

PROFILE AND CAPABILITIES



TZMI.COM

TZ MINERALS INTERNATIONAL PTY LTD



ABOUT TZMI

TZ MINERALS INTERNATIONAL PTY LTD (TZMI) is a global consulting and publishing company, established in 1994, which specialises in all aspects of the mineral sands, titanium dioxide, titanium metal and coatings industries.

The strength of TZMI's consulting services stems from extensive practical experience in the various industries in chief executive, senior operational, analytical and marketing roles.

TZMI's publications and data services support the consulting activities and ensure up-to-date, high quality and comprehensive data, analysis and information is available, supported by a the most globally comprehensive and current database of production and market data which has been built up over 20 years.

At TZMI, professional research analysts collect and analyse data of industry production, market information and best practices in the world, including supply and demand models, technical data and operating cost data for all major producers.

TZMI services are also complemented by Allied Mineral Laboratories (AML). AML is 100% owned by TZMI and is a testing facility located in Western Australia that specialises in resource assessment and flowsheet development for mineral sands, iron ore and other heavy mineral deposits.

This combination of services provided globally ensures that every assignment and offering is one that takes into consideration all aspects across the value chain – a very important factor which leads to successful results for our clients.

In the last three years TZMI has worked with clients from:

- Australia
- Belgium
- Brazil
- Canada
- China
- Czech Republic
- Egypt
- Finland
- France
- Germany
- Hong Kong
- India
- Ireland
- Japan
- Kazakhstan
- Korea
- Mexico
- Netherlands
- Netherlands
- New Zealand
- Norway
- Poland
- Russia
- Saudi Arabia
- Slovenia
- South Africa
- South Korea
- Spain
- Sweden
- Switzerland
- Tunisia
- Ukraine
- United Arab Emirates
- United Kingdom
- USA
- Vietnam

The assignment locations are usually confidential and located around the globe.

Consulting Specialists for:

- Heavy mineral deposits
- Recovery and processing of mineral sands
- TiO₂ pigment plants
- Titanium sponge production
- High level strategic M&A decision support
- Operationally focused plant optimisation
- Feasibility studies incorporating mining, processing and beneficiation up to and including basic engineering, suitable for use in IPOs or private equity raising.

Current experience since 2010:

- 30+ bespoke studies for project development and feasibility assistance delivered.
- 50+ market studies delivered to various participants including mineral sands producers, TiO₂ pigment producers, product end-users and financial institutions.
- 50+ technical due diligence/merger and acquisition assignments delivered.
- Various strategic, technical and market related bespoke consulting activities for clients across mineral sands, TiO₂ pigment, titanium metal and rare earths.

CONSULTING SERVICES

TZMI is globally recognised as the leading independent professional services provider in the titanium and zircon industries and works with clients to provide knowledge and solutions across technical, market and strategic capacities. We specialise in providing confidential consulting services across all aspects of the industries, including to banks and financial services. The vast majority of TZMI work is confidential and involves participants from all aspects of the titanium and zircon value chains.

PROJECT DEVELOPMENT

TZMI has extensive experience in evaluating new projects including assessments of potential products, quality requirements, likely consumers, product pricing; plus market entry strategies. TZMI assists in developing potential projects with scoping studies, prefeasibility studies and bankable feasibility studies. This includes management of process testwork and flowsheet development, leading to estimates of capital and operating costs and providing a realistic assessment of cost competitiveness compared to existing producers and potential new projects.

TECHNICAL CONSULTING

A diverse operating experience across nearly all titanium mineral and pigment operations around the world allows TZMI to efficiently identify areas for improvement in cost and quality and can assist with flowsheet development, physical separation testwork, resource assessments, technical reviews and audits, benchmarking exercises and economic evaluation of projects.

COMPETITIVE COST ANALYSIS (BENCHMARKING)

TZMI has developed a proprietary methodology that allows for a realistic comparison of projects with widely differing product profiles to assess competitiveness and to provide benchmarking criteria.

INDUSTRY ANALYSIS

TZMI provides bespoke reports on productive costs and markets with specific industry analysis, ranging from feedstock to pigment production costs and detail such as markets for specific pigment grades.

DUE DILIGENCE

TZMI provides due diligence studies and independent expert reports for both titanium feedstock and zircon producers through to pigment plants. Much of this work is confidential and includes outcomes where the opportunity has proceeded or not, based on the result of the study or report.

MERGERS AND ACQUISITIONS

TZMI is regularly involved in due diligence studies and independent expert reports for both industry participants and potential new entrants as well as for other feedstock and pigment transactions. TZMI has provided high level strategic M&A decision support in many large transactions, however, the majority of this work is confidential.

MARKET ASSESSMENTS

TZMI prepares long-term projections of supply and demand price forecasts prepared on a confidential single client basis. These independent forecasts for all mineral sands, pigment and titanium sponge products are widely used throughout the manufacturing and financial sectors and are provided in addition to the general industry data in TZMI's publications.

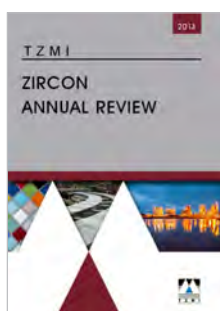
PUBLICATIONS & DATA SERVICES

TZMI's publications provide a comprehensive range of authoritative data and informed commentary on all aspects of the titanium minerals, zircon and pigment industries. Full time research staff are engaged in the collection, analysis and distribution of data.

TZMI's publications include:

- Monthly publications of production trade and market data
- Detailed annual reviews and market forecasts
- Quarterly price forecasts
- Customised multi client studies addressing supply and demand and relative economic values.
- Comparative cost studies and trade data matrices
- Customised key industry data reports tailored to specific needs
- Free weekly news updates on latest developments within the industry.

All publications can be ordered directly from the TZMI website at www.tzmi.com



TZMI KEY PERSONNEL



Eric Bender, Senior Consultant (BSc Eng)

Eric re-joined TZMI in October 2012 to develop business in the Americas region as well as add to TZMI's technical and business capabilities. Eric holds a Bachelors of Science degree in Chemical Engineering from Mississippi State University. He is based in the US in the Houston, Texas area. Prior to re-joining

TZMI, Eric worked for Momentive Specialty Chemicals as a Global New Business Space Development Leader, responsible for originating, developing, and leading global new business concepts for the company. Eric's TiO₂ pigment experience came from Tronox, where he held numerous positions from Engineering to Strategic Sourcing to Business Development / M&A.



Barend (Ben) Coetzee, Managing Consultant (M Eng MBL)

Ben joined TZMI in May 2006 as the TiO₂ Pigment Specialist and is based in Durban, South Africa. He has a Bachelors degree in Electrical & Electronic Engineering, a Masters degree in Electrical Engineering and a Masters of Business Leadership.

Ben enjoyed an extensive career with Huntsman Tioxide spanning more than 12 years. In 1992, he joined the Tioxide JV at its South African TiO₂ plant holding various operational positions including Engineering Manager, Works Manager and Business Development Manager, before becoming Capital Manager for Tioxide's global TiO₂ business.



Gavin Diener, Managing Consultant and Director (BSc Eng BCom MAusIMM)

Gavin joined TZMI in May 2008 and has technical, management and business skills gained through experience in plant operation, pilot plant test work, plant design and commissioning, process optimisation, business analysis, operations

management and product development. Since graduating from the University of Natal with a Bachelors degree in Chemical Engineering Gavin spent 16 years in the Anglo American Group working in mineral sands, gold and iron operations. In 1993 he joined the Namakwa Sands project and was involved in smelting and minerals processing aspects and also as Operations Manager responsible for the mineral separation business unit.



Sue Fitzgerald, Publications Manager (BA Arts in Political Science)

Sue has been a journalist for 25 years, 10 of the most recent as an Editor. Specialising in business and finance journalism, Sue has worked across a number of sectors including mining and energy, commercial, industrial and residential property as well as the

financial planning/investment arena. Prior to joining TZMI, Sue was Editor-in-Chief of *The Australian Mining Review* and *The Australian Oil & Gas Review*. Throughout the years, Sue has worked at daily newspapers in Australia, contributed to and/or edited national and international magazines as well as working in radio as a news producer/presenter.



Steve Gilman, Principal Consultant and Director (BappSc, FAusIMM, MAIME, GAICD)

Steve joined TZMI as a Principal Consultant and Director in 2000 and has had a diverse career in the minerals processing industry which, in addition to the mineral sands industry, has included experience in copper smelting, lime and cement manufacturing

industries. The emphasis in his career has been in mineral sands operations and since his employment at Allied Eneabba Limited as

a metallurgist in 1976, Steve has had senior roles including General Manager for RGC's operations in Florida, General Manager of the Eneabba operations, and Group Operations Manager for RGC Mineral Sands Limited.



Tracey Kelly, Marketing and Business Development Manager (BCom)

Tracey joined TZMI in 2010 and holds a Bachelor Degree in Economics and Marketing. Tracey has had a diverse career in marketing and business development over the past 10 years and now focuses on ensuring TZMI's clients receive the service and

products which they require to ensure their needs are met. She is also responsible for strategic market and product development and the coordination of the annual TZMI Congress.



Pedro Liberal, Senior Consultant (BSc Technical Mining Eng. and Master Degree in development of innovative companies)

Pedro joins TZMI following 14 years in the ceramic industry with Torrecid Group, bringing extensive experience in the mineral sands industry, particularly in the zircon sector. He has technical and business

expertise in the areas of project evaluation, marketing, strategic sourcing, processing, research and exploration, as well as specific experience and knowledge of zircon sand both downstream and upstream. Pedro has a BSc in Technical Mining Engineering and a Masters Degree in innovative company development. Pedro joins TZMI in March 2012 and will specialise in the zircon sector.



Galvin Lim, Senior Consultant (B Eng Electrical & Electronic Engineering, PhD Electrical Engineering)

Galvin joined the TZMI team in 2010 after five and a half years with Deloitte Consulting, spending two of those years in the London practice. Galvin's consulting experience spans a wide range of projects

including project management, business process re-engineering, system implementation, cost review, business case development, gap analysis and benchmarking.



Zayn Marlowe, Senior Consultant (BSc Eng Metallurgy and Materials Engineering: Extraction Metallurgy)

Zayn joined TZMI in 2008 after starting his career in South Africa at Richards Bay Minerals. Zayn has extensive experience as a Process Metallurgist across roasting, smelting and iron processing plant

operations with Richards Bay Minerals and is now a key contributor to TZMI as a Senior Consultant, with a specialist focus on the titanium slag and titanium sponge sectors.



David McCoy, Managing Consultant and Director (B Chem Eng, M Eng Mngnt, CP Eng, PE, GAICD)

David has been involved in the mineral sands and TiO₂ pigment industry since 1997 in Australia and the US. He joined TZMI in 2004 and consults on a wide variety of pigment related projects. He has a degree in Chemical Engineering from Curtin University of Technology as

well as a Masters of Engineering Management (International Finance). David has worked for RGC (now Iluka Resources) and Tiwest in process engineering, technical and engineering services roles, and in business management and global supply chain functions as a Senior Business Analyst with Kerr-McGee Chemical LLC in Oklahoma City USA.



Philip Murphy, Managing Director (BSc (Hons), MSc, GDE (Mineral Economics))

Philip Murphy joined TZMI in 1999 and has been managing director since 2009. Philip oversees TZMI's market study assignments and assists a vast number of global clients in the financial community, including credit committees of banks, to further understand the dynamics of the minerals sands industry. Before joining TZMI, Philip was a highly regarded commodity/mining analyst based in Johannesburg, specialising in titanium minerals and other industrial minerals. He graduated from the University of Natal and brings almost 25 years of expertise to the analysis of commodity markets, with particular emphasis on the global mineral sands sector.



Robyn Price, Associate Consultant (BSc (Hons) Chemistry)

Robyn joined TZMI in 2012 with technical analysis, advice and sales experience gained from working in the chemical industry in South Africa and Switzerland. Since graduating from the University of Natal Pietermaritzburg with an honours degree in Chemistry, Robyn has completed a course at Murdoch University in Earth Science and is currently enrolled in the Extraction Metallurgy course. Robyn works closely with the consultancy team in all aspects of their projects.



Alex Ryan, Senior Consultant (BSc Eng (Extractive Metallurgy), MBA)

Alex joined TZMI in 2011 with varied industry experience. In 1994 he completed his BSc in Extractive Metallurgy at the University of the Witwatersrand and then worked at Richards Bay Minerals as a plant metallurgist, followed by two years at Debswana's Jwaneng mine in Botswana. At Namakwa Sands he managed the secondary concentration plant at Brand se Baai before completing a masters in business administration at the University of Cape Town. Following this, he joined SFA Oxford, a UK based platinum group metals consultancy, as a senior consulting analyst focussing on mine costs, benchmarking, mine-closure inducement and project incentive pricing, and PGM recycling.



Gavin Williams, Managing Consultant (BSc Engineering (Chemical))

Gavin joined the TZMI team in 2008 after a career spanning 16 years in the pyrometallurgical and heavy minerals processing industry. Gavin completed his Bachelors degree in Chemical Engineering at University of the Witwatersrand in 1991 and then joined the Pyrometallurgy Division at Mintek gaining considerable experience in the operation of both AC and DC electric arc furnaces. Then at Richard Bay Minerals he gained technical and operational experience in smelter furnaces and heavy minerals processing and was involved in overseeing operations activities at the smelter, services and molten products transfer areas before going on to manage metallurgical development work spanning from the mine through to final products.



Ed Barlow, Country Manager (BA (Hons) Politics, Asian Studies and Languages. BSc Economics & Management)

Ed joined TZMI in 2012 as China country manager, having lived and worked in the country for almost a decade. He was previously a partner in a corporate advisory firm that focused on strategic research in the industrial and materials markets. He studied economics and management at the University of London.



Lu Xiaorong (Daniel) 陆晓嵘, China Representative (BSc, MBA)

Mr Lu is a native to Shanghai and is responsible for TZMI's business development, marketing and sales in China. Daniel holds a B.S. in Chemistry and MBA from Fudan University. Daniel has worked in sales and technical roles in the Chinese powder coatings, ink, automotive coatings and TiO₂ sectors. From 2002 to 2011, Mr Lu held various roles within the world's second largest TiO₂ pigment company, Millennium Chemicals/Cristal Global, including market facing sales roles and internal market segmentation and strategic analysis.



Zeng Ying (Chloe) 曾莹, Research Analyst (BA, MA)

Ms Zeng has been actively involved in all aspects of the TZMI advisory business in China since commencing with the company in 2009. Chloe has both Bachelor and Masters level degrees in English Language and Literature as well as being a Level 2 Japanese communicator. Chloe has extensive experience in market research on the Chinese titanium dioxide sector and has executed a variety of communication liaison functions between TZMI consultants and clients. Ms Zeng has recently relocated from Chengdu to join TZMI's new Shanghai business as a researcher/analyst.



Wang Qiang (Roland) 王强, Team Leader - Engineering

Mr Wang has worked extensively throughout the Chinese TiO₂ sector providing engineering support services to the leading companies. From 1992 to 2000, Roland held selected engineering and operational roles with China's largest ilmenite producer, Pangang Titanium Industry Co Ltd. In 2009, Roland joined TZMI's representative office in Chengdu providing support to its engineering functions within the countries TiO₂ pigment plants. Roland holds degrees in Mineral Processing and Financial Management. Roland has recently relocated from Chengdu to join TZMI's new Shanghai business as its Team Leader - Engineering.



Lin Guixian (Jack) 林贵贤, Senior Researcher (BSc Chem Eng, MSc Eng)

Jack Lin joined TZMI Shanghai in March 2012 as Senior Researcher, focusing on titanium and zirconium industries. He was previously a market researcher/analyst in a consulting company in Guangzhou and had near four years' experience in the titanium industry. He has bachelor degree in chemical engineering and master degrees in biochemical.

GLOBAL DELIVERY OF INSIGHT AND EXPERT ADVICE.



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