

Ticker: RBW LN
Market cap: £89m

Net cash: £8.5m
Price: £0.175/sh

Project: Phalaborwa
Country: South Africa

RECOMMENDATION (unc): BUY

TARGET: £0.35/sh (unc)

RISK RATING: HIGH

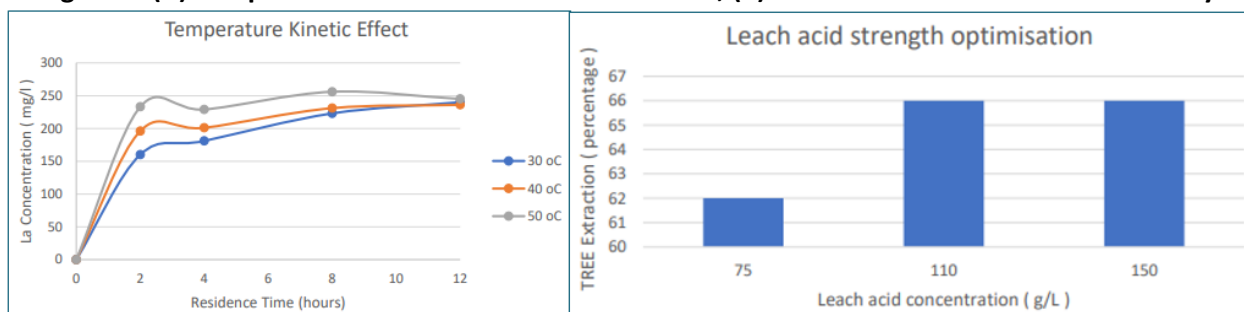
We see three key takeaways from today's detailed metallurgical and processing update from Rainbow. **First**, the key advantages of the operation are strongly supported test work, namely low acid consumption at 110g/L, good recoveries at 66% leach recovery at 40°C leach, short leach time at 12h and suitable for sulphuric acid lixiviant. As Phalaborwa has sulphuric acid available from the nearby PMC copper smelter and power and rail to site, these confirm that Phalaborwa's location and infrastructure can be leveraged to reduce opex and capex. **Second**, the initial K-tech desktop study indicates ability to produce 99.5-99.9% purity separated rare earth oxides, allowing Rainbow to capture greater value (90-100% pay-ability of benchmark oxide prices) compared to a mixed REO carbonate (60—65% pay-ability). **Third**, the detailed test work supports what is a key advantage for Rainbow in our view: an experienced mine-building team and structured approach to development. We can't overstate the importance of this. Rainbow's team have extensive processing plant and tailings plant building experience and the detailed design and test work, lab pilot and site pilot stages being implemented combined with low capex give us great confidence that Phalaborwa is an excellent risk-weighted upside opportunity to play the magnet rare earths thematic.

Model changes: Highlighted in greater detail below but we lift our LT NdPr price to US\$100/kg, still well below current prices, and adjust our recovery assumptions to 60% from 70%, in line with conservative interpretations of the test work. **We maintain our BUY rating and 35p/sh price target based on 0.5x NAV_{8%-100/kg}.** Stepping back, we believe that Rainbow the best risk adjusted return profile of any NdPr developer due to location, infrastructure in place, the already treated nature of the mineralization, and Rainbow's experienced plant-building management team.

Detailed met release confirms recovery, low acid consumption, short leach time

Rainbow released a detailed update on metallurgical and processing design and study work led by ANSTO in Sydney, Australia. Key outcomes included confirmation of suitability of sulphuric acid as lixiviant, optimised leach recovery (average 66% rare earth leach recovery) at 40°C at 12-hr residence, sulphuric acid concentration of 110-150g/L in the leach (subject to further optimisation). Nano filtration desktop study indicated 65% sulphuric acid recovery for recycling and 99% rare earth recovery to concentrate, with a 3x concentration factor. Rare earth separation desktop study by K-Tech indicated potential to produce separated rare earth oxides at 99.5-99.9% purity using K-Tech continuous chromatography and continuous ion exchange technology. Further optimisations include reducing PLS volume (through tenor increase) to rare earth separation to reduce capex and opex, optimisation of rare earth separation recovery (80% assumed in desktop study), pre-leach impurity control (notably of fluoride)

Figure 1: (A) Temperate effect and residence time curve, (B) acid concentration and REE recovery



Source: Rainbow Rare Earths

Our view and model updates: Excellent

Overall, we are very impressed with the detail and quality of the test work. It goes well beyond the requirements for the upcoming scoping study and reflects well on management's experience building processing facilities. With regard to process and design, the key advantages of the project were supported by test work and overall scope is in line with our site visit takeaways, namely a hydro slurry operation featuring a sulphuric acid leach circuit with potential to produce separated rare earth oxides. The temperature and acid consumption.

Model changes:

We make two principal changes.

1) We update our LT price estimate to US\$100/kg/t for benchmark NdPr oxide (FOB). We maintain our 90% pay-ability of benchmark separated oxide prices assumption. We think higher pay-ability is certainly achievable if Rainbow is able to achieve 99.5-99.9% purity, particularly as we think material produced outside of China by western companies may receive a premium due to end user diversification initiatives and current geopolitical realities.

2) We amend our recovery assumptions to 60% to separated oxides based on the 66% average leach recovery and a ~90% assumed separation recovery (subject to more test work). In our view a 60-65% overall recovery to separated oxides is achievable on further optimisation assuming 65-70% leach recovery and 90-95% separation recovery.

For now, we maintain our 2.2Mtpa throughput assumption but note that higher throughput (and therefore production rates) may be achieved in our view, particularly if optimisation work is able to achieve higher solution tenors to concentrate, which would enable either cost savings (a smaller footprint and operation) or higher production rates in the separation phase (maintain facility size, achieve more production).

We reiterate our BUY rating and £0.35/sh price target based on 0.5xNAV8%. While today's changes result in moderately lower production, we think the quality of test work, the fact that we are running prices well below spot, and the conservative 0.5x NAV multiple are all indicative of Rainbow's excellent risk-adjusted upside. At US\$100/kg, we estimate that Rainbow is trading at just 0.12x NAV8% with a 45% Phalaborwa project IRR, which is an excellent return on a brownfield project in a mature mining jurisdiction with access to good infrastructure that is one of few projects globally that can contribute magnet rare earths to the western supply chain by 2025.

Why we like Rainbow Rare Earths

1. Tailings project located on existing industrial facility results in low capex and opex
2. High per tonne value due to NdPr, Dy, Tb assemblage and ability to produce beneficiated product
3. Proven management team that has built numerous mines and tailings projects

Catalysts

- 1H22: PEA
- 2H22: DFS and parallel lab testing.
- 2023: Pilot plant (H1), mid-year construction decision
- 2024: SCPE ramp up, commercial production in 2025

Research

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Ticker: RBW LN	Price / mkt cap: £0.17/sh, £89m	Market P/NAV: 0.13x	Assets: Phalaborwa
Analyst: J Chan / B Gaspar	Rec / PT: BUY / £0.35	1xNAV₂₀₂₀ FD: US\$0.96/sh	Country: South Africa

Group-level SOTP valuation					Resource / Reserve					
	4Q21	1Q22e			Mt	% TREO	000t REO	000t NdPr	EV/t NdPr	
		US\$m	O/ship	NAVx	£/sh					
Phalaborwa NPV 1Q22e		537	80%	0.50x	0.69	38	0.43%	165	48	1,221
Central SG&A & fin costs 1Q22e		(122)	-	0.50x	(0.12)	38	0.43%	163	48	1,235
Tonnes outside mine plan (5% insitu value)		2	100%	0.50x	0.00					
Cash and restr. cash 4Q21		11	-	0.50x	0.01					
Cash from options		1	-	0.50x	0.00					
Debt 4Q21		(1)	-	0.50x	(0.00)					
Gakara		75		0.50x	0.07					
1xNAV8% spot fully diluted, pre-funded		503			0.66					
Assumed equity raised to first production		60		0.50x	0.07					
1xNAV8% spot fully funded		563			0.35					

1x fully funded NAVPS sensitivity to gold price and discount / NAV multiple					
Valuation (£/sh)	\$50/kg	\$75/kg	\$100/kg	\$125/kg	\$150/kg
0.25xNAV	0.03	0.10	0.18	0.26	0.34
0.50xNAV	0.04	0.18	0.35	0.51	0.68
0.75xNAV	0.05	0.27	0.51	0.77	1.02
1.00xNAV	0.06	0.36	0.68	1.02	1.36
Phalaborwa NPV8% (US\$m)	\$50/kg	\$75/kg	\$100/kg	\$125/kg	\$150/kg
12% discount	59	219	378	538	698
10% discount	81	265	449	633	817
8% discount	109	323	537	751	965
6% discount	144	395	647	898	1,150
5% discount	164	438	712	986	1,260

Phalaborwa 1xNAV sensitivity to recovery and payability					
Phalaborwa NPV8% (US\$m)	Recov: 55.0%	57.5%	60.0%	62.5%	65.0%
Payability: 60%	463	500	537	573	610
Payability: 70%	463	500	537	573	610
Payability: 80%	463	500	537	573	610
Payability: 90%	463	500	537	573	610
Payability: 100%	463	500	537	573	610

Valuation over time					
	Jun '21	Jun '22	Jun '23	Jun '24	Jun '25
Mines NPV (US\$m)	509.2	554.2	659.4	753.9	725.9
Cntrl G&A & fin costs (US\$m)	(127.8)	(118.1)	(124.8)	(104.0)	(69.7)
Gakara & other	77.1	77.1	77.1	77.1	77.1
Net cash at 1Q (A\$m)	7.9	9.2	3.6	(60.8)	(22.5)
1xNAV (US\$m)	466	522	615	666	711
P/NAV (x):	0.20x	0.17x	0.15x	0.14x	0.13x
1xNAV share px FD (US\$/sh)	0.89	1.00	1.18	1.27	1.36
ROI to equity holder (% pa)	411%	139%	89%	64%	51%

Sources and uses of cash			
SCPe evaluation costs	US\$10m	SCPe current cash + options	US\$12m
SCPe capex	US\$100m	Debt package	US\$80m
SCPe contingency	US\$16m	Equity Raised	US\$60m
SCPe G&A + fin. cost to first Au	US\$13m		
SCPe working capital	US\$9m		
Total uses	US\$148m	Total proceeds	US\$152m

*Cash from options expiring pre first pour

Production profile					
Production (kt REO)	2024	2025	2026	2027	2028
Production (kt Nd+Pr, LHS)	~2.0	~4.0	~4.0	~4.0	~4.0
Production (kt, Dy+Tb, LHS)	~2.0	~4.0	~4.0	~4.0	~4.0
Production (kt, other REO, LHS)	~2.0	~4.0	~4.0	~4.0	~4.0

Production (100%)					
	Jun '24	Jun '25	Jun '26	Jun '27	Jun '28
Phalaborwa (kt TREO)	774	4,257	5,676	5,676	5,676
Phalaborwa (kt Nd+Pr)	225	1,238	1,651	1,651	1,651
Phalaborwa cash cost (US\$/t)	14,858	9,690	9,690	9,690	9,690
Phalaborwa AISC (US\$/t)	19,107	13,526	13,235	13,235	13,235
Group cash cost (US\$/t)	15,574	10,406	10,406	10,406	10,406
Group AISC (US\$/t)	20,582	11,876	11,411	11,411	11,411

Source: SCP estimates

Commodity price					
NdPr price (US\$/t)	Jun '22	Jun '23	Jun '24	Jun '25	Jun '26
NdPr price (US\$/t)	83	83	100	100	100

Share data					
Basic shares (m):	511.8	FD + options (m):	523.0	FD/FF	814.6
FD shares out (m)	577	782	782	782	782
EPS (US\$/sh)	(0.00)	(0.00)	(0.00)	0.07	0.09
CFPS before w/c (US\$/sh)	(0.00)	0.00	(0.02)	0.05	0.11
FCFPS pre growth (US\$/sh)	(0.00)	0.03	0.00	0.05	0.11
FCF/sh (US\$/sh)	(0.02)	(0.07)	(0.08)	0.05	0.11
FCF yield pre growth (US\$/sh)	(2%)	17%	2%	28%	62%
FCF yield (%)	(9%)	(41%)	(47%)	28%	62%
EBITDA margin (%)	-	-	42%	68%	69%
FCF margin (%)	--	--	(232%)	25%	41%
ROA (%)	(7%)	(3%)	(2%)	25%	25%
ROE (%)	(7%)	(5%)	(3%)	42%	35%
ROCE (%)	(7%)	(2%)	7%	51%	58%
PER (x)	(45x)	(33x)	(55x)	3x	2x
P/CF (x)	(50x)	(38x)	(113x)	2x	2x
EV/EBITDA (x)	(45x)	(66x)	17x	2x	1x

Income statement					
	Jun '22	Jun '23	Jun '24	Jun '25	Jun '26
Revenue (US\$m)	--	--	28	152	203
COGS (US\$m)	--	--	(12)	(44)	(59)
Gross profit (US\$m)	--	--	16	108	144
Expenses (US\$m)	(3)	(4)	(2)	(2)	(2)
Impairment & other (US\$m)	--	--	--	--	--
Net finance costs (US\$m)	--	(2)	(8)	(8)	(8)
Tax (US\$m)	--	--	(5)	(37)	(36)
Minority interest (US\$m)	--	--	--	--	(20)
Net income attr. (US\$m)	(3)	(6)	0	61	78
EBITDA (US\$m)	(2)	(2)	12	104	140

Cash flow					
	Jun '22	Jun '23	Jun '24	Jun '25	Jun '26
Profit/(loss) after tax (US\$m)	(2)	(4)	(2)	52	67
Add non-cash items (US\$m)	--	--	1	7	9
Less wkg cap / other (US\$m)	--	4	(12)	(17)	11
Cash flow ops (US\$m)	(2)	0	(14)	42	87
PP&E (US\$m)	(5)	(56)	(51)	(3)	(3)
Other (US\$m)	--	--	--	--	--
Cash flow inv. (US\$m)	(7)	(56)	(51)	(3)	(3)
Debt draw (repayment) (US\$m)	--	40	40	--	(15)
Equity issuance (US\$m)	11	50	--	--	--
Other (US\$m)	--	--	--	--	--
Cash flow fin. (US\$m)	11	90	40	--	(15)
Net change post forex (US\$m)	1	34	(24)	38	69
FCF (US\$m)	(9)	(56)	(64)	38	84

Balance sheet					
	Jun '22	Jun '23	Jun '24	Jun '25	Jun '26
Cash (US\$m)	11	45	21	59	128
Accounts receivable (US\$m)	1	2	4	13	14
Inventories (US\$m)	0	3	6	18	6
PPE & exploration (US\$m)	18	74	124	120	114
Other (US\$m)	0	0	0	0	0
Total assets (US\$m)	30	124	155	210	262
Debt (US\$m)	2	42	82	82	67
Other liabilities (US\$m)	1	9	2	5	5
Shareholders equity (US\$m)	53	103	103	103	103
Retained earnings (US\$m)	(24)	(28)	(31)	22	88
Minority int. & other (US\$m)	(1)	(1)	(1)	(1)	(1)
Liabilities+equity (US\$m)	30	124	155	210	262
Net cash (US\$m)	9	4	(61)	(23)	62
Net debt to NTM EBITDA (x)	4.6x	(0.3x)	0.6x	0.2x	(0.4x)

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Summary of Recommendations as of February 2022	
BUY:	51
HOLD:	1
SELL:	0
UNDER REVIEW:	0
TENDER:	1
NOT RATED:	0
TOTAL	53

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