

## Donald Mineral Sands Project

### Premium Zircon Test Results - Updated Announcement

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#### HIGHLIGHTS

- Testing of Donald premium zircon determines that it rates favourably in terms of whiteness – a highly desirable characteristic for the main ceramics end use market - compared to three competitor products
  - Donald premium zircon, which is expected to constitute 80% or approximately 95,000 tonnes per annum of Stage 1 zircon production, will not require acid leaching to meet customer specifications. Stage 2 of the Donald project has the ability to double zircon production.
  - The zircon quality results form an important adjunct to recent metallurgical test results; they enable Astron to progress discussions with potential customers for off-take agreements.
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**Astron Corporation Limited (“Astron”, “the Company”)** (ASX: ATR) previously announced on 8 April 2021 the results of certain test work on initial zircon test products. This announcement is being rereleased as Astron has been advised that certain additional information was required to be included in this announcement.

Accordingly, Astron updates and announces the results of test work conducted at the company’s China test facilities on initial zircon test product produced from its Donald mineral sands deposit, in regional Victoria. The test work results, designed to test a key requirement for the use of zircon in ceramic applications, are favourable and demonstrate that a major proportion of the zircon production stream will be of a premium grade zircon, which is suitable for use in the high value ceramic market as a whitening agent and opacifier. Zircon in ceramic applications (tiles, sanitary ware and other ceramic uses) can form part of engobes (layer coatings), glazes and frits. Premium zircon (defined by ZrO<sub>2</sub> content of higher than 66%) is sought for ceramic applications and typically achieves a higher price to standard and chemical grade zircon products. The production of the Donald premium zircon will not require additional acid leaching treatment for impurities such as iron oxide, aluminium oxide and titanium dioxide, as can be the case to produce a premium product.

The Donald project represents one of the largest known zircon and titanium ore bodies in the world and a potentially significant new source of global supply. As announced on 18 February 2021, the Donald deposit currently contains Ore Reserves of 310 million tonnes (mt) of proved ore and 292 mt of probable ore, totalling 602 mt of ore with an average heavy mineral (HM) grade of 4.8%. This equates to an approximate, in-situ ore body of 28.9 mt of heavy minerals, comprised: 5.4 mt of zircon; 9.2 mt of ilmenite; 8 mt of higher titanium content products of rutile and leucoxene, as well as a significant rare earth element component of approximately 490 thousand tonnes.

Astron recently released (see ASX announcement 12 May 2021) metallurgical test work results associated with the mineral processing of a sample of heavy mineral concentrate produced from ore recovered from a test pit on the Donald deposit. Subsequent to this test work – which demonstrated the ability to achieve commercial level recoveries of the main mineral sands products, including a zircon stream – Astron has conducted laboratory test work on the Donald zircon.

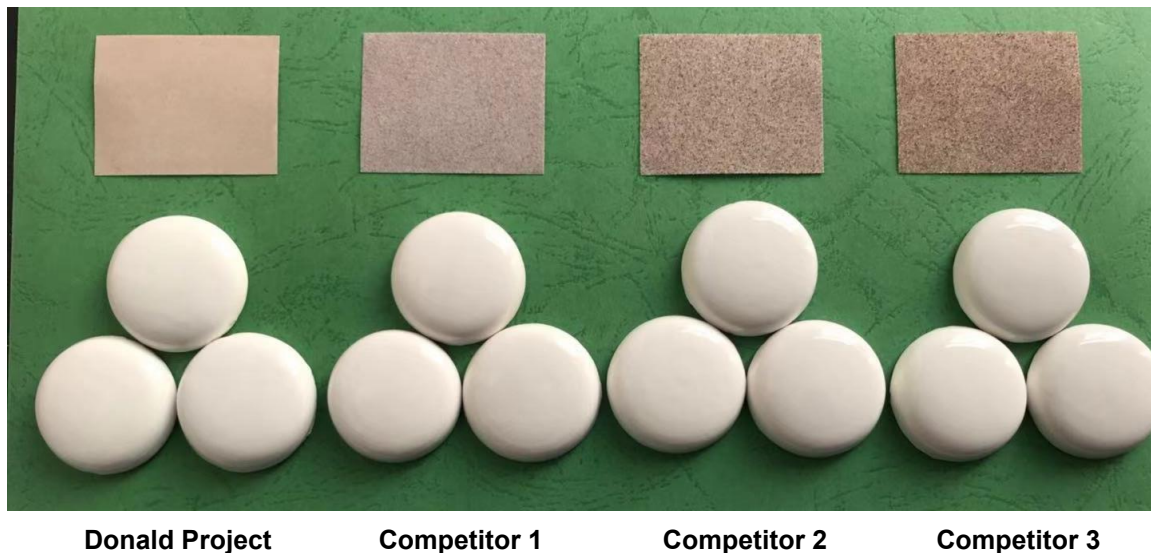
### Nature of Test Work

Premium grade zircon used in the manufacturer of ceramic tiles (the largest end-use for zircon) is typically sought due to its “whiteness” characteristics. As part of whiteness testing for Donald zircon, Astron undertook comparative testing of samples of three different competitor premium zircon products, using industry accepted testing procedures.

The samples were ground to ultrafine powders with an average particle size of less than 1um before drying at 120 degrees. A glaze slurry was then produced from each zircon powder and used to coat nine ‘white plates’. The plates were dried at 60 degrees Celsius, before being fired in a muffle furnace at 1,110 degrees Celsius. Brightness test were then conducted on the plates.

The results are shown below. They demonstrate that the Donald zircon displayed the highest brightness or whiteness characteristics of the four zircons sampled (as seen by the L scale), as well as favourable characteristics on other criteria typically used to differentiate the characteristics of premium zircon (as seen by the A scale and B scale, which represents red-green and yellow-blue scales respectively, and lower ratings are associated with better quality).

**Figure 1. Donald Premium Zircon Compared to Competitor Premium Zircon Products**



Note: Donald fine-grade premium zircon vs. competitor premium zircon where examples are shown above in the ‘plates’

**Figure 2. Product CIE Whiteness Test Results**

Product	L - Brightness	A – Red-Green Scale	B Yellow-Blue Scale
Donald Premium Zircon	94.84	0.12	3.86
Competitor Premium Zircon 1	94.39	1.02	4.08
Competitor Premium Zircon 2	93.57	0.86	3.82
Competitor Premium Zircon 3	94.32	0.23	4.22

Note

1. The CIE system is used to characterise colour by a luminance parameter and two colour co-ordinates.
2. Results were produced using a calibrated 'brightness tester' and standard deviation error can be expected
3. Results are measured on the CIE whiteness scale, L represents 'brightness', A represents 'red-to-green' scale, B represents 'yellow-to-blue' scale

Given the importance of the zircon opacifier market, which constitutes over half of the current demand for zircon sand, the test work demonstrates the attractive whiteness characteristics of Donald premium zircon, which is an important attribute in ultimate market acceptance of the Donald premium zircon production stream, which is expected to constitute approximately 80% of the expected zircon produced from the operation. The fine grain size of the zircon Donald has the added advantage that it reduces the grinding required by customers to produce a zircon flour for ceramics use. This is a cost-advantage for ceramics customers compared with coarser-grained zircons. Stage 1 zircon production is expected to be approximately 120,000 tonnes per annum, of which approximately 95,000-100,000 tonnes of will be premium zircon. The remaining approximate 20,000-25,000 tonnes will be a standard or chemical grade zircon 60 product, which will have an application in other markets.

The work on the whiteness characteristics of the Donald zircon forms an integral part of the development of overall product specifications for the Donald suite of mineral sands products. These specifications will form an integral part of identifying potential customers and markets for the Donald products, allowing product samples to be despatched for testing purposes by potential customers.

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This announcement is authorised for release to ASX by the Board of Directors of Astron

**About Astron Corporation Limited**

Astron Corporation Limited (ATR: ASX) is an ASX listed company, with extensive (30 years+) experience in mineral sands processing, technology and downstream product development, as well the marketing and sale of zircon and titania (titanium dioxide) products, most notably in China. Astron conducts a mineral sands trading operation based in Shenyang, China and operates a zircon and titanium chemicals and metals research and development facility in Yingkou, China. The company's prime focus is upon the development of the large, long-life and attractive zircon assemblage Donald Mineral Sands deposit in the Murray Basin,

Victoria. Donald has the ability to represent a new major source of global supply in mineral sands. Astron is also the owner of the Niafarang mineral sands project in Senegal, West Africa. Niafarang is a high-grade coastal mineral sands deposit, planned to be developed using simple dredge mining and processing methodology.

#### COMPETENT PERSONS STATEMENT

The information in this report that relates to Exploration Results and Mineral Resources for the Donald Project is based on information first reported in previous ASX announcements by the Company, as listed in this announcement. The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcements and that all material assumptions and technical parameters underpinning the estimates in the original announcements continuing to apply and have not materially changed. The information in this document that relates to the estimation of the Mineral Resources is based on information compiled by Mr Rod Webster, a Competent Person who is a Member of the Australasian Institute of Mining and Metallurgy and Australian Institute of Geoscientists. Mr Webster is a full-time employee of AMC Consultants Pty Ltd and is independent of Astron. Mr Webster has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken 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'. The Company confirms that the form and context in which the Competent Persons' findings are presented have not prematurely modified from the relevant original market announcement.

The information in this document that relates to the estimation of the Ore Reserves is based on information compiled by Mr Pier Federici, a Competent Person who is a Member of the Australasian Institute of Mining and Metallurgy and Australian Institute of Geoscientists. Mr Federici is a full-time employee of AMC Consultants Pty Ltd and is independent of Astron. Mr Federici has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken 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'. The Company confirms that the form and context in which the Competent Persons' findings are presented have not prematurely modified from the relevant original market announcement.

#### CAUTIONARY STATEMENT

Certain sections of this ASX Release contain forward looking statements that are subject to risk factors associated with, among others, the economic and business circumstances occurring from time to time in the countries and sectors in which the Astron group operates. It is believed that the expectations reflected in these statements are reasonable, but they may be affected by a wide range of variables which could cause results to differ materially from those currently projected.

The information contained in this Release is not investment or financial product advice and is not intended to be used as the basis for making an investment decision. Please note that, in providing this document, Astron has not considered the objectives, financial position or needs of any particular recipient. Astron strongly suggests that investors consult a financial advisor prior to making an investment decision.

This Release may include “forward looking statements” within the meaning of securities laws of applicable jurisdictions. Forward looking statements can generally be identified by the use of the words “anticipate”, “believe”, “expect”, “project”, “forecast”, “estimate”, “likely”, “intend”, “should”, “could”, “may”, “target”, “plan”, “guidance” and other similar expressions. Indications of, and guidance on, future earning or dividends and financial position and performance are also forward-looking statements. Such forward-looking statements are not guarantees of future performance and involve known and unknown risks, uncertainties and other factors, many of which are beyond the control of Astron and its related bodies corporate, together with their respective directors, officers, employees, agents or advisers, that may cause actual results to differ materially from those expressed or implied in such statement. Actual results, performance or achievements may vary materially from any forward looking statements and the assumptions on which those statements are based. Readers are cautioned not to place undue reliance on forward looking statements and Astron assumes no obligation to update such information.).

## APPENDIX A: DONALD DEPOSIT UPDATED ORE RESERVE & MINERAL RESOURCE STATEMENTS

### Ore Reserves

Based on the supporting mine planning completed, pit inventories to support an Ore Reserve Estimate, in accordance with JORC 2012 are shown in Table 1.1. Ore has been classified as Proven Ore Reserve, based on Measured Mineral Resource and Probable Ore Reserve, based on Indicated Mineral Resource. The results of the Ore Reserve estimate reflect the Competent Person's view of the deposit.

Note that the Mineral Resources are reported inclusive of the Ore Reserve.

**Table 1.1 Donald Mineral Sands Ore Reserve for RL 2002 at February 2021**

Classification	Tonnes (mt)	Slimes (%)	Oversize (%)	HM (%)	Ilmenite (%HM)	Leucoxene (%HM)	Rutile (%HM)	Zircon (%HM)	Monazite (%HM)
<b>Within ML5532</b>									
Proved	170	14.2	11.9	5.3	31.4	22.1	7.1	18.8	1.9
Probable	24	13.4	12.5	4.9	33.2	21.3	6.7	20.2	2.0
<b>Total</b>	<b>194</b>	<b>14.1</b>	<b>12.0</b>	<b>5.3</b>	<b>31.6</b>	<b>22.0</b>	<b>7.0</b>	<b>19.0</b>	<b>1.9</b>
<b>Within RL2002 Outside of ML5532</b>									
Proved	140	19.1	7.1	5.6	31.0	18.4	9.6	21.2	1.8
Probable	268	15.8	14.4	4.0	32.3	19.5	7.5	17.0	1.6
<b>Total</b>	<b>408</b>	<b>16.9</b>	<b>11.9</b>	<b>4.5</b>	<b>31.8</b>	<b>19.0</b>	<b>8.4</b>	<b>18.8</b>	<b>1.8</b>
<b>Total within Donald Deposit (RL2002)</b>									
Proved	310	16.4	9.8	5.4	31.2	20.4	8.2	19.9	1.8
Probable	292	15.6	14.2	4.1	32.4	19.7	7.4	17.3	1.6
<b>Total</b>	<b>602</b>	<b>16.0</b>	<b>11.9</b>	<b>4.8</b>	<b>31.7</b>	<b>20.1</b>	<b>7.9</b>	<b>18.8</b>	<b>1.7</b>

#### Note

1. The ore tonnes have been rounded to the nearest 1mt and grades have been rounded to one decimal place.
2. The Ore Reserve is based on indicated and Measured Mineral Resource contained with mine designs above an economic cut-off. The economic cut-off is defined as the value of the products less the cost of processing
3. Mining recovery and dilution have been applied to the figures above.

The JORC Code 2012 Table 1, Section 4 to support the Ore Reserve Estimate is included in Appendix B of the of the Donald Project Ore Reserve Statement released 18 February 2021. The Ore Reserve estimates have been compiled in accordance with the guidelines defined in the 2012 JORC Code.

### Mineral Resources

Astron Corporation last reported the Mineral Resource on 7 April 2016 in accordance with JORC 2012. Below is an exact of the AMC report (AMC 115075) prepared to support the Mineral Resource. The Mineral Resource estimate was reported in accordance with the JORC Code for the heavy minerals (HM) and valuable heavy minerals (VHM) Content for MIN5532 and RL 2002 of the Donald Heavy Mineral Sands Deposit and for RL2003, RLA2006 (since been amalgamated into RL2003) of the Jackson Heavy Mineral Sands Deposit.

The Mineral Resource estimate was reported in accordance with the JORC Code for the heavy minerals (HM) and valuable heavy minerals (VHM) content has been used for the preparation of the Ore Reserve. Only the resource containing valuable heavy minerals (VHM) content has been used for the preparation of the Ore Reserve.

**Table 1.2 Mineral Resource at a 1% Cut-off**

<b>Classification</b>	<b>Tonnes (mt)</b>	<b>HM (%)</b>	<b>Slimes (%)</b>	<b>Oversize (%)</b>
<b>Within ML5532</b>				
Measured	372	4.5	14.4	12.8
Indicated	75	4.0	13.8	13.1
Inferred	7	3.5	13.5	10.6
<b>Subtotal</b>	<b>454</b>	<b>4.4</b>	<b>14.2</b>	<b>12.8</b>
<b>With RL2002 Outside of ML5532</b>				
Measured	343	3.9	19.8	8.1
Indicated	833	3.3	16.2	13.5
Inferred	1,595	3.3	15.7	6.0
<b>Subtotal</b>	<b>2,771</b>	<b>3.4</b>	<b>16.4</b>	<b>8.5</b>
<b>Total within Donald Deposit (RL2002)</b>				
Measured	715	4.2	17.0	10.6
Indicated	907	3.4	16.0	13.4
Inferred	1,603	3.4	15.7	6.0
<b>Subtotal</b>	<b>3,225</b>	<b>3.6</b>	<b>16.1</b>	<b>9.1</b>
<b>Total within Jackson Deposit (RL2003)</b>				
Measured	0	0.0	0.0	0.0
Indicated	1,903	2.8	19.0	5.8
Inferred	584	2.9	16.7	3.3
<b>Subtotal</b>	<b>2,497</b>	<b>2.9</b>	<b>18.5</b>	<b>5.2</b>
<b>Total Donald Project</b>				
Measured	715	4.3	18.1	11.1
Indicated	2,811	3.0	17.9	8.2
Inferred	2,187	3.3	16.4	5.5
<b>Total</b>	<b>5,712</b>	<b>3.2</b>	<b>16.9</b>	<b>7.3</b>

**Note**

1. The total tonnes may not equal the sum of the individual resources due to rounding.
2. The cut-off grade is 1% HM.
3. The figures are rounded to the nearest: 10M for tonnes, one decimal for HM, Slimes and Oversize.
4. For further details including JORC Code, 2012 Edition – Table 1 and cross sectional data, see previous announcements dated 7 April 2016, available at ASX's website at:  
[www.asx.com.au/asxpdf/20160407/pdf/436cjqcg3cf47.pdf](http://www.asx.com.au/asxpdf/20160407/pdf/436cjqcg3cf47.pdf)

**Table 1.3 Mineral Resource where VHM Data is Available at a Cut-off of 1% HM**

<b>Classification</b>	<b>Tonnes (mt)</b>	<b>Slimes (%)</b>	<b>Oversize (%)</b>	<b>HM (%)</b>	<b>Ilmenite (%HM)</b>	<b>Leucoxene (%HM)</b>	<b>Rutile (%HM)</b>	<b>Zircon (%HM)</b>	<b>Monazite (%HM)</b>
<b>Within ML5532</b>									
Measured	264	14.2	12.2	5.4	31	22	7	19	2
Indicated	49	13.6	12.1	4.9	33	22	7	20	2
Inferred	5	13.5	10.2	4.2	36	20	7	22	3
<b>Total</b>	<b>317</b>	<b>14.1</b>	<b>12.1</b>	<b>5.3</b>	<b>32</b>	<b>22</b>	<b>7</b>	<b>19</b>	<b>2</b>
<b>Within RL2002 Outside of ML5532</b>									
Measured	185	19.1	7.3	5.5	31	19	9	21	2
Indicated	454	15.9	13.2	4.2	33	19	7	17	2
Inferred	647	15.2	5.8	4.9	33	17	9	18	2
<b>Total</b>	<b>1,286</b>	<b>16.0</b>	<b>8.6</b>	<b>4.8</b>	<b>33</b>	<b>18</b>	<b>8</b>	<b>18</b>	<b>2</b>
<b>Total within Donald Deposit (RL2002)</b>									
Measured	448	16.2	10.2	5.4	31	21	8	20	2
Indicated	503	15.7	13.1	4.3	33	20	7	18	2
Inferred	652	15.2	5.8	4.9	33	17	8	18	2
<b>Total</b>	<b>1,604</b>	<b>15.6</b>	<b>9.3</b>	<b>4.9</b>	<b>32</b>	<b>19</b>	<b>8</b>	<b>18</b>	<b>2</b>
<b>Total within Jackson Deposit (RL2003)</b>									
Measured									
Indicated	668	18.1	5.4	4.9	32	17	9	18	2
Inferred	155	15.1	3.1	4.0	32	15	9	21	2
<b>Total</b>	<b>823</b>	<b>17.6</b>	<b>5.0</b>	<b>4.8</b>	<b>32</b>	<b>17</b>	<b>9</b>	<b>19</b>	<b>2</b>
<b>Total Donald Project</b>									
Measured	448	16.2	10.2	5.4	31	21	8	20	2
Indicated	1,171	17.1	8.7	4.6	32	18	8	18	2
Inferred	807	15.2	5.3	4.7	33	17	9	19	2
<b>Total</b>	<b>2,427</b>	<b>16.3</b>	<b>7.0</b>	<b>4.8</b>	<b>32</b>	<b>18</b>	<b>8</b>	<b>19</b>	<b>2</b>

**Note**

1. The total tonnes may not equal the sum of the individual resources due to rounding.
2. The cut-off grade is 1% HM.
3. The figures are rounded to the nearest: 1mt for tonnes, one decimal for HM, Slimes and Oversize and whole numbers for zircon, ilmenite, rutile + anatase, leucoxene and monazite.
4. Zircon, ilmenite, rutile + anatase, leucoxene and monazite percentages are report as a percentage of the HM.
5. Rutile + anatase, leucoxene and monazite resource has been estimated using fewer samples than the other valuable heavy minerals. The accuracy and confidence in their estimate is therefore lower.
6. For further details including JORC Code, 2012 Edition – Table 1 and cross sectional data, see previous announcements dated 7 April 2016, available at ASX's website at [www.asx.com.au/asxpdf/20160407/pdf/436cjqc3cf47.pdf](http://www.asx.com.au/asxpdf/20160407/pdf/436cjqc3cf47.pdf)