

ISIC

INTEGRATION SOLUTIONS & INNOVATION CENTRE

AT YOUR SERVICE

UNLOCKING YOUR BUSINESS POTENTIAL

The key to a successful sustainable building materials business is having quality management systems that are consistently producing quality outcomes conforming to the required standards.

THE KEY TO ACHIEVING THIS AMBITION IS HAVING ACCESS TO THE RIGHT EXPERTISE

Providing unique independent technical, auditing and laboratory resources for the benefit of the Southern African construction industry.

ISIC operates one of the largest and most respected SANAS accredited Civil Engineering testing facilities in South Africa. Complying with ISO/IEC 17025, the ISIC facility has a proud record of continuous accreditation since 1995.



Why do businesses rely on the ISIC expertise?

Because we focus on adding sustainable value

We can add value to our customers' businesses through providing quality technical solutions for their product and construction project building material issues. The scope of our technical support embraces the full value circle, while customers may commission our assistance for any part or the whole process of designing, validating, implementing and optimising.

This can include:

- Product mix design, validation, site implementation and optimisation for new and existing clients, such as mixes for:
 - Ready-mixed concrete
 - Precast concrete products like railway sleepers, lintels and culverts
 - Masonry products e.g. bricks and pavers

- Mortars and plasters
- Roof tiles
- Road upgrades and soil stabilisation
- Mining backfill, shotcrete and cementitious supports
- Material assessment – cement and cementitious materials selection
- On-site troubleshooting for customers
- Contributing to the development and maintenance of laboratory testing and materials standards in South Africa
- Liaison with the scientific community of South Africa to advance building materials and science technology by providing an influential and credible research and development facility for new standards

Proven experience and leading technical resources

Specialised services

- Commercial conformance testing with regard to SANS 50197-1 and SANS 50450-1 for cement and fly ash
- Conducting internal management system audits to help you attain your ISO 9001, ISO 14001 and ISO 17025 certification and accreditation to have an advantage in the competitive market.
- Extending our reputation in the industry for specialised testing competency. Most of these tests are purposed to simulate usage quality parameters, which essentially provide peace of mind by looking at cement, fly ash and aggregates, and their performance through the eyes of our customers
- As South Africa's internationally respected pioneers in developing fly ash technology for building materials, we can offer guidance on optimising the performance of cost-effective cementitious products

Scope of Accreditation

Our SANAS (T0041) scope of accreditation covers various test methods, including all the SANS, EN tests for common and masonry cements, and other relevant SANS, EN and test methods for fly ash, aggregates and concrete. We also have an in-house developed method for Dense Medium Separation (which is a quick method for determining the amount of extender/pozzolan in cement). Within the framework of this accreditation, ISIC has the capacity and capabilities to add another 200 tests to the above methods.

International backing

Through our link to Holcim, the global leader in building materials and solutions, ISIC has access to one of the largest building materials research and development centres in the world. We also exchange information with over 60 material technology laboratories worldwide.

Centre of learning

We pride ourselves on being a centre of learning for young South African graduates. Students are provided with unparalleled opportunities for experiential training in various disciplines, enabling them to obtain their qualifications and gain work experience.

Geared to meet your needs

We offer an extensive range of laboratory and on-site services, such as:



Aggregates evaluation

- Gradings
- Relative density
- Sand equivalent
- Clay content by Methylene Blue Test
- Water absorption for sand and stone
- Organic impurities
- Presence of sugar



Concrete solutions

- Aggregates evaluation
- Selection of suitable and sustainable binder
- Concrete mix designs and verification – new designs and optimisation of existing mix designs
- Chemical admixture selection and dosage optimisation
- Rheology assessment for ready-mixed concrete (using a viscometer)
- Simulation of specific curing conditions
- Compressive and flexural strength determination
- Water permeability assessment



Precast and Tile solutions

- Input materials evaluation
- Mix design and optimisation
- Admixture selection and dosage optimisation
- Simulation of heat and/or steam curing performance



Bricks, Blocks and Domestic Pavers

- Input materials evaluation
- Mix ratio optimisation
- Simulation using our brick-making machine
- Destructive testing
- Potential efflorescence assessment by comparison



Mining solutions and Cementitious Supports – Grouts, Backfill and Shotcrete

- Input material evaluation
- Comparison of product performance using climate simulation chamber
- Shotcrete early age strength development
- Backfill long term strength stability



Mortar and Plaster solutions

- Aggregates evaluation
- Selection of suitable binder
- Optimisation of mix designs for strength
- Full evaluation of masonry cements



Specialised testing

Some of the specialised tests include:

- Heat of Hydration of cements
- Optical and stereo microscopy for sands, binders, and concrete
- Full water analysis for suitability in the construction industry
- Full chemical oxide analysis by XRF
- Sulphates and chlorides in sand and stone



Soil stabilisation

Performance and parallel testing of different binders

- Initial Lime Consumption (ICL)
- Unconfined Compressive Strength (UCS)
- Indirect Tensile Strength (ITS)
- Optimum Moisture Content (OMC)
- Optimum Density (OD)
- California Bearing Ratio (CBR)



ISIC assisted with material selection for Lesotho's Metolong Dam.

Renowned for innovation

Typical examples of ISIC's successful innovative approach to product development and extensive technical service capability are:

Material assessment for Metolong Dam

Working closely with the consulting engineers, contractors and local building material suppliers, ISIC assisted with material assessment for the RCC and CVC concrete used on the Metolong Dam project in Lesotho, and provided technical support during the Dam's construction.

Contact us

For further information on ISIC

- Please speak to your local Afrimat Sales Representative
- Afrimat Cement Call Centre on 011 657 1122
- For technical queries, please contact Afrimat ISIC on 011 226 3600

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