

25 Sep 2017

## PLYMOUTH MINERALS LTD (PLH)

### Low cost European Lithium developer

Plymouth Minerals Ltd (PLH) has had positive results from both of its projects in recent months. The more important release was the maiden JORC compliant resource at San Jose of 92.3Mt at 0.6% Li<sub>2</sub>O and 0.02% Sn (0.1% Li cut-off), with a higher-grade core: **16.5Mt @ 0.9% Li<sub>2</sub>O** and 0.04% Sn (0.35% Li cut off). The second major release was the phase 1 drilling program at the Banio Potash Project looks to supports the large exploration target of 6-10.4Bt at 19.4-22.7% KCl, importantly this global number has a shallow high-grade Sylvinitic component of ~260-410Mt @ 28-35% KCl. The Company believes there is potential to define a JORC resource from as little as one further drill hole.

### Zinnwaldite metallurgy studies crucial

PLH acquired the historical feasibility study work completed by Tosla in mid-March. Amongst the information gained from the report was that the mineralisation at San Jose is hosted in zinnwaldite (lithium-iron mica). The significance of zinnwaldite mica hosting the mineralisation is that PLH can now tailor design its metallurgical studies for this mineral species. It is worth noting that European Metals (EMH.asx) Cinovec deposit's lithium mineralisation is also hosted in zinnwaldite.

### Processing cost of US\$3,600-4,400/t of battery-grade LC

PLH has selected the sulphate calcination/roast processing route (as opposed to sulphuric acid) for the technical study on San Jose. This processing route requires the mica concentrate to be mixed with either sodium or potassium sulphate and undergo heating to ~830°C for ~20min. The lithium is then leached into a liquor using water not acid, which is processed via evaporation, precipitation and purification to produce battery grade LC on site. We believe that PLH will be able to capture large value if it is able to produce battery grade LC on site given its premium over spodumene concentrate. PLH have estimated that total processing costs using sulphate calcination/roast route would be US\$3,600-4,400/t of battery grade LC (excludes mining costs and assuming beneficiation work supports historical studies). We assume 15Ktpa of LC at a cash cost of US\$5,500/t of LC (includes mining) in our preliminary model. We assume capex of US\$250m.

### Best potash target yet to be drilled

PLH has confirmed the discovery of the northern extension of the Congo basin potash mineralisation. PLH is currently working with CSA global (which also advised K2P) to plan the Company's next drilling program. With approvals for drilling within a buffer zone (area along the coast) now given, the next phase of drilling will look to target some of the best potash targets to date.

### We maintain our Speculative Buy

In our opinion both projects are not fully valued in the current ownership structure under PLH and we believe that there is potential for shareholder wealth to be generated through corporate activity. We believe that the drilling to date from Gabon supports the exploration target. We see metallurgy at San Jose as a major catalyst and eagerly anticipate further study results.

Share Price	\$0.165
Prelim. Valuation	\$0.59
Price Target (12 month)	\$0.79

#### Brief Business Description:

San Jose (Spain) is a Lithium-tin project currently being developed, plus a promising Potash project in Gabon.

#### Hartleys Brief Investment Conclusion

We focus on the lithium project, although the potash project also has significant potential.

#### Board of Directors

Adrian Byass (Exec Chairman)  
Dr Eric Lilfird (Non-exec)  
Christian Cordier (Non-exec)  
Humphrey Hale (Non-exec)  
Kevin Tomlinson (Chairman)

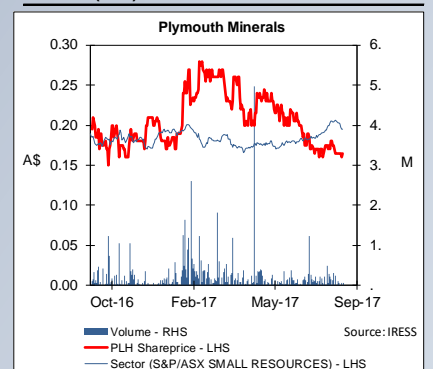
#### Company Address

Level 1, 329 Hay Street  
Subiaco, WA 6008

Issued Capital	151.3m
- fully diluted	195.9m
Market Cap	A\$25.0m
- fully diluted	A\$32.3m
Cash (30 Sep 17e)	A\$3.2m
Debt (30 Sep 17e)	A\$0.0m
EV	A\$21.8m

	Prelim. (A\$m)	FY19e
Prod (LCE t)		nm
Op Cash Flw		nm
Norm NPAT		loss
CF/Share (cps)		nm
EPS (cps)		nm
P/E		nm

	Mt	Li <sub>2</sub> O	LCE Mt
Resources (Li <sub>2</sub> O)	92.3	0.60%	1.30
Reserve (Li <sub>2</sub> O)	none		



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Hartleys has assisted in the completion of capital raisings in the past 12 months for Plymouth Minerals Limited ("Plymouth"), for which it has earned fees. Hartleys has provided corporate advice within the past 12 months, and continues to provide corporate advice to Plymouth for which it has earned and continues to earn fees. An analyst has a beneficial interest in PLH.asx.

## SUMMARY MODEL

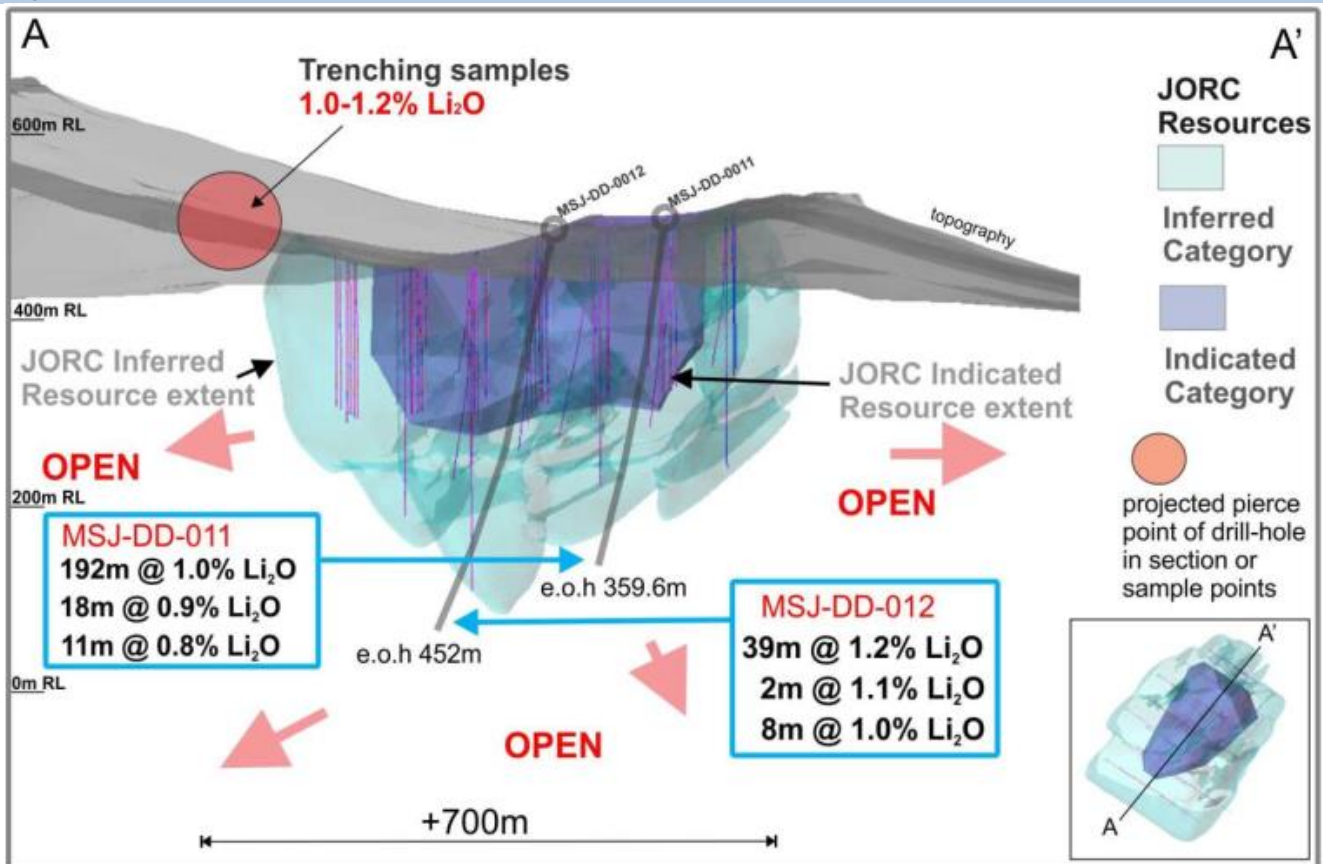
Plymouth Minerals PLH				Share Price \$0.165	25-Sep-2017 Speculative Buy				
<b>Key Market Information</b>					<b>Directors</b>				
Share Price				\$0.165	<b>Company Details</b>				
Market Capitalisation				\$22.7m	Adrian Byass (Exec Chairman)				
Market Capitalisation - full dil.				\$30.1m	Dr Eric Lilford (Non-exec)				
Net Cash (Debt)				-\$3.2m	Christian Cordier (Non-exec)				
Listed Investments (est)				\$0.0m	Humphrey Hale (Non-exec)				
Issued Capital				137.68m	Kevin Tomlinson (Chairman)				
Options				44.5m	<a href="http://www.plymouthminerals.com">http://www.plymouthminerals.com</a>				
Issued Capital (fully diluted all options)				182.2m					
EV - incl. listed invest				\$25.9m					
EV - full diluted, option cash				\$28.3m					
Price Target				\$0.79					
<b>Projects</b>					<b>Top Shareholders</b>				
	Interest	Location	Commodity		m shs	%			
San Jose	0% up to 75%	Spain	Li-Sn		Top 50 Holders	81.4	59.1%		
Banio	100%	Gabon	K		Board & Management	17.3	12.6%		
Morille	80%	Spain	W						
<b>JORC Resource</b>					<b>Investment Summary</b>				
	Mt	Grade	LCE t		The company has two solid projects with a good cash position to develop them further. San Jose (Spain) is a Lithium project with a JORC resource, plus a promising Potash project in Gabon.				
Resources (LizO)	92.3	0.60%	1.3						
<b>P&amp;L</b>					<b>Newsflow</b>				
	FY2017F	FY2018F	FY2019F			Project			
Net Revenue	na	na	na		Q3 CY17	Further metallurgy results	San Jose		
Total Costs	na	na	na			Drilling results	San Jose		
EBITDA	na	na	na			Drilling results	Banio		
Deprec/Amort	na	na	na		Q4CY17	Possible JORC resource	Banio		
EBIT	na	na	na			Possible Feasibility study	San Jose		
Net Interest	na	na	na						
Pre-Tax Profit	na	na	na		<b>Unpaid Capital</b>				
Tax Expense	na	na	na		No (m)	\$ (m)	Ave Pr	% Ord	
NPAT	na	na	na		<b>Options by Financial Year end</b>				
Abnormal Items	na	na	na		30-Jun-18	0	0.00	nm	0.0%
Reported Profit	na	na	na		30-Jun-19	9	1.36	0.146	6.3%
					30-Jun-20	18	1.19	0.065	11.8%
					30-Jun-21	7	2.41	0.350	4.8%
					30-Jun-22	10	0.00	0.000	6.8%
					<b>Total</b>	<b>44.53</b>	<b>4.95</b>	<b>0.111</b>	<b>26.9%</b>
					<b>Comments</b>				
Analyst: Trent Barnett					Last Updated: 25/09/2017				
Phone: +61 8 9268 3052									
Sources: IRESS, Company Information, Hartleys Research									

Fig. 1: San Jose 2012 JORC Resource.

Classification	Tonnes (Mt)	Li (%)	Li <sub>2</sub> O (%)	Sn (%)
Indicated	23.9	0.31	0.67	0.02
Inferred	68.3	0.26	0.56	0.02
<b>TOTAL</b>	<b>92.3</b>	<b>0.27</b>	<b>0.60</b>	<b>0.02</b>

Source: PLH

Fig. 2: San Jose cross section with JORC resource and recent extensional drilling pierce points.



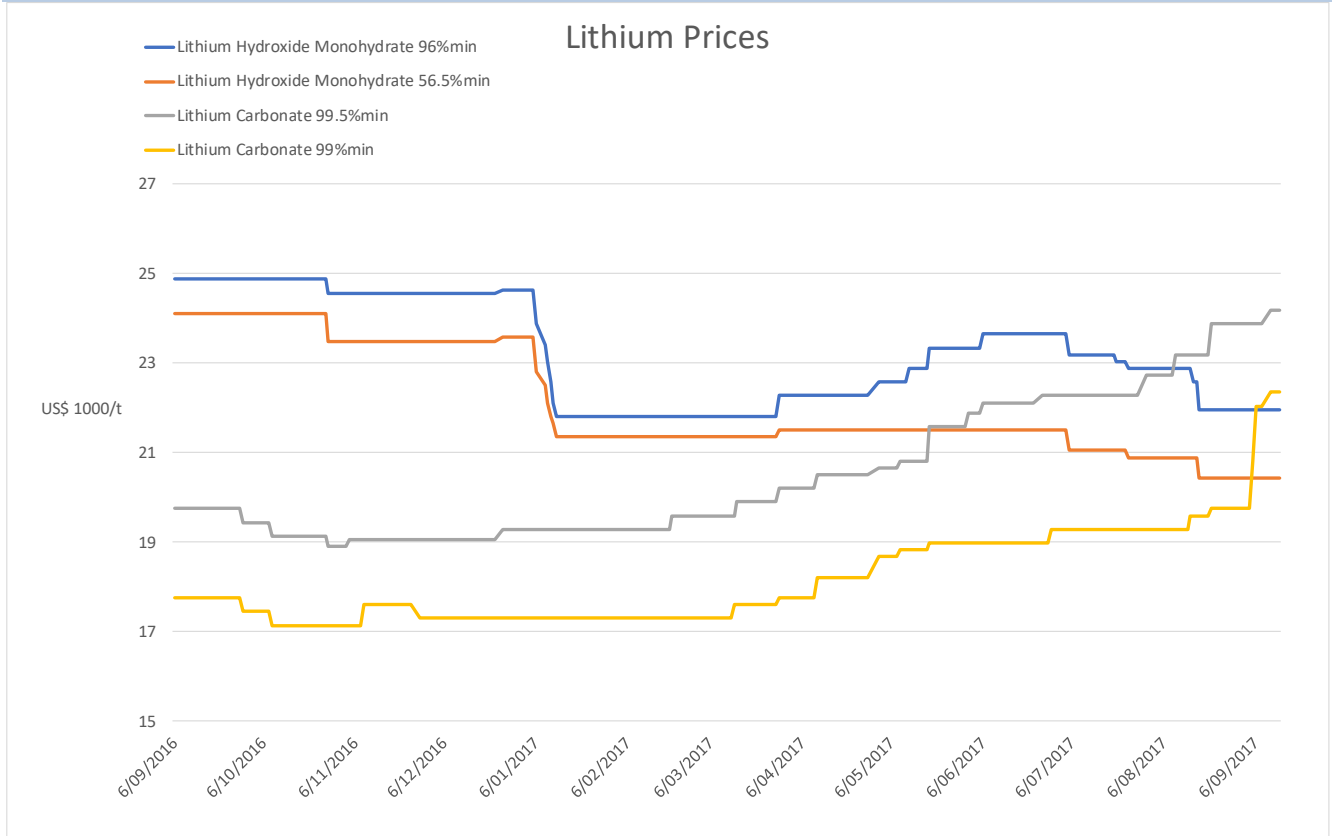
Source: PLH

Fig. 3: Banio Potash Exploration Target.

Prospect	Potash Mineralogy	Depth to Potash (m)	Tonnage Range (Mt)	Grade Range (K <sub>2</sub> O%)	Grade Range (KCl%)
Alpha	Sylvinite	290	262-415	18 - 22	28.5 - 34.8
Ndindi Northern	Carnallitite	360	2,600-5,200	12 - 14	19.0 - 22.2
Ndindi Southern	Carnallitite	500	3,100-4,800	12 - 14	19.0 - 22.2
<b>Combined</b>			<b>6,000-10,400</b>	<b>12.3-14.4</b>	<b>19.4-22.7</b>

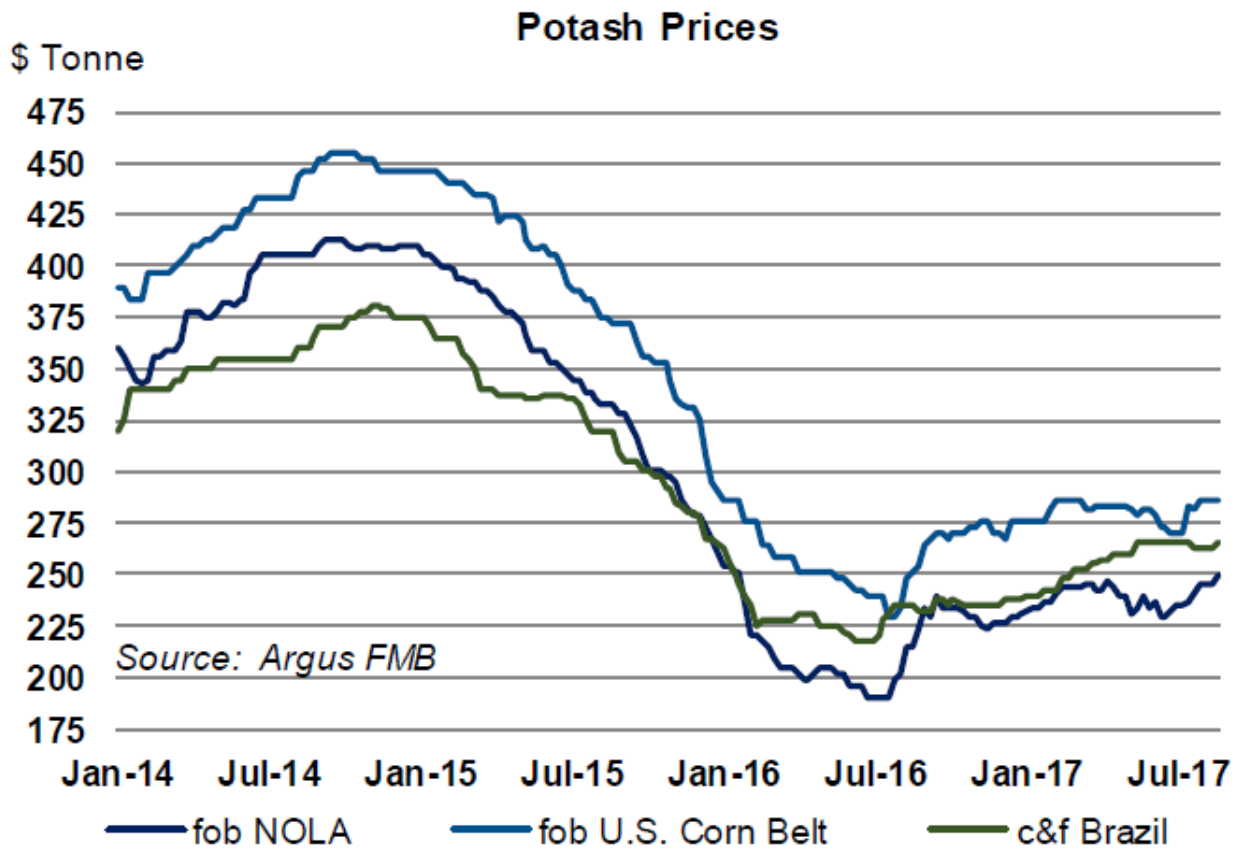
Source: PLH

Fig. 4: Lithium prices in China.



Source: Various

Fig. 5: Global potash prices (MOP).



Source: Mosaic

## VALUATION

PLH is still at a speculative stage of development. Our speculative valuation assumes a throughput rate of 1Mpta to produce ~15kpta of Lithium Carbonate (LC) at cash costs of \$US5500/t, and we assume capex ~US\$250m, which could generate EBITDA of ~\$US85m/pa, at current LC prices (>US\$22,000/t) it would generate EBITDA of ~\$US245m/pa. Our risked valuation is \$0.59/s, based on development scenario of PLH and diluted for ~440m new shares.

## PRICE TARGET

We have a price target of \$0.79 (\$0.97 previously).

**Fig. 6: Price Target Methodology - PLH**

Price Target Methodology	Weighting	Spot	12 mth out
NPV base case lithium, assuming significant equity dilution	50%	\$0.59	\$0.65
NPV at spot commodity and fx prices (LC @US\$22,000/t)	14%	\$1.62	\$1.82
Net cash	15%	\$0.02	\$0.02
Exploration success at potash project, no value for lithium (a)	15%	\$0.56	\$0.63
Highend divestment of lithium at NPV, assuming minimal equity dilution (b)	5%	\$1.58	\$1.77
Bull case (a + b)	1%	\$2.15	\$2.40
<b>Risk weighted composite</b>		<b>\$0.71</b>	
<b>12 Months Price Target</b>		<b>\$0.79</b>	
Shareprice - Last		\$0.165	
<b>12 mth total return (% to 12mth target + dividend)</b>		<b>380%</b>	

Source: Hartleys Estimate

**Fig. 7: Key assumptions and risks for valuation**

Assumption	Risk of not realising assumption	Downside risk to valuation if assumption is incorrect	Comment
Declining commodity prices	High	Upside / downside	Our valuation is sensitive to commodity price assumptions.
Exploration success	Medium	Extreme	We assume the projects will have some level of exploration success.
Metallurgy	High	Extreme	We assume PLH will be able to extract LCE and MOP economically.
Offtake	High	Extreme	We assume that PLH will be able to find offtake partners.
Approvals	Medium	Extreme	We assume that the necessary approvals will be given.
Obtaining capital	High	Extreme	We assume that they will be able to obtain the capital required to develop the projects
<i>Conclusion</i>	<i>Our assumptions are very speculative, and hence PLH is high risk.</i>		

Source: Hartleys Estimate

## RISKS

The key risks for Plymouth (like most mine companies in development) is obtaining the necessary funding to complete the project. Other risks are earnings disappointments given the industry is volatile and earnings can disappoint due to cost overruns, project delays, cost inflation, environmental regulations, plant and mine design mistakes or lower production. Although some earnings disappointments can be short term and are only a timing issue, other disappointments can be materially value destructive and can sometimes overhang stocks for a long period of time (for example metallurgy problems). Such disappointments can be very difficult to predict and share price reactions can be severe and immediate upon disclosure by the company. High financial leverage (if it exists at that time) would add to the problem.

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## Hartleys Recommendation Categories

Buy	Share price appreciation anticipated.
Accumulate	Share price appreciation anticipated but the risk/reward is not as attractive as a "Buy". Alternatively, for the share price to rise it may be contingent on the outcome of an uncertain or distant event. Analyst will often indicate a price level at which it may become a "Buy".
Neutral	Take no action. Upside & downside risk/reward is evenly balanced.
Reduce / Take profits	It is anticipated to be unlikely that there will be gains over the investment time horizon but there is a possibility of some price weakness over that period.
Sell	Significant price depreciation anticipated.
No Rating	No recommendation.
Speculative Buy	Share price could be volatile. While it is anticipated that, on a risk/reward basis, an investment is attractive, there is at least one identifiable risk that has a meaningful possibility of occurring, which, if it did occur, could lead to significant share price reduction. Consequently, the investment is considered high risk.

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