



Rock-steady Testing



PROJECT DIRECTED BY
Liv Culling

WRITTEN BY
Romana Moares

Grinding Solutions



 Nick Wilshaw,
Founder & MD, Grinding Solutions

Rock-steady Testing

Grinding Solutions, the international mineral processing consultancy and laboratory testing facility, stands stronger than ever before in the wake of the global pandemic, and boosted by a recent investment in enhanced capability, is ready to meet new market requirements.

Based in Cornwall in the UK, Grinding Solutions Ltd (GSL) has a global presence, working with clients of all sizes in many regions of the world offering innovative solutions across the whole mine value chain. The company started up as a consultancy in 2002, centred around comminution, and now offers the full range of mineral processing solutions, whilst developing a reputation for being world leaders in fine and ultra-fine grinding as well as ceramic grinding media evaluation.

Over the last decade, the business has expanded greatly and now offers a wide range of services from metallurgical and mineral processing

testing, on-site support and troubleshooting, to product development and market evaluations.

Managing Director and company founder Nick Wilshaw summarises the business: “GSL is a mineral testing company with a global client base. Our ethos is to help our clients maximise their values and opportunities in order to meet the ever increasing global challenges that the mining industry faces. It is very important to us as a company to see more sustainable mining and to help our clients reduce their mining and processing costs, their environmental impact and help them work towards net zero status.”

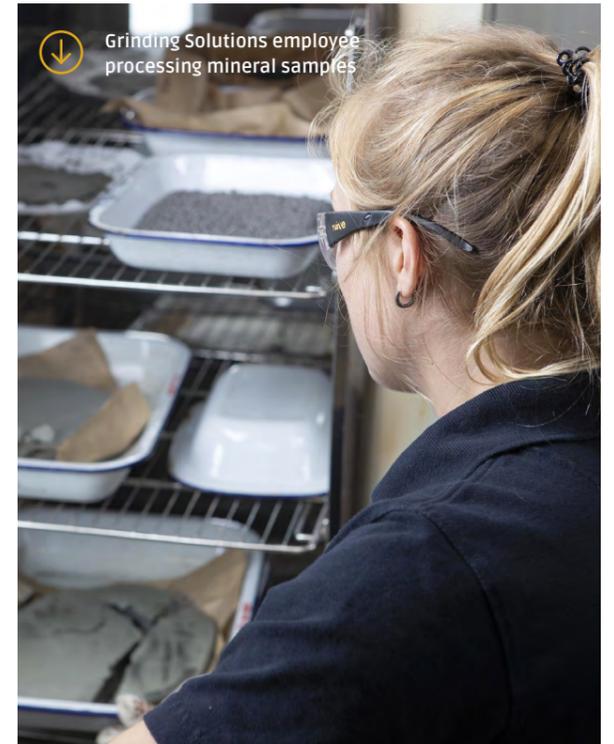
“ **Our ethos is to help our clients maximise their values and opportunities in order to meet the ever increasing global challenges that the mining industry faces.** ”

“The mining industry is facing far greater environmental regulations and socio economic requirements before projects can even be considered. These often lead to increased CAPEX and OPEX which then reflect on the viability of a project, these are a necessary part of modern mining. Our aim is to add value to the industry by working closely with mining companies and suppliers to help overcome these challenges.”

“Primarily GSL’s focus is to add value to our clients through our technical expertise. For a project to progress and reach its ultimate goal GSL can offer a full range of technical services as well as due diligence and competent persons sign back.”

The full scope

GSL has a wide portfolio of mineral processing project experience covering the metalliferous, industrial mineral, oilfield and green energy sectors. “We work from Coal to Gold and everything in between, from bench scale through to pilot scale,” says Nick.



 Grinding Solutions employee processing mineral samples



 Part of Grinding Solutions new machinery investment

Grinding Solutions

“With our broad knowledge base and wide capabilities, we are able to offer our clients benefits through the whole mine value chain, assisting and advising appropriately at each stage of the process to maximise their return from their investments.”

Early stage mineralogical studies linked to geo-metallurgy will add costs initially but will reap rewards as the project progresses, producing more focussed test programs at lower costs and compressing project timelines.

“We work closely with clients on routine test work and often look at process innovation to help make substantial gains in process efficiency,” says Nick. “So we talk to our customers before we start to look at any projects, in order to understand what their issues are. Then we will jointly develop a programme to ensure that the customer gets what they want in the time they want it.”

In its 1500 m2 facility a variety of standard and innovative testing programmes are performed for clients from across a range of industries. “We perform the full range of testing from comminution and flotation to leaching and gravity, as well as providing consultative test work across a range of commodities.”

“We are not minerals material specific but apply our knowledge and techniques to whichever minerals we are working with. Recently we have applied our knowledge to battery metals and have worked with graphite and lithium producers to help develop process routes in this sector. This thought process allows us to transfer knowledge from our precious and base metal work into new and emerging markets.”

“When assessing a project, we consider everything including waste management, energy and water consumption and work actively with environmental consultants to ensure the environmental and social governance criteria are met. Many finance houses require ESG criteria to be met at an early stage before they will consider any investment. With the assistance of our environmental partners we are able to advise clients on how they can meet these strict requirements.”

Minviro

Minviro is an award-winning, UK-based consultancy and technology company that uses life cycle assessment (LCA) to quantify and reduce environmental impacts associated with raw material projects, from mines to processing facilities to gigafactories.

Beginning as a spin-out from the University of Exeter's Camborne School of Mines in 2019, the company has expanded rapidly to become a prominent and forward-thinking force in the sustainability, mining and battery sectors.

Since then, they have worked with a host of raw materials and products including, but not limited to lithium, graphite, nickel, cobalt, manganese, rare earth elements, copper, titanium, batteries, photovoltaics and electric motors.

Consultancy outputs generally combine deep analysis of impacts related to material and energy streams for a given product with an exploration of opportunities for impact reduction using our team's commodity-specific expertise, and presenting all findings in an accessible, easily communicable format.

In 2021, **Minviro** launched a software service, **MineLCA**, that allows users to conduct LCAs in their own time using their own data in unison with the company's extensive mining-focused impact database.

The flexibility of consultancy and technology solutions means that LCA can be utilised by businesses at all levels of the raw material value chain and at all development stages.

By gaining robust, quantitative environmental insights into your project whilst planning its implementation, you have maximum control over impact mitigation.

Minviro are collaborating with **Grinding Solutions** on minimising impacts and optimising supply streams related to a range of mining and processing projects.

To get in contact with the team and find out more about LCA, send an email to info@minviro.com.

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Micon International Limited has provided independent consulting services to the world's mining industry since 1988. The firm comprises highly qualified and experienced professionals who are guided by the Company principles of Integrity, Competence and Independence. Consisting of experienced full-time consultants, supported by a team of highly skilled independent associates located worldwide, the **Micon** group offers bespoke teams of professionals to support its clients in a range of commodities, skills and languages.

Micon's expert staff have the experience, education and professional credentials to act as Qualified Persons and/or Competent Persons, as required by worldwide regulatory agencies. Clients who choose to use Micon International Limited do so knowing that the team working on their project is dominated by senior staff who offer years of consulting and operational experience providing the highest level of service, quality and value.

Projects are implemented through combined skills in exploration and resource geology, mine design and scheduling, mineral economics, metallurgical test-work and processing flow design. The firm has a strong emphasis on environmental and social governance laws and encourages its clients to adopt responsible and compliant environmental and social platforms from the outset.

Particular expertise has been developed in the economic evaluation of mining properties, including studies in support of debt and equity financing combined with the evaluation of environmental, social and governance risks. **Micon** manages techno-economic feasibility studies from the first stages of project development through to basic engineering delivered by our professional project management team.

Micon's clients include mining and mineral exploration companies, junior mining companies, financial institutions and government agencies from around the world. Assignments have been carried out in almost every country for such commodities as precious and base metals, industrial minerals, diamonds, battery metals, potash, coal and iron ore, to name a few.

Customer-centric approach

“What distinguishes us from others is our focus on innovation, and thinking outside the box, looking for new solutions. By taking this approach we can, nine times out of 10, come up with much better results. Up-front mineralogy and grade and recovery data from test work can assist client’s decision making processes. Development of good early stage geomet models can assist with future financing. If a project does not look financially or technically feasible it is more beneficial to find this out at an early stage avoiding unnecessary further investment,” affirms Nick.

He points out that this innovative approach has been one of the drivers behind the company’s growth, as well as its flexibility and ability to react quickly. The directors are able to make fast decisions regarding investment and have been quick to follow market trends. Considerable sums of money are being invested every year in new equipment and capabilities, in order to promote further business growth.

GSL works with a large variety of partners from major global equipment suppliers to engineering and consulting houses to environmental consultants. The company has seen huge changes in the last year or two with more growth in services planned so there are some really exciting times ahead for GSL.

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The last two years of the global pandemic have not significantly changed this pattern. *“While not being able to travel and to deal with clients face-to-face was a challenge, we were able to continue under the restrictions more or less as normal,”* says Nick, pointing out that last year was the best year ever in terms of financial performance, with the company doubling its revenue as new opportunities emerged.

Facing a new future

Market developments will mean a very busy time ahead for GSL with the increase in metal prices to record highs for some and the push towards electrification and renewable energy sources; companies, countries and regions are looking for sources of lithium and other battery metals to sustain the demand.

“One of the factors behind increased demand for minerals testing is vehicle electrification. This is set to continue as a result of governmental and political pressures, so GSL is still upscaling and recruiting.”

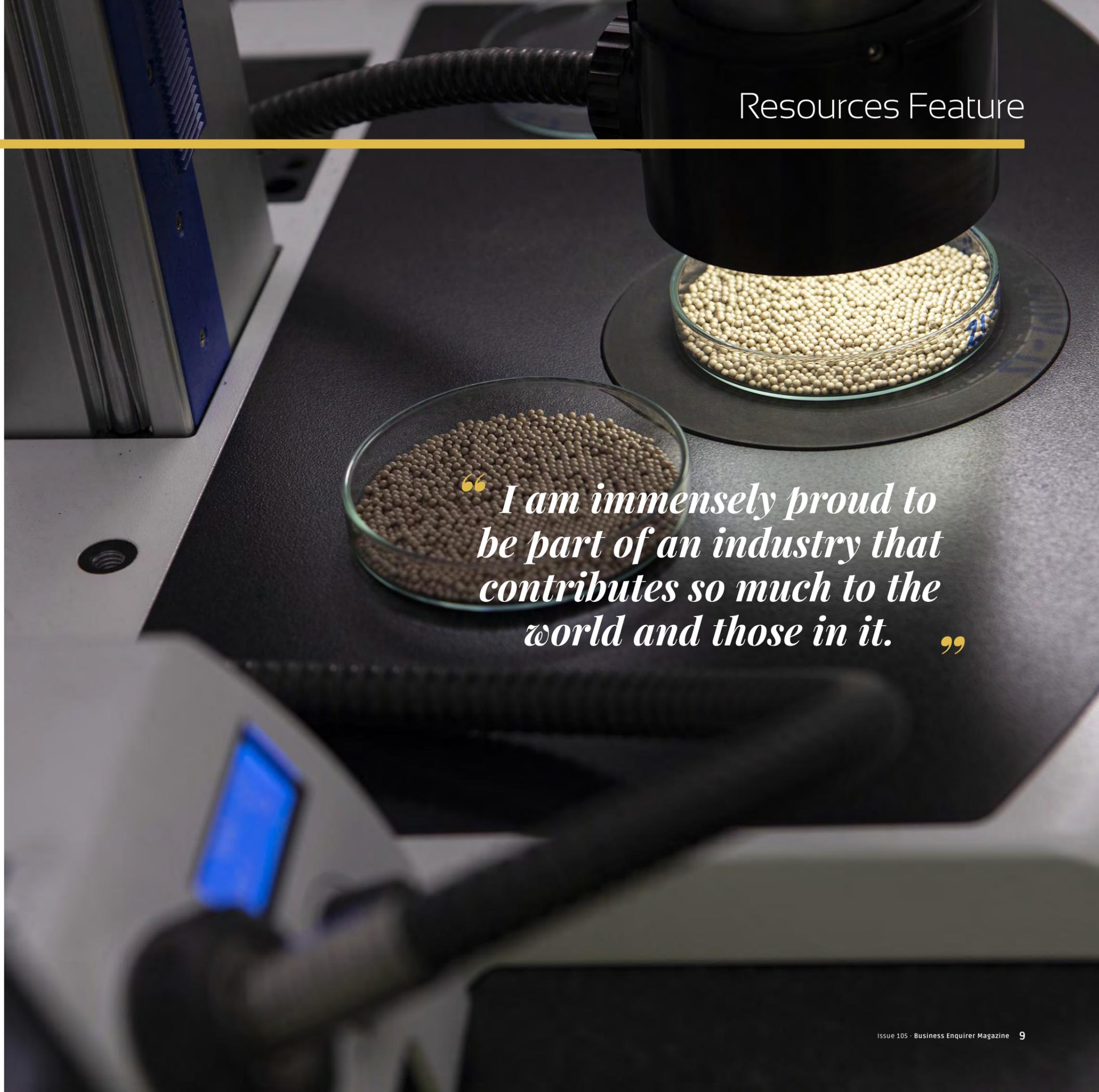
GSL has worked closely with UK-based Cornish Lithium helping them with the extraction of lithium from brines and hard rock and following successful bench and pilot testing has produced a lithium mica concentrate for pilot leaching test work in Australia.

“Despite the obvious demand for lithium, there is also a significant demand for copper, cobalt and nickel as well as for rare earths – all key elements in battery and vehicle production. We are at the forefront of the development working with several battery metals companies at the moment in the UK and nearby countries. We are taking our core strengths, expanding on them, and then pushing that out into the market.”

To meet this increased demand, the company is still increasing its services and investing in further equipment and are also currently building an analytical laboratory in order to carry out chemical analyses in-house, thus significantly shortening the timeline for projects.

Nick says: *“I am immensely proud to be part of an industry that contributes so much to the world and those in it and consider myself very lucky to have the opportunity to meet so many interesting colleagues and friends and I look forward to being part of a more sustainable mining industry as it moves forward.”*

www.grindingsolutions.com



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