

# **A NEW FORCE IN RUTILE**

Kasiya: One of the world's largest rutile deposits

JULY 2021 | ASX: SVM

# KASIYA

A strategic and globally significant natural rutile (TiO<sub>2</sub>) discovery

### Major Natural Rutile End Use Markets







Natural rutile is the rarest, highest grade and highest

Natural Rutile a Source of Titanium – A Growing \$15B Global Market

1.Sulphate ilmenite includes sulphate slag production; chloride ilmenite includes chloride slag production; synthetic rutile and upgraded chloride slag ("UGS") not included. Mined volumes = TiO2 units equivalent 2.Rutile price: Iluka Resources Limited (ASX: ILU): December 2020 Quarterly Report (US\$1,220). Chloride Ilmenite: Base Resources Ltd (ASX:BSE): December 2020 Quarterly Report Source: TZMI

# Natural Rutile has a Far Lower Carbon Footprint



Natural rutile is the cleanest, purest form of titanium dioxide. It is favoured by pigment producers over higher energy and carbon intensive "upgraded" titanium feed-stocks such as synthetic rutile or titanium slag



### Titanium – a Critical Raw Material



### The US and Europe all consider titanium as a critical mineral with growing importance

US Critical Minerals -Department of the Interior, United States Government

Aluminium	chromium	helium	potash	tellurium
antimony	cobalt	indium	REEs	tin
arsenic	fluorspar	lithium	rhenium	titanium
barite	gallium	magnesium	rubidium	tungsten
beryllium	germanium	manganese	scandium	uranium
bismuth	graphite (natural)	niobium	strontium	vanadium
cesium	hafnium	PGMs	tantalum	zirconium

The United States is highly import reliant on titanium mineral concentrates

The United States has a moderate import reliance on titanium metal (sponge), and imports mostly scrap and raw metal

Titanium mineral reserves exist in the southeastern United States; however, these reserves are small compared to foreign supplies

Titanium is critical in aerospace components, in rotating parts in turbine engines, and for its use in corrosive environments.

*-U.S. Geological Survey Technical Input Document in Response to Secretarial Order No. 3359* 

In 2020, Titanium became a Critical Raw Material based on the EU's Criticality Assessment of its Economic Importance and Supply Risk

The UK Government has not yet defined a Critical Materials strategy post-Brexit, but its recent consultation, "National Security and Investment Bill: Sectors in Scope of the Mandatory Regime", acknowledges the EU list and the British Geological Survey's Risk List 2015 which both contain Titanium

### Natural Rutile – A Genuinely Scarce Commodity



No large, high-grade rutile discoveries in over half a century – until now!



# Substantial market space for a new rutile producer

- Global supply of rutile in structural deficit
- Mature mines with declining grades
- General lack of new rutile-rich deposits to fill the gap
- Natural rutile is traditionally a by-product

### **The Perfect Storm**



Supply tightness driving price upwards – very strong short, medium and long-term outlook



- CIF China spot prices have sharply risen towards US\$1,800 per tonne. Iluka achieved a sales price of \$1,199 per tonne<sup>2</sup>
- A resurgence in demand for titanium pigment and from the welding sector combined with concurrent supply shortages
- Extreme supply-side tightness will be exacerbated by new production suspensions recently announced by a number of major highgrade titanium feedstock producers
- Strong market fundamentals driving a robust long-term price

2. Iluka Resources – March 2021 Quarterly Report

# Kasiya One Of The World's Largest Rutile Deposits

# Maiden JORC Resource

# 644Mt @ 1.01% rutile<sup>1</sup>

including a high-grade component of

137Mt @ 1.41% rutile<sup>2</sup>



# Kasiya Globally Strategic

- Only large rutile-dominant deposit discovered in last 50 years
- Comparable in size to Sierra Rutile
- Substantial additional resource growth expected

	Project	Resource (Mt)	In-situ Grade			Contained
Company <sup>1</sup>			Rutile (%)	llmenite (%)	Zircon (%)	Rutile (Mt)
lluka Resources	Sierra Rutile	715	1.10%	0.90%	0.10%	7.5
Sovereign Metals	Kasiya	644	1.01%	-	-	6.5
lluka Resources	Balranald 2	46	3.90%	19.9%	3.60%	1.8
Base Resources	Kwale	194	0.37%	1.31%	0.17%	0.7



1. Projects selected with rutile contributing over 30% of the in-situ value

2. The Balranald Project is being investigated for underground mining by Iluka

Sources:

Contained Rutile (Mt)

Base Resources – Kwale: Updated Kwale North Dune and maiden Bumamani Mineral Resource Estimate (released on ASX 19/02/2021) Iluka Resources – Sierra Rutile: Iluka Resources Limited's 2020 Annual Report (released on ASX 25/02/2021)

# Kasiya Growth Potential

- ~114km<sup>2</sup> of drilled, high-grade rutile mineralisation (Kasiya 89km<sup>2</sup> + Nsaru 25km<sup>2</sup>)
- Kasiya MRE covers only 43% of this total mineralised footprint
- Step-out drilling at Kasiya and Nsaru is continuing with multiple field drilling teams deployed.



### Kasiya – Simple and Lower Risk





### MINING

High-grade rutile mineralisation from surface

Soft, friable material – should be suitable for efficient hydro or dozertrap mining methods

### PROCESSING

Simple, conventional flowsheet already demonstrated

Single heavy mineral product = simplified back-end mineral separation plant (MSP)

### **PROGRESSIVE REHABILITATION**

Positioned for effective ESG outcomes

Land to be progressively returned to original condition (farms/bushland)

### **Conventional Proven Flowsheet**

### Significantly de-risked

- Simple, conventional flowsheet
- Excellent overall rutile recovery from bulk feed (1 tonne) to product of over 98.3%
- Single heavy mineral product = simplified backend mineral separation plant (MSP)





# **Premium Product Specifications**

Bulk scale (1t) metallurgical results on saprolitehosted mineralisation show highly favourable, premium rutile product specifications

- +96% TiO<sub>2</sub>
- No critical impurities
- Standout chemical parameters
- Highly favourable grain size distribution
- d50 of 145µm comparable to leading market products
- Suitable for all major natural rutile end-use markets

Continued engagement with potential rutile off-takers in the pigment and welding industries - highly favourable feedback on chemical and physical specifications received

Comparison of Sovereign's Rutile Specifications to Leading Global Producers

Constituent		Malawi Rutile (Sovereign)	Sierra Rutile (Iluka)	RBM (Rio Tinto)	Kwale (Base Resources)	Namakwa Sands (Tronox)
TiO <sub>2</sub>	%	96.27	96.29	93.30	96.18	94.50
ZrO <sub>2</sub> +HfO <sub>2</sub>	%	0.52	0.78	1.30	0.72	1.10
SiO <sub>2</sub>	%	1.18	0.62	2.00	0.94	2.00
Fe <sub>2</sub> O <sub>3</sub>	%	0.59	0.38	0.70	1.25	0.8
Al <sub>2</sub> 0 <sub>3</sub>	%	0.41	0.31	0.90	0.23	0.6
Cr <sub>2</sub> 0 <sub>3</sub>	%	0.12	0.19	0.11	0.17	0.14
V <sub>2</sub> O <sub>5</sub>	%	0.66	0.58	0.40	0.52	0.33
Nb <sub>2</sub> O <sub>5</sub>	%	0.39	0.15	0.30	-	0.04
P <sub>2</sub> O <sub>5</sub>	%	0.01	0.01	0.03	0	0.02
Mn0	%	0.01	0.01	-	0.03	0.4
MgO	%	0.02	<0.01	-	0.1	0.01
Ca0	%	0.01	0.01	-	0.04	0.04
S	%	0.01	<0.01	<0.05	-	0.01
U+Th	ppm	39	26	100	-	-

"Iluka" is Iluka Resources Limited; "Rio Tinto" is Rio Tinto plc; "Base Resources" is Base Resources Limited; "Tronox" is Tronox Holdings plc. "-" is not disclosed. Sources: RBM data from World Titanium Resources Ltd TZMI Conference Presentation November 2011 (Updated January 2012); Sierra Rutile, Kwaleand Namakwa Sands data from BGR Assessment Manual titled "Heavy Minerals of Economic Importance" 2010. Sovereign's results are extracted from the Company's ASX Announcement dated 24 June 2019.

#### Comparison of Sovereign's Rutile d50 to Leading Global Producers

Constituent	Malawi Rutile (Sovereign)	RBM (Rio Tinto)	Namakwa Sands (Tronox)
d50	145 µm	124 µm	124 µm

"Rio Tinto" is Rio Tinto plc; "Tronox" is Tronox Holdings plc. Source: BGR Assessment Manual titled "Heavy Minerals of Economic Importance" 2010



# Malawi – Stable, Transparent Jurisdiction

- Increasingly attracting international investment
- Significant potential and appetite for mining
- Excellent operating infrastructure in place



### **Operation-Ready Infrastructure**

Infrastructure in place to connect Sovereign to global rutile markets





Established rail network direct to Nacala Port

MoU in place with rail & port operator



Grid power becoming available



Established labour pool and other industrial services

Plentiful water sources







### **Ongoing Work Programs**



Sovereign is rapidly continuing its work programs with key short-term targets

- Aggressive drilling programs commenced to enable future resource upgrades (Indicated +) and extensions.
- Kasiya's Scoping Study well underway, targeted for completion late 2021.





### Sovereign – Compelling investment opportunity into a strategic mineral



New, globally significant rutile province





Natural rutile has a far lower carbon footprint

 $\bigotimes$ 

Simple and low risk mining & processing



Ζ,

Stable, transparent jurisdiction with excellent infrastructure



Management with proven African experience



Thank you

æ



# APPENDIX

### **Corporate Information**

### Management team with a proven track record of success

#### IAN MIDDLEMAS | Chairman

Mr Middlemas was a Senior Group Executive for Normandy Mining for more than ten years, which was Australia's largest gold miner before merging with Newmont Mining. He is currently Chairman of Salt Lake Potash, Berkeley Energia, Prairie Mining & a number of other listed resource companies.

Mr Middlemas was also previously Chairman of Papillon Resources Limited and Mantra Resources Limited.

#### BEN STOIKOVICH | Director

Mr Stoikovich is a Mining Engineer with 25 years experience in mine operations and mineral project development and finance. He has extensive experience in Africa having previously worked for Lonmin and Standard Bank. Mr Stoikovich is based in London. He commenced his career with BHP Billiton.

#### JULIAN STEPHENS | Managing Director

Dr Stephens is a Geologist with over 20 years experience in mineral exploration across many commodity types, and has spent 14 years working on minerals projects in Malawi.

Dr Stephens identified, secured and led the team that discovered rutile and graphite mineralisation across Sovereign's large ground position in Malawi.

#### SAM CORDIN | Business Development Manager

Mr Cordin is an experienced Chartered Accountant who commenced his career at a large international accounting firm and has since been involved with a number of ASX and AIM listed exploration and development companies operating in the resources sector.

#### ANDRIES KRUGER | Country Manager

Mr Kruger is a Geologist with over 20 years experience in mineral exploration.

Mr Kruger has spent 10 years working on major Malawian minerals projects for ASX listed companies, directing all in-country activities relating to project development.

### ANALYST COVERAGE





### **CAPITAL STRUCTURE**

**REGISTER BREAK-DOWN** 

**421,196,827** Shares on Issue <sup>1</sup> **22,600,000 Unlisted Options**<sup>1</sup> (\$0.14 to \$0.50, Weighted Average \$0.31)

### 9,800,000

~A\$8.9 m

3. Cash at Bank - 31 March 2021

Australian based

European based

**Investors 33%** 

**HNW 20%** 

Performance Rights (milestone vesting conditions) A\$282m Un-Diluted Market Capitalisation @A\$0.67<sup>2</sup>

Cash<sup>3</sup> 1 & 2. Closing price and equities as at 2 July 2021

> Institutional Investors (Including Sprott) 22%

Directors &

Vendors 15%

### **Rutile's Scarcity Means Limited Comparable Projects**



Two projects with the most similarities make up over 32%\* of global rutile production



Kwale (Kenya) 12%<sup>\*</sup> of world's annual rutile production





Current rutile resource<sup>1</sup> 715Mt @ 1.1% rutile

Current rutile reserve<sup>1</sup> 268Mt<sup>2</sup> @ 1.4% rutile

Annual rutile production 12 months to 31 December 2020 120,200 tonnes

Ore mined 12 months to 31 December 2020 **8,928,000 tonnes** 



Current rutile resource<sup>3</sup> 275Mt @ 0.25% rutile

Current rutile reserve<sup>3</sup> 40Mt @ 0.44% rutile

Annual rutile production 12 months to 31 December 2020 76,402 tonnes

Ore mined 12 months to 31 December 2020 **17,106,122 tonnes** 

Iluka Resources Limited, Sierra Rutile: Resource and Reserve as at 31 December 2020. Resource also includes 715Mt @ 0.9% Ilmenite & 0.1% Zircon
70% of Ore Reserves relate to the Sembehun expansion project.
Base Resources Limited, Kwale: Resource and Reserve as at 30 June 2020 plus update announced 19 February 2021. Resource also includes 275Mt @ 1.0% Ilmenite & 0.1% Zircon. Reserve also includes 40Mt @ 1.9% Ilmenite & 0.2% Zircon

3. Base Resources Limited, KWale: Resource and Reserve as at 30 June 2020 plus update announced 19 February 2021. Resource also includes 275MT @ 1.0% itmenite & 0.1% Zircon. Reserve also includes 40MT @ 1.9% itmenite & 0.2% Z \* Sovereign's estimate based on Iluka Resources Limited and Base Resources Limited's reported 2019 production calculated against TZMI's forecasted 2019 production (680,000 tonnes). All information sourced from Company Reports.

### **Pigment Market Dominated by Upgraded Alternatives**



Natural rutile makes up only a modest percentage of the total high-grade titanium pigment feedstock market due to supply constraints.



### Strong Demand from the Industrial Sector



The welding sector is a major user of natural rutile.

• Forecast strong demand with current infrastructure expenditure

• In the welding rod industry there is <u>no substitute</u> material for natural rutile

• Major producers have noted that very strong demand in the welding market is outstripping supply



## Titanium will play a key role in the Green Revolution



Titanium is a 100% recyclable, eco metal



### Making Electric Vehicles Safe

The underbody of Electric Vehicles such as the Tesla Model S are made from ultra high-strength titanium.

According to Tesla, the addition of a titanium underbody shield in 2014 reduced the risk of battery fires to "virtually zero"



### Lowering CO<sub>2</sub> Emissions

Next-generation commercial aircraft (e.g., Boeing 787 and Airbus A350) use a significantly higher percentage of both titanium and carbon fiber reinforced composites to reduce weight and therefore increase fuel efficiency.



### Protecting Renewable Energy

In renewable energy applications, titanium provides material advantages over traditional alloys.

Titanium's resistance to corrosion allows design engineers to specify a zero-corrosion rate in seawater for e.g. off-shore wind farms

### Kasiya Mineral Resource Estimate Block Model





Kasiya Deposit block model heat map, oblique view looking Northeast, showing top block within the inferred resource model

- Rutile mineralisation lies in laterally extensive, near surface, flat "blanket" style bodies
- High-grade zones appear to be geologically continuous with limited variability along and across strike

### Kasiya Mineral Resource Estimate Heat Map & Cross-Sections



Rutile mineralisation lies in laterally extensive, near surface, flat "blanket"

The resource remains open to the northeast, east, and southwest









### Kasiya Mineral Resource Estimate



Resource (Mt)	Rutile Grade	Contained Rutile (Mt)	Cut-off
1,109	0.82%	9.1	0.40%
974	0.87%	8.5	0.50%
811	0.93%	7.6	0.60%
644	1.01%	6.5	0.70%
491	1.09%	5.3	0.80%
362	1.17%	4.2	0.90%
265	1.26%	3.3	1.00%
195	1.33%	2.6	1.10%
137	1.41%	1.9	1.20%
93	1.49%	1.4	1.30%
59	1.57%	0.9	1.40%
35	1.65%	0.6	1.50%



### Kasiya Mineral Resource Estimate - Summary



Mineral Resource Category	Material Tonnes (millions)	Rutile (%)	Rutile Tonnes (millions)
Inferred	644	1.01	6.49
Total	644	1.01	6.49

Cut-off: 0.7% rutile

### **DISCLAIMERS & DISCLOSURES**



#### AUTHORISATION STATEMENT

This presentation has been approved and authorised for release by the Company's Managing Director, Dr Julian Stephens.

#### DISCLAIMER NOTICE

This presentation has been prepared as a summary only, and does not contain all information Sovereign Metals Limited's ("SVM") assets and liabilities, financial position and performance, profits and losses, prospects, and the rights and liabilities attaching to SVM's securities. The securities issued by SVM are considered speculative and there is no guarantee that they will make a return on the capital invested, that dividends will be paid on the shares or that there will be an increase in the value of the shares in the future. SVM does not purport to give financial or investment advice. No account has been taken of the objectives, financial situation or needs of any recipient of this report. Recipients of this report should carefully consider whether the securities issued by SVM are an appropriate investment for them in light of their personal circumstances, including their financial and taxation position. The material in this presentation ("material") is not and does not constitute an offer, invitation or recommendation to subscribe for, or purchase any security in SVM nor does it form the basis of any contract or commitment. SVM makes no representation or warranty, express or implied, as to the accuracy, reliability or completeness of this material.

SVM, its directors, employees, agents and consultants shall have no liability, including liability to any person by reason of negligence or negligent misstatement, for any statements, opinions, information or matters, express or implied, arising out of, contained in or derived from, or for any omissions from this material except liability under statute that cannot be excluded. Statements contained in this material, particularly those regarding possible or assumed future performance, costs, dividends, production levels or rates, prices, resources, reserves or potential growth of SVM, industry growth or other trend projections are, or maybe, forward looking statements. Such statements relate to future events and expectations and, as such, involve known and unknown risks and uncertainties. Actual results and developments may differ materially from those expressed or implied by these forward looking statements depending on a variety of factors.

#### FORWARD LOOKING STATEMENT

This presentation may include forward-looking statements, which may be identified by words such as "expects", "anticipates", "pelieves", "projects", "plans", and similar expressions. These forward-looking statements are based on Sovereign's expectations and beliefs concerning future events. Forward looking statements are necessarily subject to risks, uncertainties and other factors, many of which are outside the control of Sovereign, which could cause actual results to differ materially from such statements. There can be no assurance that forward-looking statements will prove to be correct. Sovereign makes no undertaking to subsequently update or revise the forward-looking statements made in this release, to reflect the circumstances or events after the date of that release.

#### COMPETENT PERSONS STATEMENT

The information in this presentation that relate to Exploration Results (rutile) and QEMSCAN results are extracted from announcements on between 7 November 2018 to 9 June 2021. These announcements are available to view on <u>www.sovereignmetals.com.au</u>. The information in the original announcements that related to Exploration Results were based on, and fairly represents, information compiled by Dr Julian Stephens, a Competent Person who is a member of the Australasian Institute of Geoscientists (AIG). Dr Stephens is the Managing Director of Sovereign Metals Limited and a holder of shares, options and performance rights in Sovereign Metals Limited. Dr Stephens 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 it is not aware of any new information or data that materially affects the information included in the original market announcements. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcements.

The information in this presentation that relates to Metallurgical Testwork Results (rutile) is extracted from an announcement dated 9 September 2020. This announcement is available to view on <u>www.sovereignmetals.com.au</u>. The information in the original ASX Announcements that related to Metallurgical Testwork Results was based on, and fairly represents, information compiled by Mr Gavin Diener, a Competent Person who is a member of the Aus IMM. Mr Diener is the Chief Operating Officer of TZMI, an independent minerals and consulting company and is not a holder of any equity type in Sovereign Metals Limited. Mr Diener 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 Personas defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. The Company confirms that it is not aware of any new information or data that materially affects the information including in the original market announcements. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcements.

The information in the presentation that relates to Mineral Resources are extracted from an announcement dated 9 June 2021. This announcement is available to view on <u>www.sovereignmetals.com.au</u>. The information in the original ASX Announcement that related to Mineral Resources were based on, and fairly represents, information compiled by Mr Richard Stockwell, a Competent Person, who is a fellow of the Australian Institute of Geoscientists (AIG). Mr Stockwell is a principal of Placer Consulting Pty Ltd, an independent consulting company. Mr Stockwell has sufficient experience, which is relevant to the style of mineralisation and type of deposit under consideration, and to the activity he is undertaking, 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 Person's findings are presented have not been materially modified from the original market announcements.



Sovereign Metals Limited | ASX:SVM T +61 8 9322 6322 | F +61 8 9322 6558 E info@sovereignmetals.com.au

Level 9, 28 The Esplanade Perth WA 6000 ABN: 71 120 833 427

sovereignmetals.com.au