 by weight compared to gypsum, resulted in 9% more cane yield and a 10% sugar yield improvement translating into increased revenue
- Nutrient uptake for calcium and sulphur were improved by 5% and 28% respectively when substituting the POLY4 calcium for the calcium supplied from gypsum
- Post cropping it was found that POLY4 improved soil nutrient status of potassium, magnesium, calcium and sulphur by 37%, 54%, 23% and 24% respectively





POLY4 is a multi-nutrient fertilizer delivering agronomic and soil benefits

