



21 March 2019

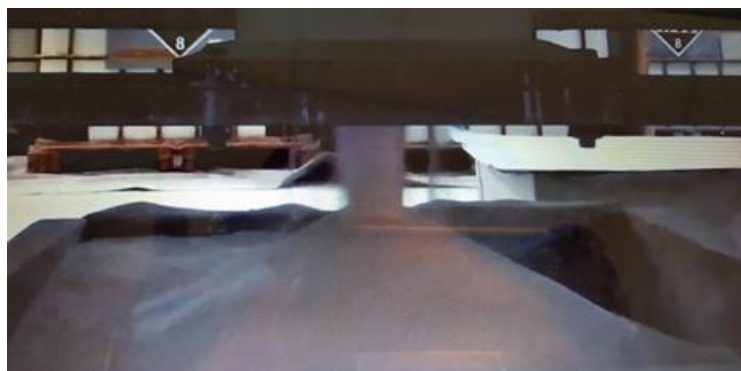
ASX Code: PUA, PUAOC

## Pure Alumina signs binding agreement to acquire emerging high purity alumina producer

Completion of the acquisition of Canada based Polar Sapphire would position Pure Alumina to become a low cost producer of high purity alumina in under a year

### Key Points

- Pure Alumina Limited (“Pure Alumina”) has signed a binding agreement, subject to the conditions outlined below, to acquire Polar Sapphire Limited (“Polar”) from private equity interests for C\$25.75m\* (A\$27.1 m) in Pure Alumina shares and cash
- Acquiring Polar is expected to fast track Pure Alumina’s plans to commence commercial production of premium 99.999% 5N high purity alumina (HPA) in 2019
- Assuming completion of the acquisition, Pure Alumina aims to rapidly expand HPA production to 5,000tpa within three years to capture exceptional growth in HPA demand for use in LED lighting and coatings on lithium battery separators for electric vehicles
- Pure Alumina is now examining debt and equity options to fund the transaction and expansion



HPA being produced at Polar’s plant in Toronto

\*Subject to PUA share price at time of capital raise



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### Transaction details:

- Pure Alumina will purchase 100% of the outstanding equity in Polar for:
  - C\$13.75m (A\$14.5m) in Pure Alumina shares\*; and
  - C\$12m (A\$12.6m) in cash.
- Conditions Precedent to the agreement include:
  - Satisfactory completion of due diligence
  - Regulatory and shareholder approvals
  - Raising A\$30m through a combination of debt and equity
  - Progress towards Pure Alumina's planned sale of its gold assets
  - Other standard CPs for a transaction of this nature
- The A\$30m in capital will fund the acquisition, construction and commissioning of the first 1,000tpa of production capacity, R&D into the integration of Pure Alumina's existing kaolin-based HPA process into Polar's technology, product marketing and general corporate working capital.
- Pure Alumina has held preliminary discussions with debt advisors and equity brokers regarding raising the necessary capital. Now that the transaction details have been finalized, mandates are expected to be finalised in the coming weeks to undertake the process for securing the necessary capital. The expected strong forecast cashflow from production could support a robust debt structure. Any equity component is expected to be via a rights issue and share placement.

Pure Alumina is currently preparing a notice of meeting pursuant to which the requisite shareholder approvals required to complete the acquisition will be sought, including amongst others, approval pursuant to ASX Listing Rule 11.1.2. The notice of meeting will be provided to shareholders once finalized and subsequently approved by the ASX.

It is expected that the transaction will be completed in the third quarter of the 2019 calendar year.

Details of the anticipated effect of the transaction on the capital structure of Pure Alumina is set out in the schedule to this announcement.

\*Subject to PUA share price at time of capital raise



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## Acquisition Rationale and Details

Pure Alumina Limited (ASX:PUA) is pleased to advise that it has signed a binding agreement to acquire leading Toronto-based high purity alumina (HPA) producer Polar Sapphire Limited, subject to the conditions outlined above.

The acquisition is expected to catapult Pure Alumina into the ranks of global HPA producers by funding construction of the first 1,000tpa of HPA capacity using Polar's world-leading patented process, with commissioning expected to commence in early 2020.

Polar's process underpins an extremely low capital cost of US\$12m (A\$16.7m) per 1,000tpa of installed capacity and forecast operating costs of just US\$6,750/t (A\$9,375/t). This is expected to make Pure Alumina one of the lowest cost producers of 5N HPA in the world.

Polar has provided detailed breakdowns of its capital and operating cost forecasts, which have formed the basis for Pure Alumina's valuations in the transaction. The capital and operating costs are supported by the results of the pilot plant now being operated by Polar.

Price (USD/t)	\$20,000	\$25,000	\$30,000	\$35,000	\$40,000
Operating Costs (USD/t)**	\$6,750	\$6,750	\$6,750	\$6,750	\$6,750
Operating margin per 1,000t (USD)	\$13.25m	\$18.25m	\$23.25m	\$28.25m	\$33.25m

\*\* Forecast operating costs at steady state production

The price achieved will be dependent on the proportion of sales into the 4N and 5N sapphire markets. Polar is currently supplying to 7 customers across both markets and for a variety of end uses. Both Pure Alumina and Polar have strong relationships across the sapphire and battery markets that will be the foundation for our marketing activity.

Pure Alumina Managing Director Martin McFarlane said, "The Polar acquisition aligns the rapid growth of the HPA market with Polar's proven HPA process to deliver HPA production, sales and cashflow years sooner for the benefit of Pure Alumina shareholders."

"Exceptionally low estimated capital and operating costs means, once the initial 1,000tpa plant is established, strong forecast cashflows are expected to largely fund future expansions," Mr McFarlane said.

"The low funding requirements of this acquisition and the initial HPA production facility is a significant advantage when compared to other HPA projects."



Upon settlement of the transaction, the Board of Pure Alumina will be expanded to six members, comprising three each from Pure Alumina and Polar:

- Tom Eadie Chairman



Mr Eadie is a Geologist and mining executive with over 20 years' experience in the resources and battery materials sectors. Founding Chairman of Syrah Resources. Current director of New Century Resources Limited, Strandline Limited and Alderan Resources Limited

- Scott Nichol Managing Director



Scott has started and developed several high tech and clean tech materials businesses. He started a secondary aluminium smelter to recycle scrap aluminium, then joined Cymat where he developed and scaled up a new process for manufacturing aluminium foam and took the company public on the TSX. Scott founded 6N Silicon which developed a new process for purifying silicon for use in solar cells; 6N Silicon was sold to Calisolar in 2010. Scott then was COO for Jaco, a Chinese solar company, before starting Polar Sapphire in 2013.

- Robert Boston Non-executive Director



Mr Boston is an experienced resources executive, having held positions in legal, business development, strategy, marketing and commercial roles with in BHP Billiton Limited, Rio Tinto Limited and Poseidon Nickel Limited. Prior to this Mr Boston worked for national law firms Freehills and Mallesons Stephen Jaques and is admitted to the Supreme Court of Western Australia and High Court of Australia.

- Martin McFarlane Non-executive Director



Mr McFarlane has more than 20 years' diverse experience with major resource companies including Minerals and Metals Group, OZ Minerals Limited, Zinifex Limited, Pasminco Limited and Conzinc Rio Tinto of Australia. In recent years, Martin has run battery material businesses in graphite, lithium and high purity alumina.

- Tom Rand Non-executive Director



Tom Rand founded Voice Courier Inc. (VCI) in 1991, to service the emerging Interactive Voice Response market. Tom led VCI's expansion to over 100 employees in three countries, with revenue in excess of US\$20 million annually. Tom is a partner at Arctern Ventures and is Senior Advisor of the Cleantech Practice at MaRS and sits on the board of a number of clean energy companies and organizations.

- Wayne Maddever Non-executive Director



Wayne Maddever has a broad base of experience in senior management positions in early stage technology companies in both the private and public sectors. He holds a Ph.D. in Metallurgical and Materials Science Engineering from the University of Toronto. Wayne has served as a board member or CEO of many technology start-ups. Currently Wayne is Advisor and Portfolio Manager for Bioindustrial Innovations Canada.



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Management will be retained to enable rapid expansion of production:

- Scott Nichol            Managing Director
- Dan Smith              Vice President – Operations



manufacturing facility.

Dan Smith runs operations and manufacturing for Polar Sapphire. He has broad manufacturing and management experience in companies ranging from small startups to medium sized companies, both privately held and publicly held. Dan has run operations and scaled companies from small private companies to large publicly traded ones. Dan was instrumental in advancing the technology at 6N Silicon, where he designed and procured the equipment to expand into a 10,000 square metre

- David Leavy            Vice President – Finance and Marketing



Mr Leavy has over 25 years of experience in the banking and mining industries covering a wide range of commodities. He has significant experience in debt and equity markets and physical and derivative commodity markets. Recent roles have included CFO of several mining companies undergoing project development, requiring implementation of appropriate business processes, team establishment, logistics and marketing in multiple jurisdictions.

Importantly, the entire technical team from Polar that has developed Polar’s process and is currently running the pilot plant will remain with the company and will be constructing and running the expanded HPA production facility.

Assuming completion of the transaction, the management team will immediately start the process for building the initial 1,000tpa HPA production facility. The facility is planned to be located near Toronto, Canada, in order to utilise the skills and infrastructure that has been developed by Polar in the construction and operation of its pilot plant.

Initially HPA production is expected to be sold into the synthetic sapphire markets where Polar has already qualified its HPA with several buyers. As production expands, future sales are expected to diversify into HPA coatings for battery separators in the rapidly expanding electric vehicle market.

The modular design of the Polar plant enables additional production lines to be added quickly, providing flexibility for different grades of HPA to be produced simultaneously. Pure Alumina anticipates that this will provide a significant advantage over other producers, which are limited to just one grade despite customers seeking different grades for different applications.

Simultaneously while HPA production is being expanded, Pure Alumina is planning to undertake testing to integrate its kaolin to HPA process with Polar’s process as this is expected to further reduce already low operating costs.



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## Background on Polar

Polar Sapphire Limited is a Canadian based company, established in 2012 to develop an innovative process to produce HPA. The key management of Polar had worked together in the development and commercialisation of several technologies involving high purity materials. The major shareholder of Polar is Arctern Ventures, a VC firm specialising in innovative clean-tech start-ups, along with Scott Nichol, a key driver behind the development of the technology. Importantly, all of Polar's staff and management are continuing on with the project following completion of the transaction.

Polar has spent 6 years developing its technology, successfully overcoming many of the issues that PUA was planning to investigate during its DFS process. They have successfully translated their research into a pilot plant to significantly reduce the "scale up" risks of expansion to a commercial operation.

In addition to the low capital cost of Polar's HPA process, Pure Alumina considers it to be substantially de-risked, flexible, scalable and robust.

Each 1,000tpa HPA module takes less than a year to construct meaning expansion can be rapid to respond to market growth and, with the modular design, can be added to without impacting the performance of existing operations.

HPA customer specifications are unique to their process and so the modular design of Polar's HPA process, with each unit run independently, allows the production of different specifications of HPA simultaneously.

This independent modular design also significantly reduces production risk as, if one unit is taken offline for maintenance it won't impact the operations of the other modules.

## Pure Alumina Strategy

Pure Alumina is aiming to become a leading supplier of HPA.

Pure Alumina's strategy upon completion of the transaction is to build and commission a 1,000tpa HPA production facility within 12 months using Polar's aluminium based HPA process and aluminium purchased commercially. Pure Alumina then aims to expand capacity in line with projected growth in HPA demand. It is intended that during this period Pure Alumina will undertake research into the integration of Pure Alumina's and Polar's HPA processes, with the ultimate goal to replace aluminium in the production process with low cost kaolin from the Pure Alumina's tenements. Assuming this research is successful, Pure Alumina will change its feedstock to kaolin from its tenements which is expected to reduce operating costs further.



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The planned production will be focusing on sales into the synthetic sapphire market. This market is continuing to grow strongly, led by demand for LEDs and semiconductors, with a growing number of uses for sapphire are being developed. There is no substitute for HPA in the production of sapphire.

R & D is ongoing to produce a battery grade material, with samples already provided to several separator producers. This is a rapidly evolving and growing market, driven by electric vehicles with all major car manufacturers developing multiple new models. The larger capacity batteries required for electric vehicles and higher energy density for new battery technologies mean batteries are generating more heat that can lead to battery fires. Coating battery separators with HPA is a proven way to manage this safety risk. As a result, batteries with coated separators are taking an increasing share of the market.

We continue to work with the separator manufacturers to develop HPA products that meet their requirements. The potential in this market is significant with forecasts predicting it will become the largest market for HPA within the next 3-4 years. We aim to have our battery separator HPA products approved by separator manufacturers within 12 months.

Martin McFarlane  
Managing Director

**Media - For further information, please contact: Paul Armstrong - Read Corporate +61 8 9388 1474**

### ***Polar Acquisition Call***

*Pure Alumina will be hosting a call for investors to discuss this announcement. Timing of the call is to enable interested Canadian parties to join. If you wish to join the details are:*

*Time: 10.30am 22 March 2019 (Melbourne), 7.30pm 21 March 2019 (Toronto)*

*Dial: (02) 6194 9930 (Australia), +1 605-468-8854 (North America)*

*Access Code: 954617*



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### Caution Regarding Forward-Looking Statements

This announcement contains forward-looking statements concerning Pure Alumina. Forward-looking statements are not statements of historical fact and actual events and results may differ materially from those described in the forward-looking statements as a result of a variety of risks, uncertainties and other factors. Forward-looking statements are inherently subject to business, economic, competitive, political and social uncertainties and contingencies. Many factors could cause Pure Alumina's actual results to differ materially from those expressed or implied in any forward-looking information provided by Pure Alumina, or on behalf of, Pure Alumina. Such factors include, among other things, risks relating to additional funding requirements, commodity prices, exploration, development and operating risks, competition, production risks, regulatory restrictions, including environmental regulation and liability and title disputes.

Forward looking statements in this document are based on the Pure Alumina's beliefs, opinions and estimates as of the dates the forward-looking statements are made, and no obligation is assumed to update forward looking statements if these beliefs, opinions and estimates should change or to reflect other future developments.





## SCHEDULE – Pro-Forma Capital Structure

The anticipated effect of the transaction on the capital structure of Pure Alumina is set out below. Pure Alumina is pursuing both debt and equity markets to fund the capital requirements of the transaction. Intervening events may alter how the Company ultimately funds the transaction which may impact the proposed capital structure.

Confirmed details of Pure Alumina's pro-forma capital structure and the proposed raising price will be set out in the Company's notice of meeting pursuant to which the requisite shareholder approvals required to complete the transaction will be sought.

The table below assumes the full \$30,000,000 is raised via the issue of new Pure Alumina Shares across a range of potential issue prices and a CAD/AUD exchange rate of 1.05. In the event that a proportion of the capital requirements are funded using debt, the quantity of new Pure Alumina shares to be issued as a result of the transaction will be reduced.

	SHARES					OPTIONS
	Issue price of Pure Alumina shares under the proposed raising					
	\$0.04	\$0.06	\$0.08	\$0.10	\$0.12	
Pure Alumina's securities currently on issue	171,090,933					71,400,000 <sup>1</sup>
Consideration Shares payable to the vendors of Polar	360,937,500	240,625,000	180,468,750	169,000,000 <sup>2</sup>	169,000,000 <sup>2</sup>	-
Capital Raising Shares <sup>3</sup>	750,000,000	500,000,000	375,000,000	300,000,000	250,000,000	-
Options to be issued to unrelated parties assisting with the Capital Raising <sup>4</sup>	-	-	-	-	-	50,000,000
<b>Total</b>	<b>1,282,028,433</b>	<b>911,715,933</b>	<b>726,559,683</b>	<b>640,090,933</b>	<b>590,090,933</b>	<b>121,400,000</b>

### Notes:

1. Comprising:

- a. 42,200,000 Listed options (PUAOC) exercisable at \$0.075 on or before 30 July 2020;
- b. 2,600,000 Unlisted options exercisable at \$0.075 on or before 30 July 2020; and
- c. 26,600,000 Unlisted options exercisable at \$0.20 on or before 30 July 2020.



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2. The binding agreement provides that the minimum number of Pure Alumina shares to be issued to the vendors in consideration for the acquisition of Polar is 169,000,000.
3. As noted above Pure Alumina is currently examining debt and equity options to fund the transaction and expansion. Intervening events may alter how the Company funds the transaction which may impact the proposed capital structure.
4. Pure Alumina proposes to issue approximately 50,000,000 unlisted options to unrelated parties assisting with the proposed capital raising. The final quantity and terms and conditions of these option are yet to be finalized.

