



ABOUT

PepinNini Minerals Limited is a diversified ASX listed Australian Exploration Company focused on exploring, discovering and developing a significant mineral resource. PepinNini has exploration tenements prospective for Kaolin on the Eyre Peninsula and nickelcopper-cobalt-PGE in the Musgrave Province of South Australia and hold a Minerals brine resource in Salta Province, Argentina. The company also holds a coppergold exploration project in Salta Province, Argentina

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ASX: PNN

PepinNini reports very strong interim results from lithium brine blending study

PepinNini Minerals Ltd (PepinNini, PNN) today reported very encouraging interim results from the lithium brine blending study underway in Chile, using brine from the company's leases on the Rincon and Incahuasi salares in Argentina.



The study, which commenced in May 2021, uses 2,000 litres of brine collected from each salar that is transported to testing facilities in Chile and allowed to evaporate and concentrate.

Three testing regimes are being applied in the study:

- Test 1 Blended brines
- Test 2 Incahuasi brine
- Test 3 Rincon brine

After eight weeks of testing, a lithium ion concentration of 8,500 mg/kg was recorded for the blended brine, a level 14 times that of Incahuasi brine and seven times that of Rincon brine. Companies such as Orecobre(ASX:ORE) at their Olaroz project(100km north) concentrate to 7,000 mg/kg(ASX announcement 1 April 2011).

While the testing has another month to complete, the preliminary results suggest that the brine blending process is viable and highly effective.

The blending of brine with a high concentration of sulphate from the Salar del Rincon with the brine of high concentration of calcium from the Salar de Incahuasi avoids the precipitation of lithium sulphate and reduces the calcium content. By using this difference between the brines, **it is possible to obtain a higher concentration of lithium in the brine at a lower cost.** Importantly it is *industry best practice* to conduct brine blending studies in order to evaluate and optimise future lithium chemical production

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Figure 1 – Mina locations, Salta Lithium Brine Project

Study methodology

Brine for the study was collected from trenches on Salar de Incahuasi and pumped from monitoring wells on Salar del Rincon. The relative density of each brine sample was recorded and the 4,000 litres of brine was transported in sealed containers to testing facilities in Chile where the brine was poured into testing ponds lined with plastic liners in an environment similar to that of the project area in Argentina: ie elevation around 4,000 metres above sea level, low rainfall, average temperature of 15°C and high evaporation rate.



Photo 1 - Salar de Incahuasi - Brine Collection by pumping from trenches created Aug-Sep 2019

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Photo 2 - Salar de Rincon - Brine was pumped from monitoring wells converted from resource drilling program Dec 2017



Photos 3 and 4 - Relative density of brine measured before labelled plastic brine containers were sealed for transport

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Testing Process Stages



Photo 5 - 13 May - brine poured into prepared ponds with plastic liners



15 May - evaporation commences



19 May - evaporation continues



24 June Rincon concentrated brine



Incahuasi concentrated brine



oncentrated brine *harvested for mixing*

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Next Steps

- scale up the testing to obtain a lithium carbonate battery grade sample in pilot testing on site
- drilling of four boreholes including a pumping well on Incahuasi Salar to augment the LCE (lithium carbonate equivalent) resource stated for Salar del Rincon (ASX announcement 27 June 2018)
- Conduct a pre-feasibility study for both Rincon and Incahuasi, including the design of a processing plant.

This announcement was authorised for issue by the Board of PepinNini Minerals Ltd

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Note: Additional information on PNN is available at www.pepinnini.com.au

The information contained herein that relates to the progress of the 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.

The section on the Salta project exploration results has been prepared with information compiled by Marcela Casini, MAusIMM. Marcela Casini is the Exploration Manager-Argentina of PepinNini Minerals Limited and has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration 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". Marcela Casini consents to the inclusion in the report of the matters based on her information in the form and context in which it appears.

JORC Table 1

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Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	 Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling. Include reference to measures taken to ensure sample representability and the appropriate calibration of any measurement tools or systems used. Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information. 	Salar de Incahuasi • Liquid samples were collected from trenches dug for a brine sampling program with an excavator shovel in June 2020 • • • • • • • • • • • • • • • • • • •

Criteria	JORC Code explanation	Commentary
		 Brine was pumped from the trenches into plastic containers
		Containers were sealed and labelled and transported to Chile
		 A chain of custody was established for samples from field to testing facilities in Chile with each stage signed off and handed over to final receipt by testing facility
		Salar del Rincon
		 Brine was pumped(June - July 2020) from monitoring wells drilled in 2017(refer ASX announcement 16 Jan 2018).

Criteria	JORC Code explanation	Commentary		
		Brine samples from monitoring wells on Rincon Salar		
		Experimental test description		
		 Test 1 - Blended brine - used ratio of 1m³ Rincon Brine to 0.33m³ Incahuasi brine 		
		Test 2 - used all Incahuasi brine		
		Test 3 - used all Rincon brine		
		Total test brine 4,000 litres		
Drilling techniques	• Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard	 No Drilling was undertaken - samples taken from boreholes drilled Dec 2017 		
	tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).	 Borehole PNN-VI-DW-02 Borehole coordinates: GK Posgar Zone 3: 7333639.91E -3380585.57N Elevation:3730 masl 		
		Start drilling date: 16 Dec 2017		
		• Finish drilling date: 23 Dec , 2017		
		Total Depth: 130 meters		
		Drilling Methodology: Diamond Drilling		
		Drilling Company: Hidrotec		
		• Rig: HT06LF90		
		Borehole PNN-VI-DW-01		
		 Borehole coordinates: GK Posgar Zone 3: N 3382155.2/E 7330630.6 Elevation:3,731 masl 		
		Start drilling date: Dec 7, 2017		
		Finish drilling date: Dec 9, 2017		
		Total Depth: 80 meters		
		Drilling Methodology: Diamond Drilling		
		Drilling Company: Hidrotec		
		• Rig: HT06LF90		
Drill sample recovery	 Method of recording and assessing core and chip sample recoveries and results assessed. Measures taken to maximise sample recovery and ensure representative 	No drilling was undertaken		

Criteria	JORC Code explanation	Commentary
	 nature of the samples. Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material. 	
Logging	 Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies. Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography. The total length and percentage of the relevant intersections logged. 	 No logging done for sampling Brine density was recorded before sample containers were sealed
Sub-sampling techniques and sample preparation	 If core, whether cut or sawn and whether quarter, half or all core taken. If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry. For all sample types, the nature, quality and appropriateness of the sample preparation technique. Quality control procedures adopted for all sub-sampling stages to maximise representativity of samples. Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling. Whether sample sizes are appropriate to the grain size of the material being sampled. 	 Unused new and clean plastic containers were used Bottles were sealed and labelled

Criteria	JORC Code explanation	Comm	entary	
		• 4,0	00 litres w	ere sent to
		• Sa	nples wer	e analysed
			pН	Density
				(g/cm3)
		Incahuasi	6,70	1,211
		Rincón	7,00	1,212



- the testing facility in Chile by truck
- on arrival in Chile to establish base chemistry

	pН	pH	Density	SO4=	В	Ca	К	Li	Mg	Na	CI-
		(g/cm3)	%p/p	%p/p	%p/p	%p/p	%p/p	%p/p	%p/p	%p/p	
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	

Criteria	JORC Code explanation	Commentary
Quality of assay data and laboratory tests	 The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total. For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc. Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established. 	 A chain of custody was maintained for samples from trenching in Salar de Incahuasi and pumping location of monitoring borehole on Salar del Rincon to testing facility receipt in Chile.
Verification of sampling and	 The verification of significant intersections by either independent or alternative company personnel. 	 A Competent person(CP) is used for oversight verification and reporting of testing work in Chile
assaying Documenta storage (pl Discuss an	 The use of twinned holes. Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols. Discuss any adjustment to assay data. 	4,000litres were sent to the testing facility in Chile
Location of data points	 Accuracy and quality of surveys used to locate drill holes (collar and downhole surveys), trenches, mine workings and other locations used in Mineral Resource estimation. Specification of the grid system used 	 Geographic positioning control for trench location using both latitude and longitude and Gauss_Kruger POSGAR (WGS-84)
		Handheld GPS device for trench locations
	Quality and adequacy of topographic control.	• The grid system used is Argentina Gauss_Kruger POSGAR (WGS-84) Zone 3.





Criteria	JORC Code explanation	Commentary
to geological structure	mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	
Sample security	The measures taken to ensure sample security.	• A chain of custody is established for samples from field to testing facility in Chile with each stage signed off and handed over to final receipt by testing facility
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	 Data collection, processing and analysis protocols aligned with industry best practice.

Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	 Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings. 	 Mina Sisifo File Number 20545, Held 100% by PepinNini SA an Argentina entity wholly owned by PepinNini Minerals Ltd. Mina Villanovena 1 File Number 19565, Held 100% by PepinNini SA an Argentina entity wholly owned by PepinNini Minerals Ltd.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	 Held under grant from Mining Court of Salta Province, Argentina Tenure (Mina) held in perpetuity and appropriately maintained.
Exploration done by other parties	ther • Acknowledgment and appraisal of exploration by other parties. • Technical Report Salar Alonso MAusIMM, Wa	 Technical Report Salar de Incahuasi, Salta Argentina, Dr Ricardo N Alonso MAusIMM, Walter R Rojas, August 2011 – Lithea Inc.
		 TSX-V:LAT 13 Nov 2008 – Latin American Minerals Inc. acquires Lithium project in Argentina following positive initial sampling program - Sampling and Analytical Protocols: Sampling and analytical protocols were implemented and supervised by or under the direction of Dr. Waldo Perez, the Corporation's internal Qualified Person as defined by National Instrument 43-101. All of the lithogeochemical samples were collected by geologists taking into account the nature of the material being sampled. The crust sample was collected with a hammer from surface, weighted between 2 to 4 kilograms and was collected in a plastic bag, tagged with a pre- numbered ticket and tightly closed with plastic tape. The brines samples were collected in a brand new plastic bottle filled atop containing 1 litre of brine and tightly closed. All samples were

Criteria	JORC Code explanation	Commentary
		 tagged with a prenumbered ticket and stored in a secured location at the base camp for no more than 10 days. The brines were stored in a dark room. The samples were shipped by courier to Alex Stewart Assayers Argentina S.A. ("ASAA") laboratories in Mendoza (Argentina). ASAA is an ISO 9001-2000-certified laboratory with headquarters in England. The crust samples were grinded to #200 mesh, then split and dissolved in hot water. A total of 500 ml of sample have been separated for ICP analysis. The brine samples were filtered and read directly by ICP analysis. All samples were assayed for 13 elements by ICP. Accuracy and precision of results is tested through the systematic inclusion of blanks and duplicates. Rincon Lithium Project Maiden JORC Mineral Resource - Argosy Minerals Ltd(ASX:AGY) 19 June 18
Geology	• Deposit type, geological setting and style of mineralisation.	 PepinNini is primarily exploring for brine aquifers in salars (dried salt lakes) and the geological setting is suitable for lithium bearing brines in commercial quantities.
		Salar de Incahuasi
		• The Lithology is uniform across, and along the project area, All the area is covered by a thick crust of halite, in all the trenches was encountered cubic Crystals and caverns of halite with great porosity, below the upper crust
		The depth of the trenches was limited by harder halite where the excavator couldn't dig more deep
		That layer could be massive and harder halite
Drill hole Information	• A summary of all information material to the understanding of the	No drilling was undertaken
	exploration results including a tabulation of the following information for all Material drill holes:	Salar del Rincon
	 easting and northing of the drill hole collar elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar dip and azimuth of the hole down hole length and interception depth hole length. If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should 	Brine taken from previously drilled boreholes
		 Borehole PNN-VI-DW-02 Borehole coordinates: GK Posgar Zone 3: 7333639.91E -3380585.57N Elevation:3730 masl
		Start drilling date: 16 Dec 2017
		Finish drilling date: 23 Dec , 2017
		Total Depth: 130 meters

Criteria	JORC Code explanation	Commentary
Data aggregation methods	 clearly explain why this is the case. In reporting Exploration Results, weighting averaging techniques, 	 Drilling Methodology: Diamond Drilling Drilling Company: Hidrotec Rig: HT06LF90 Borehole PNN-VI-DW-01 Borehole coordinates: GK Posgar Zone 3: N 3382155.2/E 7330630.6 Elevation:3,731 masl Start drilling date: Dec 7, 2017 Finish drilling date: Dec 9, 2017 Total Depth: 80 meters Drilling Methodology: Diamond Drilling Drilling Company: Hidrotec Rig: HT06LF90 No data aggregation used,
	 maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated. Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail. The assumptions used for any reporting of metal equivalent values should be clearly stated. 	
Relationship between	These relationships are particularly important in the reporting of	Salar de Incahuasi
mineralisation widths and intercept lengths	 Exploration Results. If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported. If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known'). 	 The Lithology is uniform across, and along the project area, All the area is covered by a thick crust of halite, in all the trenches was encountered cubic Crystals and caverns of halite with great porosity, below the upper crust The depth of the trenches was limited by harder halite where the excavator couldn't dig more deep
		I hat layer could be massive and harder halite

Criteria	JORC Code explanation	Commentary
Diagrams	 Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views. 	<complex-block></complex-block>
		2040000 2651000 2654000



JORC Code explanation	Commentary			
		RINCON		
	Post-	Density	Li	
	Date	(g/cm3)	Mg/	kg
	13-may	1,212	182	2
	27-may	1,215	305	5
	11-jun	1,217	477	7
	16-jun	1,226	571	1
	25-jun	1,231	743	7
	01-jul	1,256	113	9
	O8-jul	1,251	115	1
	Date	(g/cm3)	Mg/kg	
		INCAHUASI		
	Date	Density	u	
	13-may	(g/ciiis)	IME/ NE	
	27-may	1,213	215	
	11-iup	4.347	231	
	15 jun	1,217	258	
	25 iun	1,225	327	
	25-jui	1,226	392	
	or-jui	1,258	420	
	08-jui	1,265	609	
	Mixed brine e	vaporation		
	Mixed brine e	waporation Mixed BR	INE	11
	Mixed brine e	MIXED BR	INE ity	Li Me /Ja
	Mixed brine e	MDXED BR	INE ity n3)	Li Mg/k
	Mixed brine e	MIXED BR Dens (g/cn 1,22	INE ity n3) 18	Li Mg/k 1000
	Mixed brine e Date 08-jul 21-jul 12-aug	Mixed BR Dens (g/cn 1,22 1,24 1,28	INE ity n3) 18	Li Mg/k 1000 2400 4500
	Mixed brine e Date O8-jul 21-jul 12-aug 19-aug	Vaporation MIXED BR 0ens (g/cn 1,22 1,24 1,24 1,34	INE ity	Li Mg/kj 1000 2400 4500 5600

Criteria	JORC Code explanation	Commentary		
Other substantive	Other exploration data, if meaningful and material, should be	TREATED RDINE		
exploration data	reported including (but not limited to): geological observations;	Density Li		
	geophysical survey results; geochemical survey results; bulk	Date (g/cm3) Mg/kg		
	bulk density aroundwater deotechnical and rock characteristics	04-aug 1,180 400		
	potential deleterious or contaminating substances.	19-aug 1,233 600		
	,	26-aug 1,286 1100		
		01-sep 1,290 1600		
		06-sep 1,350 2400		
		 Test 2 moundail and worke Test 3 - Rincon - after 4 weeks RINCON Date Density Li Date (g/cm3) Mg/kg 4-Aug 1,212 182 19-aug 1,213 400 26-aug 1,227 600 01-sep 1,237 1200 06-sep 1,286 1900		
Further work	 The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling). Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive. 	 Test 1 Rincon evaporation - completed Incahuasi evaporation - completed Mix brine for gypsum removal - completed mixed brine evaporation - in progress Treatment for Magnesium removal - to do Final evaporation - to do 		

Criteria	JORC Code explanation	Commentary	
		Test 2	
		Incahuasi well brine evaporation	
		Treatment for Calcium removal - completed	
		Treated brine evaporation - in progress	
		Treatment for Magnesium removal - to do	
		Final evaporation - to do	
		Test 3	
		Rincon brine evaporation	
		Treatment for sulphate removal - to do	
		Treated brine evaporation - in progress	
		Treatment for Magnesium removal - to do	
		Final evaporation - to do	