



The World of Fertilizers - SOP vs MOP

By Jeanny So, CHF Investor Relations | September 2014

Featuring Potash Ridge Corporation - TSXV: PRK



POTASH: ESSENTIAL TO THE WORLD'S FOOD SUPPLY

Potash is the most common source of potassium, a key plant nutrient for agriculture. It comes in two main forms: Muriate of Potash (MOP) and Sulphate of Potash (SOP).

MOP is the most common potassium source used in agriculture, accounting for about 90% of all potash fertilizers used worldwide. Its nutrient composition is approximately 50% potassium and 46% chloride.

The chloride content of MOP can be beneficial where soil chloride is low, improving yield by increasing disease resistance in crops, however, in circumstances where soil or irrigation water chloride levels are very high, the addition of extra chloride with MOP can cause toxicity. A build-up of chloride in the soils is also problematic as chloride reduces activity of fungi, bacteria, algae and other soil microorganisms that are vital for healthy soil functions. This is especially pronounced in arid soil conditions, where there is less ability for chloride to dissipate.

SOP is a premium quality potash characterized by the presence of two nutrients: potassium (41%) and sulphur (18%). Applying SOP instead of MOP results in higher yields, better quality and longer shelf life. Sulphur has been shown to be an important macronutrient helping to regulate photosynthesis and nitrogen fixation. Sulphur deficiency is a growing problem in modern agriculture due to historical low sulphur application rates and continuous soil nutrient taxation. Sulphur deficient plants tend to grow slower and are weaker than those with adequate sulphur inputs. The addition of sulphur in alkaline soils helps to reduce the soil pH, making other plant nutrients more readily available to the growing crops.

SOP is generally used on high-value crops such as fruits, vegetables, nuts, tea, coffee, tobacco, etc. Demand growth in these types of crops is typically higher than that of row crops as populations growing in wealth (such as China, India and Brazil) demand more of these products versus traditional staples (wheat, corn, rice, etc...).



MOP currently comprises of approximately 50 million tonnes and SOP comprising of 5 million tonnes of consumption globally. According to the International Fertilizer Association, 47% of potash fertilizer consumption is used for high-value crops where SOP would be of greater benefit than MOP. Conservative estimates are that actual demand for SOP is closer to 10 – 12 million tonnes. This demand potential for SOP is not currently able to be met by existing production processes.

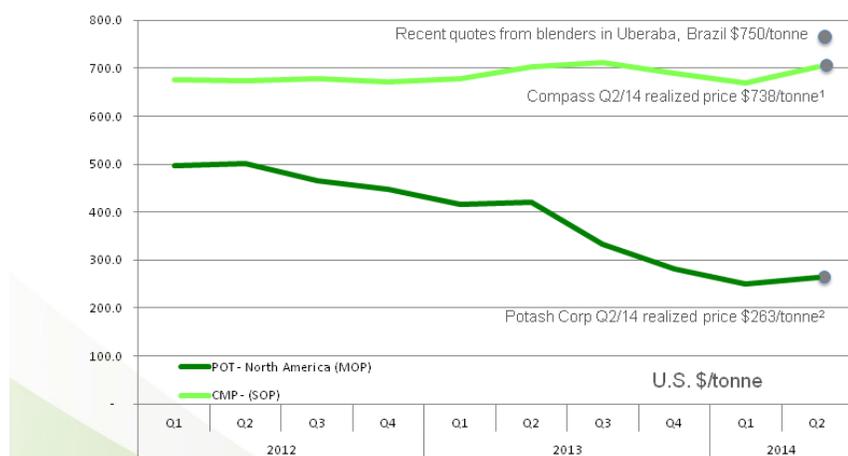
In recent years, MOP markets have experienced growing production capacity well in excess of demand. As demand continues to increase, existing MOP producers will ramp-up idle capacity and re-evaluate mothballed brownfield expansions. These sources of supply will need to be absorbed by the market before greenfield MOP projects make economic sense.

In the United States, SOP prices over the last two years have increased slightly in an environment where MOP prices have fallen dramatically. This pricing dynamic reflects SOP demand is well in excess of product availability, as the benefits of SOP over MOP have begun to be better understood. Additionally, the SOP market in the western United States is served by a single producer, Compass Minerals, whom is unable to expand production to meet demand.

Compass Mineral’s realized price for SOP was \$738/tonne for the second quarter of 2014, a 180% premium over the North American realized price for MOP. In Brazil, recent quotes from blenders for SOP have been as high as \$750/tonne.

SOP production in 2013 was approximately 5 million tonnes, with the bulk of production occurring in China, Europe and the Americas.

SOP PREMIUM PRICE TRENDS



¹ Compass Minerals Q2 2014 Report; ² Potash Corp Q2 2014 Report

Unlike MOP, SOP consumption is currently constrained, not by a lack of demand, but by the inability to economically expand supply through existing production processes. New SOP production is needed to meet the existing supply shortfall and high growth in demand for premium crops. That’s where **Potash Ridge Corporation (TSX: PRK)** will play a very important role.

POTASH:

Essential to the World’s Food Supply

- ✓ No known substitute
- ✓ Increasing world population
- ✓ Growing per capita income
- ✓ Decreasing arable land
- ✓ Increasing use of biofuels

SOP MARKET TARGETS

UNITED STATES

SOP Consumption: 385,000 tons¹

Potential Consumption: 920,000 tons²

Large Scale production of chloride intolerant crops such as nuts in California and citrus fruits in Florida drive a large part of US SOP demand. Consumption of these crops continue – e.g. almond crops have grown by 7% per year since the mid 1990s.

BRAZIL

SOP Consumption: 42,000 tons per year²

Potential Consumption: 2.1 million tons²

Brazil is the world’s largest grower of coffee, soybeans and citrus fruits; all SOP crops. Low consumption is entirely due to the lack of SOP availability.

CHINA

SOP Consumption: 2.5 million tons per year¹

Potential Consumption: 5.5 million tons per year²

China produces close to half of the world’s fruits and vegetables, and nearly one-third of the world’s tobacco and tea. SOP consumption almost doubled between 2007 and 2012¹, with large untapped growth potential.

¹ CRU 2013

² From PRK Study, August 2013, based on crops that are best suited to SOP

Potash Ridge is expected to be the lowest cost SOP producer (\$173/ton which includes the acid by-product credit) from its 100% owned Blawn Mountain Project. There is also a possibility to produce an alumina-rich by-product, which is not yet included in the economics.

The project is located on 15,404 acres of state-owned land in a remote part of southwest Utah. The land is designated for development and is in close proximity to well-established infrastructure.

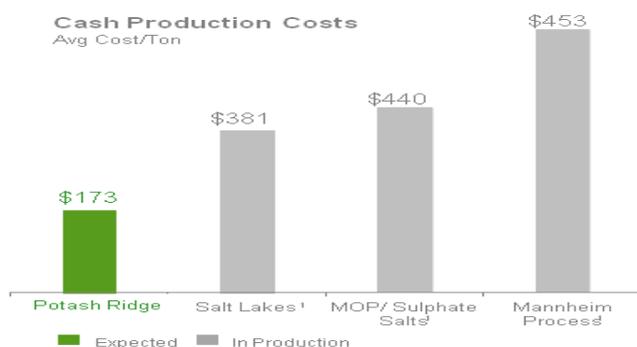
Permitting is well advanced, with only one major site permit remaining, the air permit, which will be initiated in parallel with the feasibility study and to be completed shortly thereafter.

In November 2013, Potash Ridge announced the results of the project's Pre-Feasibility Study (PFS). The economics included an after-tax NPV of \$1.0 billion at 10% discount and after-tax unlevered IRR of 20.5%. The PFS also established a NI 43-101 compliant proven and probable reserves of 426 million tons from two areas of the project that supports a 40 year mine life. There remains the potential to increase the mine life or expand production through exploration of two additional zones of known historical mineralization.

Target production rate of 645,000 tons per annum of SOP, with mine ramp-up in 2017 and full production in 2019.

Potash Ridge has formed a development partnership with Tetra Tech that will see Tetra Tech lead the feasibility study, have right of first offer for the Engineering, Procurement and Construction Management ("EPCM") contract, and the ability to participate in Build-Own-Operate arrangements for various infrastructure assets, such as the sulphuric acid plant and water treatment plant.

POTASH RIDGE OPERATING COSTS: \$173/TON OF SOP



¹ CRU 2013

PRK Cash Production Costs excludes credit for potential alumina-rich material revenues and includes 15% contingency (excluding non-energy and labour costs).

Mining Methods & Processing

Mining will be a straight forward hilltop surface operation. Overburden (topsoil and weathered material) is minimal, with an average strip ratio (yd³/ton ore) of 0.20:1.

Mine pre-development work involves an initial year of stockpile and haul-road construction, one year of mine development and stockpiling and one year of plant commissioning and start-up. Approximately 10.4 million tons per annum of ore is

POTASH RIDGE CAPITAL STRUCTURE

TSX Symbol:	PRK
Shares Outstanding:	86.8 M
Fully Diluted:	113.2 M
52 Week High/Low:	\$0.45/ \$0.10
Insider Ownership:	5%
Institutional Ownership:	45%

INVESTMENT HIGHLIGHTS

- ✓ Large surface mineral deposit of premium potash product with supply deficit that cannot be met by existing production processes; deposit also contain alumina-rich material
- ✓ Average of 645,000 tons per annum over life of mine
- ✓ 40 year mine life, with mineral reserves of 426 million tons
- ✓ PFS completed November 2013 with \$1.0 billion NPV at 10%; 20.5% after tax IRR which excludes revenue from alumina-rich material
- ✓ Historical work expedites project development; proven production process
- ✓ Mining friendly jurisdiction, established infrastructure nearby, designated development lands and efficient state permitting
- ✓ Water rights, large mine operations and groundwater discharge permits all secured with only major air permit remaining to be completed in parallel with feasibility study
- ✓ Lower risk surface mining
- ✓ MOUs under negotiation for \$641 million of support infrastructure
- ✓ Experienced and proven management

MANAGEMENT

Guy Bentinck, President & CEO

- ✓ Chartered Professional Accountant
- ✓ 20 years mining/resource experience
- ✓ *Sherritt: CFO & SVP Capital Projects*

Jeff Hillis, CFO

- ✓ Chartered Professional Accountant
- ✓ 10 years mining sector finance
- ✓ *Iberian Minerals, Excellon, Falconbridge*

Ross Phillips, COO

- ✓ 10 years experience in large resource and energy sector projects
- ✓ *Sherritt, Capital Power*

Paul Hampton, VP, Project Management

- ✓ Geologist and Metallurgical Engineer
- ✓ Approximately 30 years experience in design, construction, start-up and management of mineral processing facilities
- ✓ *SNC, Washington Group, Outotec*

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expected to be mined. Conventional truck and shovel mining techniques will be employed, with a fleet of approximately 30 pieces of mobile equipment.

The processing plant will be designed to produce 645,000 tons per annum of SOP as the primary product. By-products will include sulphuric acid and an alumina-rich material, the latter of which was treated as waste material in the PFS. Sulphuric acid, at about 98% H₂SO₄, will be produced at a rate of approximately 4,000 tons per day. It is expected that around 1.2 million tons per annum of saleable alumina-rich material will be produced.

The design of the processing facility uses proven technologies and Potash Ridge has performed extensive test work over a two-year period. The focus of this test work has been on confirming historical testing and optimizing the flowsheet to maximize the recoveries of SOP. Continuous pilot plant scale test work will be performed during the feasibility study, as well as testing at vendor facilities, with the objective of obtaining process guarantees from vendors.

POTASH RIDGE MILESTONES	Achieved	Expected*
Preliminary Economic Assessment issued	November, 2012	
Metallurgical Test Program initiated	January, 2012	
Pilot Plant Test Work initiated & SOP from Test Work produced	May, 2013	
Prefeasibility Study supporting 40-year mine life issued	December, 2013	
Large Mining Permit Application submitted	December, 2013	
Water Rights granted	May, 2014	
Groundwater Permit approved	July, 2014	
Large Mining Permit approved	August, 2014	
Strategic Partnership with Tetra Tech announced	August, 2014	
Air Quality Permit		1H 2016
Issue Feasibility Study		2H 2015
Complete metallurgical test program		2H 2015
Receive final permits		1H 2016
Mine construction start-up		Mid 2016
Ramp-up of mining		Mid 2017

*Timelines are based on obtaining sufficient financing to advance Feasibility Study.

Disclaimer: Statements that are forward-looking, including statements relating to the size, and potential growth in size, of the Company's mineral reserves and resources, the economic feasibility of, and the timing of further exploration and development of the Company's mineral projects are subject to various risks and uncertainties concerning the specific factors identified above, and in the companies' periodic filing with the Ontario Securities Commission and the U.S. Securities Exchange Commission. Such information contained herein represents management's best judgment as of the date hereof based on information currently available. The companies do not intend to update this information and disclaims any legal liability to the contrary.

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