HALLETT
LABORATORY

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HISTORY & SCOPE OF HALLETT LABORATORY

Hallett Laboratory is a NATA accredited laboratory facility which undertakes testing in the Cement, Lime, Aggregates & Soils and Concrete fields. Hallett Laboratory personnel have extensive experience in their respective fields and our laboratory technicians are all highly qualified and experienced. Hallett Laboratory is committed to maintaining the highest standards in professional and ethical conduct and is always seeking to extend the scope of its NATA accreditation to better suite the needs of the industry and of our customer base. The laboratory routinely participates in independently conducted proficiency testing to ensure that our results are of the highest quality.

Hallett Laboratory is the central testing provider for Hallett Construction & Mining Materials as well as many other customers.

Hallett Laboratory was NATA accredited in early 2016. We have progressively acquired the best technical and skilled experts in the industry and through their guidance, Hallett Laboratory is now recognized as one of the most capable testing and R&D laboratories in the country and provides unparalleled testing capability in South Australia. With 6 current or former NATA certified signatories we have incredible depth and talent held within a current team of 20 staff including numerous Civil and Chemical Engineers.

Hallett Laboratory provide an extensive and diverse range of testing services, developing and testing cement, lime, concrete, backfill, shotcrete and other specialized mix designs to meet a wide variety of specifications and desired attributes.

HISTORY & SCOPE OF HALLETT LABORATORY (continued)

With Australian Standard AS17025 accreditation, quality remains at the forefront of the operation and as such, the Laboratory has been fully equipped to cater for current demand and future growth. Following an investment of over $1 million to further bolster existing cement, concrete and materials testing technical support services, Hallett Laboratory have now commissioned their new cement and supplementary cementitious materials testing laboratory located at the Dry Creek operations. The installation of this brand new, state of the art laboratory testing equipment enables Hallett Laboratory to provide customers with an unprecedented level of customer focused technical support that now includes a complete suite of cementitious materials testing services.

Not only does the expansion to the laboratory capabilities further underpin our commitment to supplying customers with the highest quality, performance guaranteed materials available within the market, but it is a testament to our continuing focus on quality control and product innovation, while providing customers with the peace of mind that the products they receive have been tested to the full Australian Standard requirements prior to delivery.

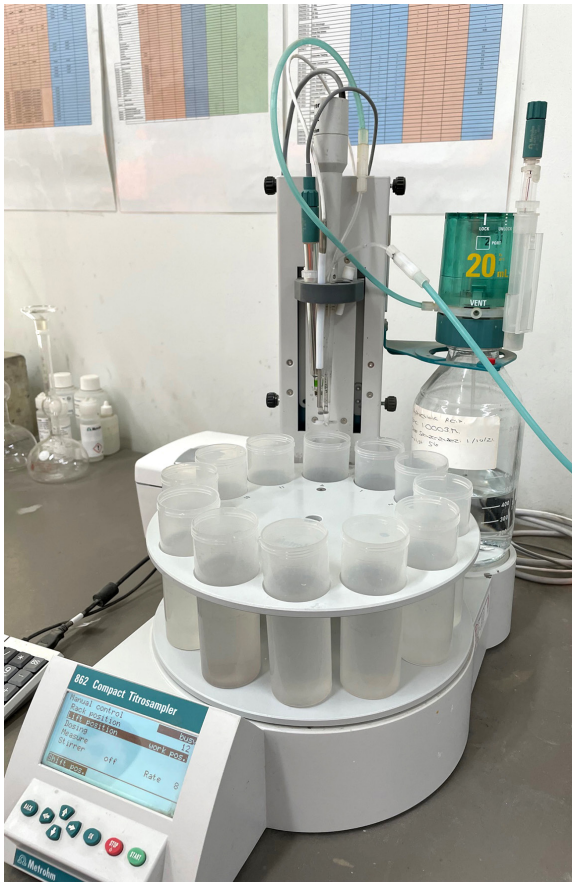
With well over 100 years combined Industry experience including an unrivalled level of technical expertise and knowledge, our team at Hallett Laboratory offer a unique approach to personalised customer service that provides our customers with genuine value that extends well beyond supplying premium quality products at highly affordable prices.

Hallett Laboratory also provide additional services specific to the Mining Industry. Resulting product test certificates are made available prior to the delivery of its cement, placing the mine at a significant advantage when compared with its current position. Advance notice of the specific product reactivity will provide the mine with the ability to optimise its mix costs and understand all elements of product quality well before the product is received on site. This is a luxury enjoyed by several Australian mines currently favouring this supply model who require clarity, foresight and consistency in their cementitious product supply to unlock value beyond the cost of the powder itself and ultimately drives a significant reduction in the volume of product required.

TESTING OVERVIEW

CONCRETE TESTING

Concrete testing is a critical part of the construction industry and Hallett Laboratory can ensure that the concrete meets the desired requirements. Our facility is also equipped to conduct trial mixes to ensure that the design specifications meet the customers needs before any concrete is poured on site. Our facility has recently increased our scope to include **NT443 Chloride Penetration resistance which is becoming increasingly important to the industry**.



CEMENT, FLYASH, SLAG AND LIME TESTING

Our Cement testing facility is the newest development at Hallett Laboratory, part of our commitment to develop our capabilities for our clients requirements. This state of the art facility covers a wide range of cement testing with excellent turn around times, and now incorporates cement, flyash, slag and lime testing into scope.

AGGREGATE & SOIL TESTING

Aggregate & Soil testing is an essential part of the construction industry and Hallett Laboratory delivers an extensive set of testing services for our clients. Our technicians have an extensive skill set and provide assurance that the materials meet the desired specifications.

TRIAL MIXES

Hallett Laboratory has an on site trial facility at Dry Creek which is equipped to carry out a range of trials to suit the individual needs of the customer. The trial is supported by a team of experienced technical supervisors to ensure that we achieve the desired outcome for the client.

QUALITY POLICY

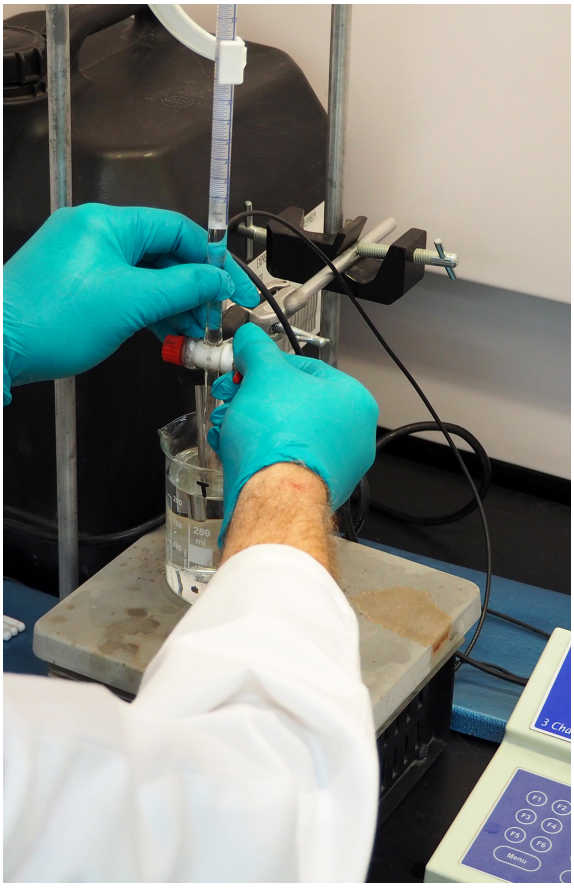
The provision of accurate and timely test results in accordance with stated test methods and customer requirements are critical to the success of our customers.

Hallett Laboratory is committed to maintaining the highest standards of professional and ethical conduct and to continually meet and exceed the expectations of our customers in a manner that it safe to both our employees and the community and complies with statutory and regulatory requirements.

NATA accreditation and compliance with AS ISO/IEC 17025 shall be the minimum standard adopted by Hallett Laboratory to manage its business and provide a system and framework to ensure continual improvement.

All employees have a responsibility to familiarize themselves with quality documentation and comply with all company policies.

Kane Salisbury
CEO - MSP Group of Companies



NATA

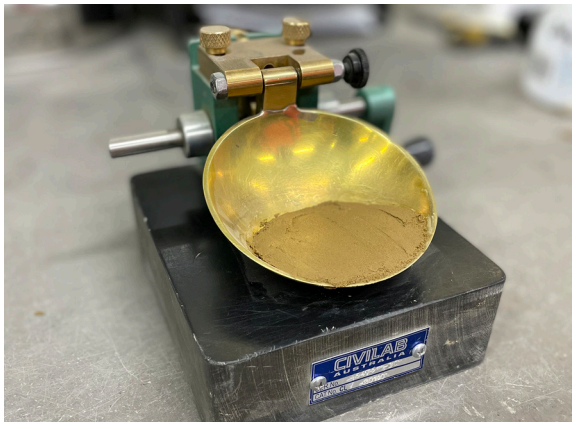
NATA accredited in 2016, Hallett Laboratory is committed to maintaining the highest standards in professional and ethical conduct, this is the reason we have extend the scope of our NATA accreditation to better suite the needs of customers.

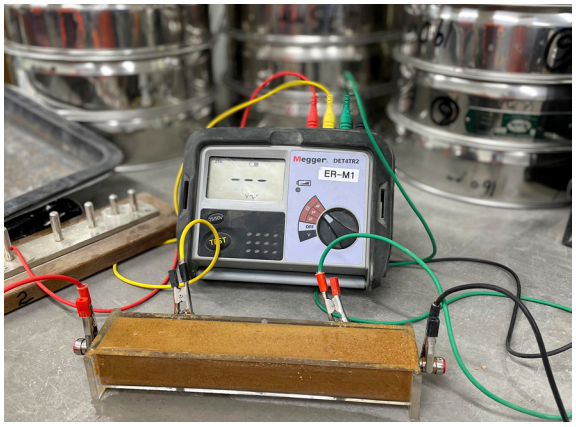
Hallett Laboratory are now NATA accredited for cement, lime, flyash and slag testing services to complement the existing construction materials testing NATA accreditations, which Hallett Laboratory received in February 2019.

The laboratory routinely participates in independently conducted proficiency testing to ensure that our results are of the highest quality.

NATA Accreditation Information

Accreditation No.	19646
Facility Name:	Hallett Laboratory
Site No.	22770
Site Name:	Hallett Laboratory





KEY PERSONNEL

At Hallett Laboratory we pride ourselves on having a highly skilled team who can adapt to the customers testings requirements no matter the complexity of the requirements. Our has multiple bachelor's degrees in Science & Engineering and an experienced technical team.

Campbell Coghlan - Concrete Technical Manager

Campbell joined Hallett Laboratories in November, 2018 as the laboratory manger overseeing testing, safety and NATA accreditation for the laboratory. He has spent the last 5 years at the University of Adelaide managing multiple laboratories and developing cutting edge science developing new materials (concrete blends (with improved strength and durability), polymer blends and catalytic materials) in the fields of civil engineering, chemical engineering and chemistry.

Campbell has a Bachelor of Science and a PhD in Chemistry from Monash University and has worked in Chemical Engineering and Civil Engineering at the University of Adelaide before his current appointment.

Gurpreet Singh - Concrete Technical Manager

Gurpreet joined Hallett Laboratory as the Technical Supervisor in 2016. Previously he worked as the Material Engineer for Holcim Australia. With a Bachelor Degree in Civil Engineering Gurpreet sets out to learn as much as he can with a goal of achieving whatever practically possible with positive customer experiences.

With more than 14 year's experience in the concrete industry, Gurpreet has been involved in major projects throughout South Australia over the last decade.

KEY PERSONNEL (continued)

Mars Capasso – Product Innovation & Sustainability General Manager

Spanning a 30 year career in the construction materials industry, Mars Capasso is a nationally and internationally respected cement chemist with extensive cement, cementitious materials and manufacturing plant experience. Mars has been employed in roles ranging from plant chemist through to national responsibilities for product and system quality.

Apart from a Diploma in Applied Chemistry (Analytical Chemistry) Mars also holds a Bachelor Degree in Management.

Simon Gardner - Laboratory Manager

Simon Gardner joined Hallett Concrete in 2018 as a Product Development Supervisor. Previous to Hallett, he was a Senior Laboratory Technician and a Shift Chemist at Adelaide Brighton Cement for 25 years. His experience includes chemical and physical testing of cement, citect operation and quality control in the production of cement from quarry to silo.

Simon is NATA Technical Assessor and assess laboratories for the competence in a variety of tests. Simon has a Diploma in Laboratory Technology and over 3 decades in the Laboratory field, which includes a Laboratory Technician at Wolf Blass.

KEY PERSONNEL (continued)

Anton Cugura - Assistant Laboratory Manager

Anton has a Bachelor of Engineering degree in Chemical Engineering and a Bachelor of Science degree in Chemistry from the University of Adelaide.

Joining Hallett Concrete in 2017, Anton has been developing his technical knowledge in the construction materials industry as a technician in Hallett Laboratories. Anton has been an integral part of the expansion in the laboratory's scope of testing with the integration of cementitious materials testing, complementing the concrete and raw materials testing capabilities of the lab.

Bryan Dodd - Raw Materials Technical Supervisor

Bryan has a Bachelor of Technology and has nearly a decade of experience in various mechanical and chemical testing, having previously worked as a materials scientist with Amdel and Bureau Veritas.

Bryan joined Hallett Laboratories in May, 2016 as a laboratory technician. He has since taken charge of a team ensuring the quality of the aggregates and soils used every day in projects around South Australia.

KEY PERSONNEL (continued)

Javier Jimenez – Cement, Lime, Slag and Fly Ash Team Leader

Javier has a Bachelor of Civil Engineering degree and joined Hallett in 2018. Javier started here at Hallett as a Concrete Tester before taking over the role of Cement Team Leader. Javier has extensive knowledge in the field and in constantly his knowledge base.

Sukhdev Singh - Concrete Lab Team Leader

Sukhdev has a Bachelor of Engineering degree in Civil Engineering.

Since joining Hallett Concrete in 2017, Sukhdev has developed his technical knowledge in Construction Materials, with a particular focus on concrete. Sukhdev has been pivotal to the laboratory's continued improvement in its service & systems by implementing innovative solutions to the business.

As Team Leader in charge of the operational and technical control of the concrete laboratory, Sukhdev oversees to the maintaining compliance for test methods and regulatory bodies and also ensures that the laboratory maintains its focus on delivering a quality offering to its clients.

Sukhdev sets out to learn as much as he can to achieve whatever is practically possible with positive customer experiences.

KEY PERSONNEL (continued)

Graeme Ween - Concrete Field Testing Team Leader

Graeme joined Hallet in 2016 bringing with him over 25 years' experience in the construction industry. Having started as a driver, he put his hand to concrete testing, batching, and shipping before taking on various managing roles in the country region. Because of this Graeme has an excellent understanding of concrete, people management and customer service.

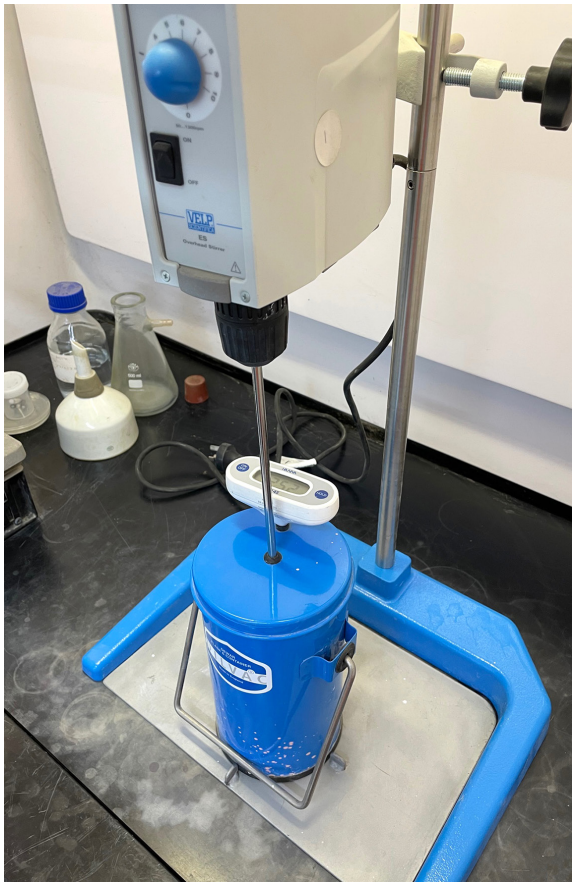
As Team Leader, Graeme's role is to allocate all concrete testing requirements for each individual project and customer on a daily basis. Graeme's focus on morale has ensured that the lab always functions as a team and has allowed the lab to grow into the optimal work unit that it is today.

CEMENT TESTING

AS2350.2.5.2	Chemical Composition by XRF (CaO, SiO2, Al_2O_3, Fe2O3, MgO, Na2O, K2O, SO3)
AS2350.2.5.5.2	Loss on Ignition
AS2350.2.5.5.3	Insoluble Residue
AS2350.3	Normal Consistency
AS2350.4	Setting Time
AS2350.5	Soundness
AS2350.8	Fineness Index Air Permeability
AS2350.9	Fineness 45 µm Sieve
AS2350.11	Compressive Strength
AS2350.13	Drying Shrinkage
AS2350.14	Expansion of Cement Exposed to Sulfate
ASTM C118	Density of Hydraulic Cement
-	Particle Size Distribution - Mastersizer
-	Cement Mineralogical Composition by XRD
AS3583.1	Fineness 45 µm Sieve
AS3583.2	Moisture Content
AS3583.3	Loss on Ignition
AS3583.5	Relative Density
AS3583.6	Relative Water Requirement and Relative Strength
AS3583.7	Sulfide Sulfur
AS3583.8	Sulphuric Anhydride (Subscript 3) Content
AS3583.13	Chloride Ion Content
AS3583.14	Insoluble Residue

LIME TESTING

AS4489.2.1	Fineness - Wet Sieving
AS4489.3.1	Slaking - Dewer Flask
AS4489.4.2	Soundness - Le Chatelier
AS4489.6.1	Lime Index - Available Lime
AS4489.7.1	Loss on Ignition - Quicklime, Hydrated Lime and Limestone
AS4489.8.1	Free Moisture - Convection Oven
AS4489.10.1	Bulk Density - Quicklime, Hydrated Lime and Limestone



CONCRETE TESTING

AS1012.9	Compressive Strength of Concrete
AS1012.3.1	Concrete Slump (Additional when on site)
AS1012.3.5	Slump Flow, T500 and J-Ring Test
AS1012.4.1	Air Content
AS1012.5	Mass per Unit Volume of Freshly Concrete
AS1012.6	Bleeding of Concrete
AS1012.11	Flexural Strength of Concrete
AS1012.12.1	Determination of mass per unit volume of hardened concrete - Rapid Measuring Method
AS1012.12.2	Determination of mass per unit volume of hardened concrete
AS1012.13	Concrete Drying Shrinkage
AS1012.14	Concrete Core Testing (per Core Cored by Customer)
AS1012.17	Modulus of Elasticity
AS1012.18	Concrete Setting Time
AS1012.20	Chloride Content is Hardened Concrete and Aggregates
AS1012.20	Sulfate Content in Hardened Concrete and Aggregates
AS1012.21	Water Absorption and Apparent Volume of Permeable Voids
EN14651	Test method for metallic fibered concrete - Measuring the flexural tensile strength
ASTM C1609	Standard Test Method for Flexural Performance of Fiber-Reinforced Concrete
NT443	Accelerated Chloride Penetration

RAW MATERIALS TESTING

AS1141.4	Bulk Density of Aggregates
AS1141.5	Particle density and water absorption of fine aggregate
AS1141.6.1	Particle density and water absorption of coarse aggregate—Weighing-in water method
AS1141.11.1	Particle Size Distribution of Aggregate
AS1141.12	Materials finer than 75µm in aggregates (by Washing)
AS1141.14	Particle Shape by Proportional Calliper
AS1141.15	Flakiness Index
AS1141.16	Angularity Number
AS1141.20.1	Average Least Dimension (10mm and greater)
AS1141.20.2	Average Least Dimension (5mm and 7mm)
AS1141.20.3	Average Least Dimension (Calculation nomograph)
AS1141.21	Aggregate Crushing Value
AS1141.22	Wet / Dry Strength Variation
AS1141.23	Los Angles Value
AS1141.24	Sodium Sulfate Soundness
AS1141.30.1	Coarse Aggregate Quality - Visual Comparison
AS1141.31	Light Particles
AS1141.32	Weak Particles
AS1141.33	Clay and Fine Silt
AS1141.34	Organic Impurities Other than Sugar
AS1141.35	Sugar
AS1141.66	Methylene Blue
AS1289.2.1.1	Moisture Content of a Soil - Oven Drying Method
AS1289.3	Atterberg Limit
AS1289.3.6.1	Particle Size Distribution of Soil
AS1289.4.3.1	pH Value of a Soil
AS1289.4.4.1	Electrical Resistivity
AS1289.5.1.1	Dry Density / Moisture Content Relation of a Soil (Standard Compaction)
AS1289.5.2.1	Dry Density / Moisture Content Relation of a Soil (Modified Compaction)
TP134	Particle Size Distribution
TP240	Elongation Index
TP241	Flakiness Index
TP244	Percentage Flat Particles

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