



# Construction Materials Testing

Services and Capabilities for Australia

SAFER  
GREENER  
SMARTER

SGS





# Where Accuracy Meets Reliability

For over **20 years**, SGS Construction Materials Testing have offered a **full range** of materials testing.

Our testing is designed to suit the requirements of local, national and international civil engineering contractors, consultants as well as manufacturers, the resource industry and government agencies.

SGS' professional standing and commitment to the highest standards of quality, safety and health is reinforced by accreditations held with NATA, ISO 17025 & 9001, ensuring we meet Australian and international standards.

We can offer you more than just test results. A key to our service is technical support, practical recommendations and solutions using a wide range of technical equipment and software analysis tools which enables you to tap into a wealth of geotechnical and materials technology experience and capabilities.

At SGS, we pride ourselves on our integrity within the Construction Materials Testing market, offering you a level of transparency that sets us apart. We understand the importance of trust and authenticity when it comes to test certificates, which is why we offer a unique service within the market.

**We provide a wide range of materials testing services, technical support, and transparency in the market, ensuring integrity, reliability, and accurate test certificates for our clients.**

With us, you have the power to verify any SGS test certificate. Simply send us a copy of the certificate through our secure website, and we'll ensure its authenticity by comparing it to the original certificate, providing a response detailing if the certificate is the original or not. This service not only guarantees transparency but also acts as a robust defense against counterfeit/doctored test certificates.

Rest assured that when you choose SGS, you're choosing a partner committed to the highest standards of integrity and reliability. Our dedication to providing you with accurate and trustworthy test certificates is at the heart of everything we do.

**“**  
Our commitment is to provide precise, reliable, and comprehensive testing services to ensure that every material meets the highest standards of durability, strength, and safety”  
**CHRISTOPHER HOWARD**  
**CMT BUSINESS MANAGER**







# Soils

At SGS Construction Materials Testing, we pride ourselves on being one of Australia's top laboratories in the field of soil testing. We offer a wide range of tests, conducting over 200 different methodologies that adhere to Australian standards and local authority requirements, including state main roads authority standards. Our testing capabilities span from basic soil classification tests to advanced soil chemical and mechanic testing, ensuring we can meet your project's specific needs.

Our soil testing laboratory provides technical data throughout the project lifecycle, from the initial design phase to quality control testing during construction.

## **SAMPLING**

- Full scope of sampling for any site conducted to AS and MRWA methods

## **CLASSIFICATION**

- Particle Size Distribution
- Hydrometer Analysis
- Plasticity Index
- Linear Shrinkage
- Emerson Test
- Dispersion-Pinhole
- Shrink-Swell Index
- Permeability – Falling and Constant Head

## **COMPACTION STRENGTH AND DENSITY**

- Onsite Nuclear Density
- Field Density – Sand Replacement
- Dynamic Cone/Perth Sand Penetrometer
- Particle Density
- Density and Moisture
- Volume Correction
- Compaction Test – Standard and Modified
- Lime/Cement Stabilised Soil Testing

## **STRENGTH**

- California Bearing Ratio
- Maximum Dry Compressive Strength
- Onsite Plate Load/Bearing Capacity
- Unconfined Compressive Strength

## **CHEMICAL, CONSOLIDATION AND DIRECT SHEER**

- Calcium Carbonate
- Electrical Resistivity
- Thermal Resistivity and Conductivity
- pH – Soil or Water
- Organic Matter
- Presence of Sulphides
- Limit of Foreign Materials
- Consolidation – Undisturbed and Remoulded
- Direct Shear



# Concrete and Aggregate

We are proud of the extensive range of concrete and aggregate testing services offered at SGS Construction Materials Testing Laboratory. Our testing procedures adhere to Australian Standards, American Standards, and British Standards, along with our own proprietary methods. This allows us to conduct a wide variety of tests to ensure thoroughness and accuracy.

Our dedicated concrete and aggregate section offers support throughout the entire process, from the sourcing of aggregates at the quarry or stockpile to on-site quality control monitoring and physical characterisation of the aggregate in our base laboratory.

With a deep understanding of aggregate properties for various applications such as concrete, asphalt, road sealing, and rail ballast, we provide a full suite of tests to ensure a thorough understanding of your material characteristics.

When it comes to shotcrete testing, SGS is among the select few laboratories accredited for the Round Determinate Panel Test (RDP), the premier safety test in the mining and tunnelling industry. This accreditation underscores our commitment to ensuring the highest standards of safety and quality in shotcrete applications.

## CONCRETE STRENGTH TESTS

- Concrete Cylinders and Cores
- Grout Cubes and Cylinders
- Round Panel Flexural Strength
- Indirect Tensile Strength
- Flexural Strength - Beam

## CONCRETE ON SITE TESTS

- Sampling and Casting of Cylinders
- Slump Test
- Air Content
- Rebound Number

## CONCRETE OTHER SERVICES

- Water Absorption and Volume of Permeable Voids
- Concrete Coring
- Trial mix Testing of grout and concrete
- Ultrasonic
- Dry Shrinkage

## AGGREGATE SIZE, SHAPE AND DENSITY

- Particle Size Distribution
- Clay and Fine Silt
- Particle Density
- Flakiness Index
- Average Least Dimension
- Bulk Density of Aggregate
- Particle Shape

## AGGREGATE DURABILITY TESTS

- Los Angeles Value
- Aggregate Crushing Value
- Sodium Sulphate Soundness
- Weak Particles
- PAFV - Polished Aggregate Friction Value
- Resistance To Stripping
- Wet/Dry Strength Variation
- Wet/Dry Attrition
- Bond Abrasion Index

## AGGREGATE CHEMICAL AND OTHER PROPERTIES

- Crushing and screening of rock and core
- Onsite Armour Stone Evaluation to BS EN 13383
- Organic Impurities Other Than Sugar
- Colour Of Aggregate
- Light Particles
- Petrographic and Secondary Mineral Content
- Degradation Factor
- Accelerated Soundness Index by Reflux



# Rock Properties

At SGS, we take pride in our NATA accreditation, showcasing our extensive expertise in rock mechanics testing. Our focus on testing the strength and physical properties of rocks during the design phase provides you with invaluable data that can save you both time and money in the long run. By enabling design modifications from the outset, rather than waiting for issues to surface, we empower you to proactively address potential challenges.

We understand that every construction environment is distinct, presenting its own set of circumstances. That's why we offer customised testing regimes for your materials, tailored to meet your specific requirements. Our commitment to providing personalised solutions ensures that you receive accurate and relevant information to inform your decision-making process.

## ROCK MECHANICS TESTING

- Point Load Index
- Uniaxial Compression, Modulus and Poisson's Ratio
- Raise Bore Index
- Indirect Tensile Strength
- Cerchar Abrasion Test
- Direct Shear Test
- Density Porosity and Density
- Slake Durability
- Ultrasonic Pulse Velocity P/S wave

# Masonry, Blocks and Tiles

When it comes to construction, there's no room for compromise. Building structures that stand the test of time requires precision, quality materials, and unwavering attention to detail. We understand the critical role that masonry materials play in construction. Our testing facilities and expert team of technicians are dedicated to accurate assessments of the quality, performance, and durability of your masonry products, be it tiles, bricks, limestone retaining blocks or existing structures.

With our comprehensive suite of tests, we provide you with invaluable insights for your construction projects.

## MASONRY, BLOCK & TILE TESTING

- Compressive Strength, tiles, limestone blocks RLBMA, bricks, and brick piers
- Breaking Load
- Bond Wrench
- Resistance to salt attack
- Tensile Strength
- Modulus of Rupture

- Abrasion Resistance
- Water Absorption
- Potential to Effloresce
- Permeability to Water
- Pedestrian Skid/Slip Resistance (in the laboratory or onsite)



# Specialised Testing

SGS Specialised Construction Materials Testing laboratory stands as a prominent entity in Australia, earning recognition as one of the leading private-sector materials testing authorities in the region. With a steadfast commitment to excellence, we have garnered an international reputation that extends far beyond our national borders. As an organisation dedicated to serving the Asia Pacific regions, we take pride in providing comprehensive testing services tailored to meet the specific needs and requirements of our diverse clientele.

Our experts leverage state-of-the-art equipment and advanced testing protocols to deliver precise and trustworthy results. We continuously invest in research and development, staying abreast of emerging technologies and industry advancements, to provide our clients with the most accurate and up-to-date testing solutions available.

## CHEMICAL ANALYSIS OF CONCRETE, MORTAR & AGGREGATE

- Chloride and sulphate content
- Cement content
- Original Water/Cement ratio in concrete
- Cement & lime content to determine original volumetric proportions in mortars
- Loss on ignition
- Detection of sugar contaminant
- Depth of carbonation
- Depth of silane penetration
- Accelerated carbonation exposure

## PHYSICAL TESTING OF CONCRETE, MORTAR & AGGREGATE

- Water permeability
- Water absorption
- Sorptivity
- Void content/capillary porosity
- Chloride diffusion resistance
- Rapid chloride permeability
- Potential alkali reactivity by AMBT
- ASR screening on hardened concrete

## PROTECTIVE COATING FOR CONCRETE

- Carbon dioxide diffusion resistance
- Water vapour diffusion resistance
- Chloride diffusion resistance
- Water permeability
- Adhesion testing

## CHEMICAL ANALYSIS OF SOIL & WATER

- Total soluble salts and chloride content
- Sulphate content
- Organic content
- pH value determination
- Lime saturation point of soil





# Site and Field Laboratories

Given the vast expanse of Australia it is only natural you may require geotechnical testing in a remote location at some point. Having identified this need we complement our metropolitan field testing with project and site laboratories.

When you are in remote locations, timing becomes a critical issue. We are accredited by NATA to establish our own onsite laboratory with a capacity to deploy testing facilities at any time.

Our field technicians have remote and offshore experience with specialised skills for road, rail, mining and building projects, providing you with continuous, flexible, efficient, and integrated project support.

We have provided over 100 project and site laboratories since our formation, earning a reputation for first-class, onsite support.

SGS site laboratories are fully equipped to provide compaction control, including in-situ density, moisture, concrete sampling, curing, and testing, penetrometer and classification testing. Certificates of endorsement can be provided to you onsite, saving you time and project flexibility. .



We are SGS – the world’s leading testing, inspection and certification company. We are recognised as the global benchmark for sustainability, quality and integrity. Our **97,000** employees operate a network of **2,650** offices and laboratories, working together to enable a better, safer and more interconnected world.





# Global Reach



The capabilities and capacity of SGS will ensure all material testing requirements can be conducted in-house with one provider. Tests referred to are a small sample of what we have to offer.

A full list of our testing capabilities can be found on our website to meet your job specific requirements.

The quality and technical accreditations of the company coupled with extensive technician experience and qualifications ensure that all activities are conducted thoroughly and accurately.

The quality systems in place and our supporting software management system will enable efficient management and reporting of results in support of any project big or small.

Contact us to for construction materials expertise and a comprehensive range of testing services ensure the quality, safety, and compliance of your construction projects, giving you peace of mind and helping you deliver high-quality and durable structures.

## CONTACT US

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**WHEN YOU NEED TO BE SURE**

