

# Resouro Strategic Metals Inc. (ASX:RAU) Metallurgical Innovation and Risk Mitigation Update – Tiros

written by Raj Shah | May 5, 2025

## Metallurgical Innovation and Risk Mitigation Update Tiros Titanium and Rare Earths Project

May 5, 2025 ([Source](#)) – Resouro Strategic Metals Inc. ([ASX:RAU](#)) ([CVE:RSM](#)) ([8TX:FRA](#)) ([RSGOF:OTCMKTS](#)) is pleased to provide an update on its metallurgical processing strategy at the globally significant Tiros Titanium and Rare Earths Project (“Tiros Project” or “Tiros” or “Project”) in Minas Gerais, Brazil.

### Key Highlights

- Metallurgical technology identified as a risk management and revenue enhancing process;
- Next stage of metallurgical optimization set to be completed by end of second quarter 2025;
- New process reinforces Resouro as a leader in sustainable and responsible mining and..
- An expert panel of independent and highly qualified metallurgists to oversee test work.

Building on successful proof-of-concept results, the Company has commenced the next stage of metallurgical optimization, targeting maximized product recovery, near-elimination of tailings, and unprecedented risk mitigation.

Resouro’s application of Fusion Sulphuric Acid Leach (“FSAL”)

technology, developed by YM Servicos under the Memorandum of Understanding (“MoU”) previously announced (refer ASX – April 28, 2025/TSXV – April 27, 2025), positions the Tiros Project at the forefront of sustainable mining innovation, offering potentially significant operational, economic, environmental and associated advantages.

**The FSAL process involves:**

- Applying controlled heat to the mineralized feed to enhance its physical and mineralogical properties;
- Comminution to an effective grind size for acid digestion;
- Filtering and removing silica;
- pH adjustments to precipitate products of titanium, iron and alumina; and
- Rare earth precipitation from the Rare Earths Oxide (“REO”) pregnant acid solution.

The next stage of follow up tests, supervised by YM Servicos, will commence on 5th May 2025 in collaboration with:

- REFRALAB for heat treatment and comminution <https://www.refralab.com.br/>
- CIT Senai for acid treatment and precipitation. <https://www.fiemg.com.br/cit/>
- SGS laboratories for assay, [https://www.sgs.com/en-br/service-groups/laboratory services](https://www.sgs.com/en-br/service-groups/laboratory-services)

The budget for the first batch of tests, expected to be completed by the end of June 2025, is US\$70,000. Resouro will have absolute exclusivity and perpetuity to the technology for the entire Capacete Geological Formation, which hosts the mineralisation of the Tiros Project.

Resouro's Executive Chairman, Chris Eager said:

"The advancement of the Tiros Project's metallurgical program represents a major valueenhancing step for Resouro and its shareholders. By adopting a sustainable and highly efficient processing solution, we are positioning the Company to deliver superior returns through higher product recoveries, reduced capital intensity, and lower environmental risk. This innovation not only has the potential to strengthen the economic fundamentals of the Tiros Project but also differentiates Resouro as a forward-thinking company aligned with global sustainability expectations. We are committed to building long-term shareholder value by developing world-class assets through innovation, responsibility, and strategic discipline."

Resouro's Chief Executive Officer, Alistair Stephens, said:

"The technical results we are seeing from the Fusion Sulphuric Acid Leach process are exceptionally encouraging. This innovative approach maximises recoveries of titanium, iron, alumina, and rare earths while addressing one of the most critical challenges in mining today – the management of mineral processing waste. The FSAL process significantly enhances the metallurgical performance of the Tiros mineralisation, upgrades titanium to a higher-value product, and has the potential to eliminate conventional tailings generation. This development underscores Resouro's technical leadership and our commitment to advancing the Tiros Project with efficiency, integrity, and environmental stewardship."

## **Risk Mitigation and Revenue Enhancement**

The FSAL process (Figure 1) has been identified as a risk mitigation and potential revenue enhancing process for multiple reasons:

- The process converts over 90% of the mass in feed (minerals of titanium, iron, silica and alumina) into saleable products and displaces, by heat treatment, volatile materials;
- The process converts anatase (technically 100% TiO<sub>2</sub>) into rutile (technically 100% TiO<sub>2</sub>) at the pre-heat temperature, resulting in a conventional approach to titanium processing and recovery;
- Sulphuric acid digest is a common process for recovering titanium and rare earths;
- The process advances heat treatment to convert weathered materials (iron and alumina type minerals) into recoverable and saleable products; and
- Most importantly, the process has been identified as a major sustainable process with significant risk reduction by the potential elimination of tailings from mineral processing.

Based on the preliminary cost assessment, the Company estimates that the preheat treatment represents a potential cost and capital neutral or beneficial position for the following reasons:

- The beneficiation process, whether by gravity or flotation, requires substantial volumes of water, producing tailings that can exceed the feed volume by orders of magnitude especially in clay-rich material. Without effective water recovery systems (clay is a significant water absorbing compound), managing these tailings become a major challenge. Dewatering clay-based tailings is capital-intensive, operationally costly, and likely to surpass mining costs; and
- The elimination of tailings shifts capital and operating costs to the front-end of the process and may be cost-

neutral overall.

The economic driver of this process lies in the high-grade mineralization zone of the Tiros resource which contains grades of 24% titanium dioxide and 9,100ppm total rare earth oxide. Both compounds are amenable to sulphuric acid digestion recovery(refer ASX – April 9, 2025/TSXV – April 8, 2025).

When weighted against risks, the process offers significant benefits, including the elimination of tailings generation, thereby removing the environmental and community risk of a tailings dam.

The Company acknowledges that the Mariana tailings dam failure in Minas Gerais, Brazil, represents one of the most catastrophic breakdowns of corporate responsibility and technical due diligence in history. The disaster devastated communities, caused irreparable environmental damage, and resulted in an estimated US\$50 billion in compensation claims. The FSAL process is a risk mitigation strategy.

Resouro is committed to safe and responsible practices, taking a novel approach to mineralization treatment that positions it as a leader in sustainable mining, setting a new benchmark for responsible mining.

The Company's innovative approach has already received strong support in early discussions with the Minas Gerais Government agencies, particularly regarding the elimination of tailings facilities – a critical issue in the region's mining sector.

### **Global Significance of the Tiros Mineral Resource**

The Tiros Project hosts one of the largest known titanium and Rare Earth Element ("REE") resources globally, positioning it as a strategically significant supply source in two critical and

rapidly evolving markets.

## **Titanium**

- Tiros contains vast quantities of titanium-rich mineralisation, primarily in the anatase form, which can be upgraded to rutile by heat treatment – a premium feedstock for titanium dioxide pigment and titanium metal.
- With rising global demand for titanium in aerospace, defence, low-carbon technologies, and advanced manufacturing, Tiros offers a long-life, low-impurity alternative to declining global ilmenite and rutile reserves.
- The potential for high-purity, chloride-grade titanium feedstock differentiates Tiros in a market increasingly driven by sustainability and supply-chain diversification.

## **Rare Earth Elements**

- Tiros' REE content is analogous to some of the most sought-after deposits globally with significantly low sovereign risk.
- The rare earth suite includes critical magnet metals Neodymium (Nd), Praseodymium (Pr), Dysprosium (Dy), and Terbium (Tb), essential for electric vehicles, wind turbines, and defence systems.
- As global supply chains shift away from Chinese dominance, Tiros stands out as a scalable, jurisdictionally secure, and environmentally progressive alternative.

The TiO<sub>2</sub> and REE resource at the Tiros Project represents a globally strategic asset, aligning with key industrial, geopolitical, and environmental drivers. It offers secure, sustainable access to minerals essential for the clean energy

transition and future-facing technologies.

## **ENVIRONMENTAL IMPACT ASSESSMENT**

Resouro appointed Sete Solucoes e Tecnologia Ambiental (“Sete”) last year to undertake Environmental Studies for Tiros. Sete is a highly regarded Brazilian Environmental Consultant, headquartered in Belo Horizonte with offices throughout Brazil. Sete are progressing with the Environmental Impact Assessment for permitting of a Demonstration Treatment Plant.

### **Metallurgical Supervisory Team**

Under the terms of the MOU, Ysao Munemassa will supervise the test work program. Resouro has also engaged a high-quality supervisory team of metallurgical experts to review and document the FSAL process and offer independent and impartial advice on the process. The resumes of the independent team are as follows.

#### **Ysao Munemassa: University of Sao Paulo, Geology, 1966**

Ysao Munemassa is a distinguished Brazilian geologist with nearly six decades of experience in mineral exploration and project development. A graduate of the University of Sao Paulo (1966), he has held senior roles at leading global mining companies including Union Carbide, Vale, BP Minerals (as Vice President of Exploration in Brazil), CESBRA, Newmont Corporation, and Teck Resources Limited. Throughout his career, Mr. Munemassa has been instrumental in the discovery of major mineral deposits across Brazil, including an iron deposit in Carajas, chromite in Amapa, the Cabacal gold deposit in Mato Grosso, and copper-gold IOCG mineralization at Salobo. His contributions extend across multiple commodities including gold, nickel, phosphate, scheelite, and potash. In addition to his corporate roles, Mr. Munemassa has led several entrepreneurial mining ventures, operating gold mines in Goias, Bahia, and

Amapa. As a researcher, he has developed innovative metallurgical processes for the extraction of potassium, magnesium, silica, titanium, and rare earth elements. Mr. Munemassa brings a unique combination of technical expertise, field experience, and innovation to resource development in Brazil.

**J.R. Goode : P.Eng. (ON and NL), 1963, FCIMM, FAusIMM**

John graduated from the Royal School of Mines as a metallurgist in 1963. After two years with Falconbridge and two years at RTZ's Avonmouth operation, he transferred to Rio Algom in Elliot Lake, Ontario, where he was involved in process development in the yttrium-thorium and uranium plants. In 1973, he transferred to RTZ's Ore Sorters Ltd. In 1976, John joined Kilborn Engineering and was VP of Mining and Metallurgy when he left in 1994. While there, he completed numerous gold, uranium, and rare earth projects, including the design and commissioning of a new yttrium plant in Elliot Lake and an evaluation of rare earth operations in China that resulted in AMR (now Neo Performance Materials) acquiring interests in two separation plants. John joined Barrick Gold in 1994 and spent four years managing China operations. Upon returning to Canada, he established a consultancy undertaking numerous projects, including many rare earths projects in ore processing and separation plant design. John has presented about 80 papers, many concerning rare earths. He is a co-organizer of CIM conferences and was an expert to ISO/TC 298 rare earth, which sets international standards for the industry.

**Steve Williams B App Sc, MBA – Executive Chairman, Blue Coast Research (BCR)**

Steve has worked in the mining industry, in Australia, Canada and South America for more than four decades working in



metallurgical operations in Australia, Canada, Philippines, Dominican Republic and Mongolia. Steve Williams founded metallurgical services for Lakefield Research in Chile and worked there from 1994 – 2001. At SGS Lakefield Research, Steve acquired 30 years of experience in metallurgical project management and business development, before becoming Managing Director for SGS Canada in 2008. He is the author of many acclaimed papers in geometallurgy, and he became a CIM Distinguished Lecturer in 2004, followed by a CIM Fellow, for his notable work in geometallurgy. Steve joined Blue Coast Research in 2019 and has worked on many geometallurgy based projects for BCR.

\*To view tables and figures, please visit:

<https://abnnewswire.net/lnk/AMV593GI>

### **About Resouro Strategic Metals Inc.**

Resouro Strategic Metals Inc. (ASX:RAU) (CVE:RSM) (OTCMKTS:RSGOF) (FRA:8TX) is a Canadian-based mineral exploration and development company focused on the discovery and advancement of economic mineral projects in Brazil, including the rare earth elements and titanium Tiros Project and the Novo Mundo and Santa Angela gold projects.

The Tiros Project, located in northern Minas Gerais, Brazil, is an exploration project focused on rare earth elements and titanium covering an area of approximately 450 km<sup>2</sup>. The Tiros Project comprises 17 exploration permits, and one exploration permit application held by the Company's Brazilian subsidiary; and 6 exploration permits and one exploration permit application that have been validly assigned to the Company's Brazilian subsidiary and are awaiting ANM approval. The Company holds, via its wholly owned Brazilian subsidiary, a 90% interest in the Tiros Project and the remaining 10% interest in the Tiros

Project is held by RBM Consultoria Mineral Eireli (RBM), an unrelated third-party vendor.

The Novo Mundo Project is located in the Alta Floresta Gold Province close to the northern border of the state of Mato Grosso, central Brazil. Within the licensed area is the small town of Novo Mundo, which is 30km west from the larger town of Guaranta do Norte. It comprises three exploration permits. The Company also has another interest in an exploration permit, being the Santa Angela Project, which is not considered material to the Company's operations. Interests in the Novo Mundo Project and Santa Angela Project are held via the Company's wholly owned subsidiary.

## **Contact**

Chris Eager  
Executive Chair (Santiago)  
chris.eager@resouro.com  
+44 7388 0579809

Alistair Stephens  
Chief Executive Officer (Perth)  
alistair.stephens@resouro.com  
+614 88 99 2544

Emily Evans, SPOKE  
Media and Content Manager  
emily@hellospoke.com.au  
+61 401 337 959