Dr. Takalani Madzivhandila: Professional Bio

Dr. Takalani Madzivhandila is a seasoned metallurgical engineer and innovation leader with deep expertise in mineral beneficiation, sustainable industrial development, and engineering management. He holds a Doctor of Philosophy (PhD) in Engineering Management from the University of Johannesburg, where his research advanced the intersection of technology innovation, resource efficiency, and industrial competitiveness. He also completed a Master of Technology in Metallurgical Engineering, a joint programme between the University of Johannesburg and Freiberg University in Germany, equipping him with a global perspective on mineral processing and advanced materials engineering.

Over the course of his career, Dr. Madzivhandila has combined technical expertise with strategic leadership to drive initiatives that unlock value from South Africa's mineral resources. He worked in local mining industry as well as in manufacturing industry. His work spans beneficiation strategy development, metallurgical innovation, and the commercialization of mineral-based technologies. As a senior academic, industry practitioner, and public sector leader, he has successfully managed large-scale projects that integrate research, industrial application, and socio-economic impact.

In government, he played a pivotal role in developing the Gauteng Mineral Beneficiation Strategy, aimed at positioning minerals as a catalyst for economic diversification, job creation, and industrial transformation. His academic contributions include supervising postgraduate research on resource beneficiation, waste valorisation, and circular economy approaches in metallurgy, as well as publishing widely on sustainable mineral processing and advanced composites.

At a sectoral and international level, Dr. Madzivhandila is a respected leader, having served as President and Chairperson of the South African Institute of Foundrymen and the BRICS Foundry Association, where he provided strategic direction to improve competitiveness, promote sustainable manufacturing, and foster international collaboration in advanced manufacturing.

His governance and advisory contributions include serving as a Board Member of MINTEK, Board Member of MMSEZ, former Chairperson of the SEDA Platinum Incubator, Chairperson of the Technology Station in Electronics (TUT), and advisory board roles with technology stations at the University of Johannesburg and the Institute of Advanced Tooling.

Dr. Madzivhandila's work continues to focus on leveraging mineral beneficiation as a driver for inclusive growth, industrial resilience, and sustainable development, bridging the gap between research, industry, and policy to deliver high-impact innovation in South Africa and beyond.