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To: CLEAR ASSET
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ANALYTICAL REPORT

PHOSPHATE ROCK Ex MV NM CHERRY BLOSSOM

Five samples of phosphate rock sampled from the cargo ship “Cherry Blossom” by S.G.S were delivered to Modderfontein Laboratory by Bex Express on 9th March 2018.

The samples were in good condition and sealed. The samples on receipt were free flowing, containing no lumps or agglomerations All details were recorded and logged in this Laboratory’s LIMS System.

Each sample was mixed and riffled down to less than 50g. This sub-sample was then dried at 105°C for three hours and the loss in mass recorded.

2 x 15g each of the dried samples were then milled in a laboratory disc mill for 15 minutes and briquetted for X-Ray Fluorescence analysis.

A certified reference material SARM 32 was prepared in the same way. A full X-Ray Fluorescence analysis was carried out on the two sub samples and the results averaged. SARM 32 has certified values for phosphorus, calcium, fluorine, magnesium, strontium and iron. Values for silicon, aluminium and chloride are given as an “uncertified” value.

In addition, sodium, sulphur, potassium, chromium, nickel, zinc yttrium, titanium, zirconium and uranium were detected and reported on a “Semi-Quantitative” basis.

CHIEF CHEMIST: D. Gregory

DATE: 23rd March 2018

X-Ray Fluorescence Analysis

Sample	Hold 1	Hold 2	Hold 3	Hold 4	Hold 5
Seal No (SGS)	012172	012175	012178	012181	012183
Lims ID	2826512	286513	286514	286515	286516

The following results calculated against certified results of SARM 32.

Phosphorus as P ₂ O ₅	37.44	38.16	34.80	37.49	38.11
Calcium as CaO	53.34	55.15	52.45	53.33	54.36
Magnesium as MgO	0.14	0.13	0.34	0.14	0.13
Fluorine as F	4.11	4.46	4.18	4.21	4.40
Strontium as SrO	0.05	0.06	0.12	0.05	0.06
Iron as Fe ₂ O ₃	0.14	0.13	0.18	0.12	0.11

The following results calculated against “uncertified” results of SARM 32.

Silicon as SiO ₂	3.25	3.21	3.41	3.00	3.33
Aluminium as Al ₂ O ₃	0.34	0.29	0.30	0.30	0.28
Chlorine as Cl	0.05	0.05	0.41	0.05	0.06

The following elements were detected and are reported on a “Semi-Quantitative” basis.

Uranium as U	0.01	0.01	0.01	0.01	0.01
Sodium as Na	0.13	0.13	0.80	0.13	0.14
Sulphur as S	0.33	0.32	0.56	0.28	0.27
Potassium as K	0.07	0.07	0.08	0.06	0.07

In addition, traces (<0.05%) of chromium, nickel, Titanium, zinc, yttrium titanium and zirconium were also detected.

Moisture (Loss at 105°C)	1.36	1.34	3.56	1.35	1.30
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Particle Size

Retained on 850µm sieve	4.5	5.0	10.0	5.2	5.5
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“Malvern” Particle Size Distribution below 850µm attached

All results expressed as % m/m

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