ASX Announcement
11 May 2022

Salta Brine Blending Program Delivers Outstanding Final Results

Exceptional High-Grade Lithium & Major Reagent Cost Savings

Highlights

- **Final report from Brine Blending Program at the Salta Lithium Project delivers highly encouraging results**
- **Results demonstrate the brine blend evaporates to a very high concentration of lithium, 5.3% Li with a very low level of contaminants**
- **The low level of contaminants in the blended brines supports a significant reduction in reagent costs and process time saving during potential production**
- **The low loss of lithium to contaminants indicates higher lithium recoveries**
- **The final results, in conjunction with the MoU with global DLE company Sunresin, enable the assessment of appropriate potential development pathways for the Salta Lithium-Brine Project**

Diversified minerals company PepinNini Minerals Limited (ASX: PNN) (**PepinNini** or **the Company**) is pleased to announce the final results of its brine blending program at the Salta Lithium-Brine Project, in Salta province in the lithium triangle of north-west Argentina.

> **The brine blending program has delivered highly positive outcomes, highlighted by an exceptionally high-grade lithium concentrate of 5.3% lithium (Li) with low levels of contaminants, plus expected significant reagent cost savings.**

The final results of the brine blending program represent a key milestone for the Salta Project. With the results now reported, in conjunction with the Company's Memorandum of Understanding with global Direct Lithium Extraction (DLE) company Sunresin New Materials Co. Ltd. (Sunresin), PepinNini is now able to assess the most appropriate potential commercial development pathways for the Salta Project.

These may include the adoption of DLE at the Project's salares, and/or a potential hybrid strategy that may utilise DLE on the blended brines. The use of DLE technology has the potential to reduce the environmental impact of any future lithium producing operation at Salta.

The Company is now in the process of supplying various brine samples to Sunresin for initial test work and assessment of suitability for DLE.

Structure of Brine Blending Program

The brine blending program comprised three different brine evaporation tests designed to deliver concentrated brines, as follows;

Test 1: Blended brines from Incahuasi and Rincon salares (blended brine);

Test 2: Brines from the Rincon salar; and

Test 3: Brines from the Incahuasi salar.

The brine composition for the blended brines (Test 1) is shown in Table 1. The Rincon brine is high in sulphate content and the Incahuasi brine has a high calcium content.

Table 1: Incahuasi and Rincón Brine Composition

	pH	Density	SO4	B	Ca	K	Li	Mg	Na	Cl
		(g/cm^3)	%w/w	%w/w	%w/w	%w/w	%w/w	%w/w	%w/w	%w/w
Incahuasi	6.70	1.211	0.08	0.01	**0.75**	0.54	0.02	0.60	7.93	16.09
Rincón	7.00	1.212	**0.85**	0.02	0.05	0.46	0.02	0.25	10.05	15.64

Conclusions

- The final results provided **conclusive evidence that the brines evaporate to a high concentration of lithium**, in excess of 5% Li (for Tests 1 and 2).
- The evaporation tests of the **blended Rincon and Incahuasi brines (Test 1) delivered a lithium concentrate with a low level of contaminants**; sulphate, calcium and magnesium.
- The low level of sulphate and calcium contaminants suggests during potential production options a **significant reduction in reagents costs**; it is noted that the Rincon brines are high in sulphate and the Incahuasi brines are high in calcium, but with the blended brines delivering a lithium concentrate low in contaminants, there is a potential significant cost saving in not having to use reagents to remove the contaminants during commercial operations.
- The very low loss of lithium to contaminants in the blended brines (Test 1) is indicative of **high lithium recoveries.**
- The Rincon brines also delivered a high-grade lithium concentrate, but required the additional use of reagents, **further highlighting the reagent cost saving and time saving achieved from the blended brines** in potential commercial operations.

<u>Test 1: Blended Brine</u>

The evaporation testing of the blended brines showed that the mixture of brines with a high sulphate content (Rincón) and a high calcium content (Incahuasi) allowed the content of these two ions to be balanced to achieve a concentrated lithium brine with a low content of contaminants.

In addition to the mixture of the brines, the addition of a potassium chloride solution was applied for magnesium removal, which successfully delivered a brine with a high lithium content and low magnesium.

The blended brines generated a brine similar to Salar de Atacama in Chile, the world's largest source of lithium, which has low calcium and sulphate, and high magnesium. Potassium chloride is also used at Salar de Atacama in Chile to remove magnesium from the brine and avoid lithium precipitation.

A key advantage of the blended brines is the potential savings during production in calcium reagents due to the low contaminant sulphate levels. In most Argentinian salt flats, the brines have high levels of sulphate and require reagents to remove it, but with low sulphate levels on the blended Incahuasi and Rincon brines, this is not required in commercial operations.

The positive outcome of the blended brines also presents the potential for lower capital and operating costs at any future lithium producing operation at the Salta Project, as a result of an anticipated quicker evaporation time and a smaller required evaporation pond area.

The brine obtained in Test 1 had a concentration of 5.32% Li, 1.6% Mg and 0.2% Ca.

Table 2: Blended brine (Test 1) Final brine composition

Parameters		Unit	Value
Lithium	**Li**	%	5.32
Sodium	**Na**	%	0.094
Potassium	**K**	%	0.367
Magnesium	**Mg**	%	1.57
Calcium	**Ca**	%	0.215
Sulphate	**SO_4**	%	0.019
Chloride	**Cl**	%	31.80
Boron	**B**	%	0.472
Density	**Density**	g/cc	1.282

Test 2: Rincon Brine

The concentrated brine from the Rincón salar also delivered a lithium concentrate in excess of 5%, but this required a process that utilised a number of reagents in multiple stages; and an additional stage using calcium chloride plus several potassium chloride stages.

The brine obtained in Test 2 had a concentration of 5.33% Li, 2.05% Mg and 0.05% Ca.

Comparing the concentrated brines obtained in Test 1 and Test 2, it can be seen that the compositions and quality are similar, but that the blended brine (Test 1) delivered a quality, high-grade concentrate without the need for the calcium chloride and the additional potassium chloride stages to remove the contaminants, thereby offering a significant saving on reagent costs and overall time saving on the process during potential production scenarios.

Test 3: Incahuasi Brine

At Incahuasi it was demonstrated that a lithium concentrate was delivered from the brine using a treatment with sodium sulphate and potassium chloride. The treatment with sodium sulphate generated a number of solids that retained a significant volume of brine, and, as such, additional brine would have been required to be sourced in order to complete the testing process and achieve a lithium concentrate in excess of 5% Li.

The brine obtained in Test 3 had a concentration of 3.24% Li, 4.77% Mg and 0.01% Ca.

Blended Brine Process

The process for obtaining concentrated blended brine used in Test 1 is shown in Figure 1, and consisted of the following stages:

1. The Incahuasi and Rincón brines were concentrated separately, until reaching 600 and 1200 ppm Li concentration, respectively.
2. Brine was blended to reduce calcium and sulphate composition.
3. Brine was then evaporated up to 8000ppm of Li.
4. Addition of potassium chloride solution to decrease magnesium concentration.
5. Final evaporation.

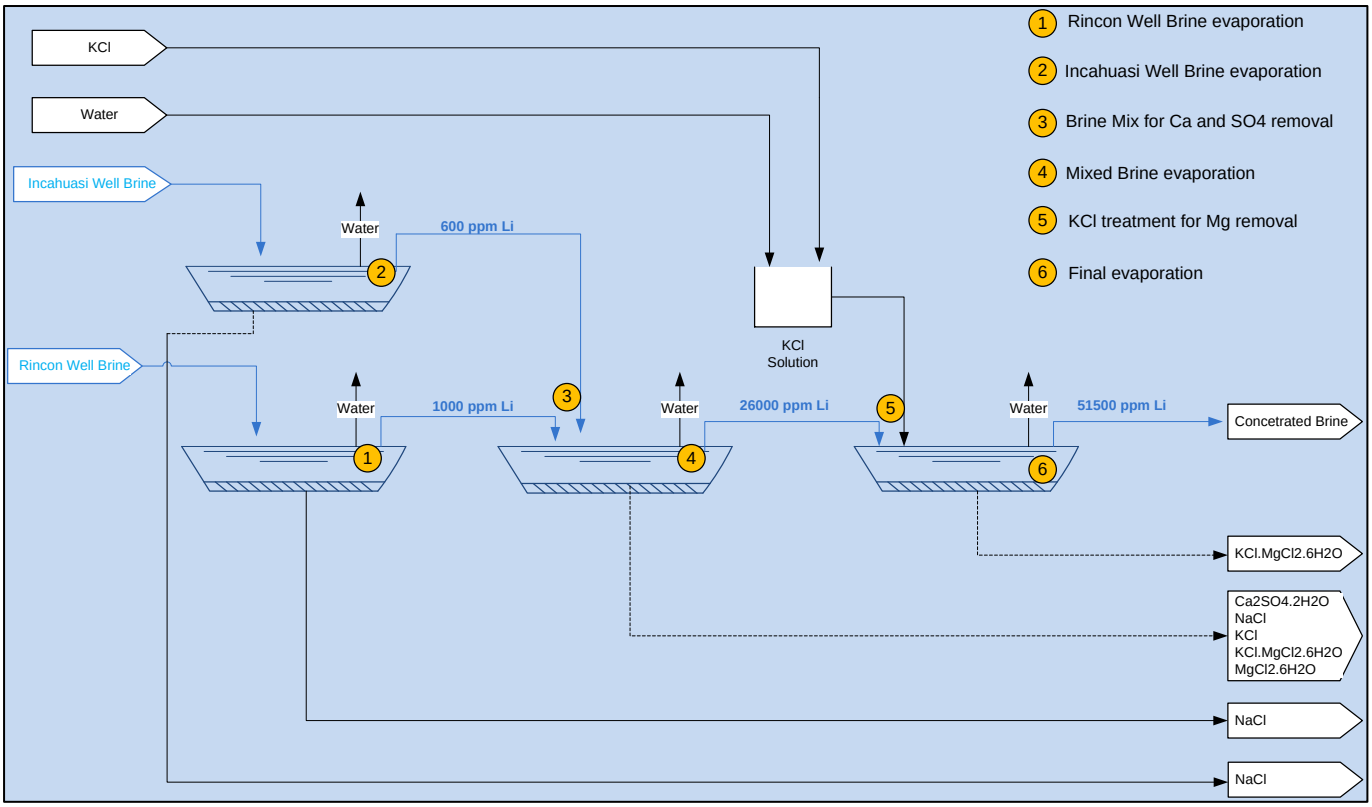

Figure 1: Brine-Blending Evaporation Process Flowsheet

About the Brine Blending Program

PepinNini's brine blending program commenced in May 2021 and was undertaken by lithium consultants, Ad-Infinitum Spa in Chile. It was designed to assess that if by blending the different chemical properties of the lithium brines from the Incahuasi salar and the Rincon salar, it was able to deliver a higher lithium concentration with minimal deleterious elements and high lithium recoveries in the concentrated brine, relative to the lithium concentrate values of the individual salares – and at a relatively lower cost.

The brines were blended at a ratio of ~3:1 from the Incahuasi salar and Rincon salar respectively.

Previous updates and progress results from the brine-blending program are detailed in ASX announcements of 31 March 2022, 20 January 2022, 25 November 2021 and 22 September 2021.

About the Salta Lithium Project

The Salta Project is strategically located in the Salta province in north-west Argentina and is part of the Lithium Triangle, the world's leading lithium brine region. The Project consists of five salares (salt lakes) that sit within seven mining leases, over a total project area of 147.07km². The Project's Incahuasi salar is located immediately adjacent to Ganfeng Lithium Co. Ltd's project and the Rincon salar is adjacent to Rincon Mining Ltd, which is to be acquired by Rio Tinto Ltd for US$825 million.

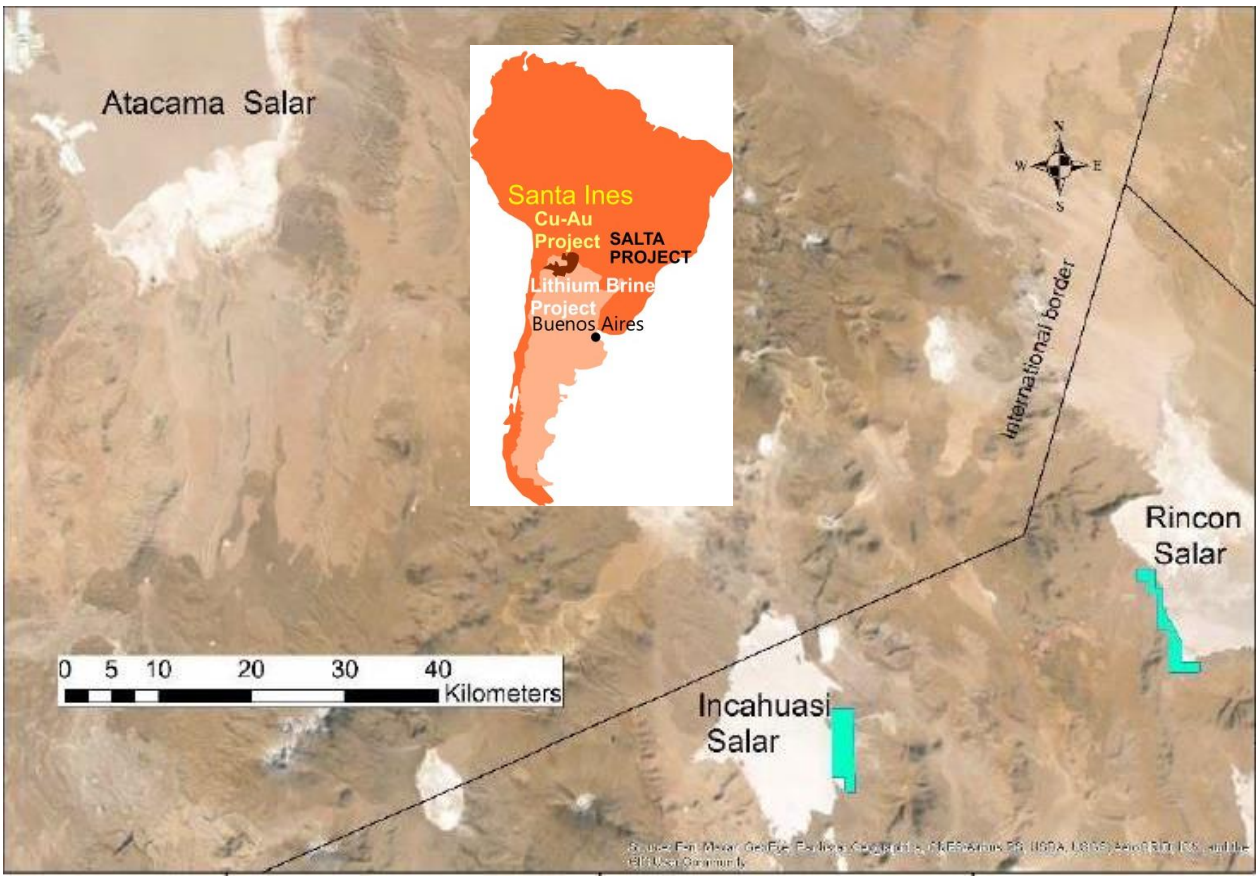

Figure 2: Location Plan - Salta Lithium Brine Project, NW. Argentina (PNN licenses in blue)

Authorised for release by the Board of PepinNini Minerals Limited.

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About PepinNini Minerals

PepinNini Minerals Limited is a diversified ASX-listed mineral resources exploration company with a portfolio of projects in demand driven commodities. It is focused on the systematic exploration and development of its projects. These include the Salta Lithium Brine Project in the prolific lithium triangle in the Salta Province in Argentina, the Eyre Peninsula Kaolin-Halloysite Project, strategically located on the Eyre Peninsula in South Australia, and the Musgrave Nickel-Copper-Cobalt-PGE Project in the Musgrave Province in northern South Australia. The Company also holds the Santa Ines Copper-Gold Project in Argentina, located in the same geological setting as BHP's world-class, nearby Escondida Copper-Gold Mine in Chile.

Competent Persons Statements

The information contained herein that relates to the lithium brine laboratory test work and study development related activities have been directed by Mr. Marcelo Bravo. Mr. Bravo is Chemical Engineer and managing partner of Ad-Infinitum Spa. with over 25 years of working experience and he is a Member of the Chilean Mining Commission (register 0412) and has sufficient experience which is relevant to the activity which they are undertaking to qualify as a Competent Persons as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr. Bravo consents to the inclusion of his name in the matters based on the information in the form and context in which it appears.

Forward Looking Statements

This announcement contains 'forward-looking information' that is based on the Company's expectations, estimates and projections as of the date on which the statements were made. This forward-looking information includes, among other things, statements with respect to the Company's business strategy, plans, development, objectives, performance, outlook, growth, cash flow, projections, targets and expectations, mineral reserves and resources, results of exploration and related expenses. Generally, this forward-looking information can be identified by the use of forward-looking terminology such as 'outlook', 'anticipate', 'project', 'target', 'potential', 'likely', 'believe', 'estimate', 'expect', 'intend', 'may', 'would', 'could', 'should', 'scheduled', 'will', 'plan', 'forecast', 'evolve' and similar expressions. Persons reading this announcement are cautioned that such statements are only predictions, and that the Company's actual future results or performance may be materially different. Forward-looking information is subject to known and unknown risks, uncertainties and other factors that may cause the Company's actual results, level of activity, performance or achievements to be materially different from those expressed or implied by such forward-looking information.