



# Civil Engineering Material Testing Services

Ensuring safety, quality and sustainability to the engineering, construction and infrastructure sector

SAFER  
GREENER  
SMARTER

SGS



We are the world's  
leading testing,  
inspection and  
certification  
company"



# We build trust

We are recognized as the global benchmark for quality and integrity. Our 96,000 employees operate a network of 2,700 offices and laboratories, working together to enable a better, safer and more interconnected world.

You're in the business of building and construction. It might be roads, railways or high rises, and they're highly visible to everyone. We can watch them grow from scratch, and we form expectations of them that need to be met by the quality of their design, construction and performance. We also expect them to be safe, sustainable and healthy.

You can ensure excellence by working with SGS. We help you to achieve the standards and certifications that show your customers and partners that you know exactly what you're doing and that you're doing it to an impeccable standard. Your business will stand out, giving you the edge on your competitors and providing internationally recognizable validation.

Our services include:

- Materials Testing
- Field Sampling & Prep
- Onsite Laboratories
- Geotechnical Services

# Soil & Aggregate Testing

- Sieve Analysis
- Atterberg Limits
- Foundation Indicators
- Maximum Dry Density & Optimum Moisture Content
- California Bearing Ratio
- Unconfined Compressive Strength of Stabilized Materials
- Indirect Tensile Strength of Stabilized Materials
- Wet & Dry Durability on Stabilized Materials
- Relative Density
- Stabilizer Content
- pH & Conductivity value
- Aggregate Crushing Value
- 10% FACT
- Flakiness Index
- Bulk Densities of Coarse & Fine Aggregate
- Dry Bulk Density, Apparent Relative Density & Water Absorption
- Average Least Dimension
- Sand Equivalent
- BSM TG2 – Vibratory Hammer Compaction & Tests (What is durability on stabilized materials)
- Soils Resistivity - Lab Tests (Windfarms)
- Bassons Index (Corrosivity - Full Test)
- Foundation Indicator
- Hydrometer & Double Hydrometer Analysis
- Dry Shrinkage & Wet Expansion (Concrete Aggregates)
- AAR, ASR
- PSV
- Durability Mill Index
- Tre ton Impact Value
- Compatability

# Concrete & Brick Testing

- Complete Concrete Mix Designs
- Making, Curing and Compressive Strength of Concrete Test Cubes
- Making, Curing and Flexural Strength of Concrete Beams
- Slump of Freshly Mixed Concrete
- Drilling, Preparation and Testing Strength of Cores Drilled from Hardened Concrete
- Concrete Durability Tests inclusive of Oxygen Permeability, Water Sorptivity and Chloride Conductivity
- Abrasion on Bricks
- Tensile Splitting Strength of Bricks
- Water Absorption on Bricks
- Compressive strength of Masonry Bricks & Blocks
- Grinding of Concrete Core Ends
- Clay Brick analysis
- Shrinkage & Expansion of concrete
- Carbonation and Chloride Depth Testing



# Bitumen Testing

- Dynamic Viscosity
- Ball Penetration & Resilience
- Compression Recovery
- Ring & Ball Softening Point Flow
- Dynamic Shear Modulus
- Phase angle of Asphalt Binder
- Viscosity of Asphalt Binder
- Multiple stress creep Recovery (MSCR)
- Dynamic Viscosity (Haacke)
- Resilience
- Compression Recovery
- Softening Point (R&B)
- Oliver's Bulk Density on Rubber Crumbs
- Grading & Resilience on Rubber crumbs
- RTFOT (Mass Change)
- Ductility @ 15°C
- Elastic Recovery
- Penetration
- RD of Bitumen
- Spot test

# Field Sampling & Preparation

- Sampling from Sampling Pit in Natural Gravel, Soil and Sand
- Sampling from Stockpiles
- Sampling from Conveyor Belts
- Sampling of Previously Blended (Ready mixed) Asphalt
- Sampling of Slurry Mixtures
- Sampling of Freshly mixed Concrete
- Sampling of Treated Pavement Layers
- Sampling of Road pavement Layers
- Sampling of Asphalt or Concrete from completed Layer or Structure
- Division of a Sample using the Riffler
- Division of a Sample by Quartering
- Onsite Testing
- In Place Density & Moisture Content by the Sand Replacement Method
- In Place Density & Moisture Content by Nuclear Methods
- Measurement of the Insitu Strength of Soils by the Dynamic Cone Penetrometer (DCP)
- Texture Depth of a Road Surface
- Ball Penetration Test for Surface Treatment Design
- Determination of the Longitudinal Regularity of Road Surface by means of a Rolling Straight Edge
- Plate Bearing Tests
- Concrete Rebound Hammer Tests
- BRE Screed Tests
- Concrete Depth Cover Scans
- Blouvlai Infiltrometer Tests
- Percolation Tests
- Asphalt surface rutting, surface roughness, texture and transition irregularities
- Geotechnical Investigations
- Centerline Pavement Investigations, Borrow pit and Quarry Investigations
- Excavate, Profile, Sample and Reinstatate Test Pits
- Sampling of Disturbed & Undisturbed Materials
- Sampling by means of Auger
- Arrange Specialist Drilling Services
- Arrange Specialist Geotechnical Services
- Onsite Laboratory Services
- Soils, Concrete, Asphalt and Seals Laboratories to meet the clients Scope of Services requested
- Competent Personnel for all facets of Testing Services provided
- Verified / Calibrated Equipment that is specific to the scope of service provided
- Laboratory Software Development
- SGS Matrolab/Matrocast has a software division that specialises in the development of software for most civil Engineering testing
- Consolidated, Drained Triaxial
- Permeability Testing
- Falling Head Permeability
- Constant Head Permeability
- Shearbox Testing
- Consolidated, Drained Shearbox test
- Dispersivity

# Performance Asphalt Testing

- SGS is capable of performing Level I, level II and Level III asphalt mix designs as a per SABITA Manual 35.
- The test on Performance Grade binders (PG binder) to SATA 3208/SABITA Manual 39 specification
  - Flexural creep properties of bituminous binder using a Bending Beam Rheometer (BBR)
  - Rheological properties of bituminous binder using a Dynamic Shear Rheometer (DSR)
    - PG Grading ( $G^*SIN\delta$ )
    - Frequency Sweep (and Ageing Ratio)
    - Multiple Stress Creep and Recovery (MSCR)
  - Ageing of Bitumen, RTFO (Rolling Thin Film Oven) and PAV (Pressure Ageing Vessel)
  - Storage Stability
  - Dynamic Viscosity (Brookfield)
  - Flash Point
- Advanced Tests on Asphalt Mix
  - Compaction of Asphalt in the Gyratory Compactor
  - Fatigue Characteristics of Asphalt in the Four-Point Bending Beam Device.
  - Dynamic Modulus of Compacted Asphalt
  - Rutting and Stripping of Compacted Asphalt in the Hamburg Wheel Track Device
  - Water Permeability of Asphalt Mixes





Our unrivaled global network



**500+**

Laboratories

**130+**

Countries

**140+**

Years





## Contact Us

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