

Easy Soil Testing at a South African Fertilizer Manufacturer



Omnia Fertilizer is part of the Agriculture Division of Omnia and a market leader in its field in South Africa. This strong agronomic unit plays an important role in advising and providing tools so farmers can improve their practices. They produce and sell ammonium-nitrate based, chemically granulated compounds, liquids, and specialty fertilizers that optimize the quality and yield of crops while also reducing risk to farmers and the environment. Customers include farmers' cooperatives and wholesalers in East Africa, Australia, New Zealand, and Brazil. They plan to expand into the Europe, South America, and Asia in the near future. With their world class laboratories and production facilities, clients are provided with products that are in compliance with strict standards.

Profile

The R&D department within Omnia Fertilizer is client driven and focused on improving yields by examining the nutritional issues of plants. Product development is based on extensive research conducted on commercial farms across a range of environments.

In the past, the R&D lab used a Segmented Flow Analyzer (SFA) to measure soil bray 1 extract. With 4000 samples to test each day during the May to October growing season, operating a SFA was a tedious process. Samples are run 24 hours a day over four shifts under International Standards Organization (ISO) 17025 guidelines. Using SFA equipment required the expertise of a specialist who could not only operate the instrument, but troubleshoot the problems. In addition, the equipment regularly experienced maintenance issues.

ISO 17025 Standards

ISO 17025 standards specify general requirements for competence in performing tests or calibrations. This directive encompasses sampling, testing, and calibrations performed using standard methods, non-standard methods, and laboratory developed methods and is recommended for use by laboratories following good practices in quality and technical management.

The Gallery analyzer is operator friendly, simple to use and capable of saving significant amounts of time.

To solve their problems, the managers of the lab purchased a Thermo Scientific™ Gallery™ discrete analyzer. With four people trained to utilize the instrument, they immediately discovered it was operator friendly, simple to use, and capable of saving significant amounts of time. Later, they learned that tests demonstrated good repeatability and the LIMS interface was a much easier integration.



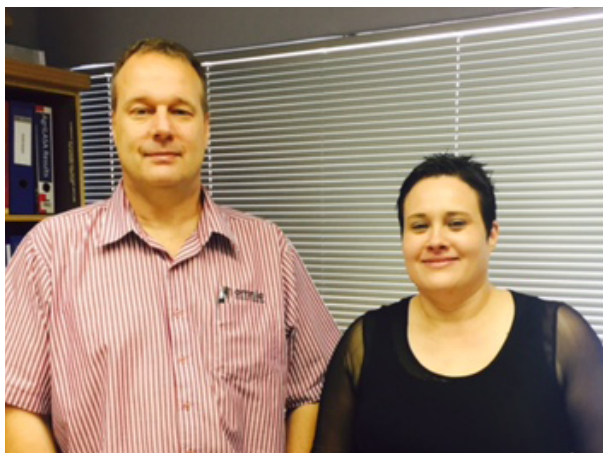
Soil samples and Gallery analyzers in the Omnia R&D laboratory.

Edna Laubscher, Chemtech Analytical Services Manager, mentioned an added bonus, "Maintenance is substantially less than with our older test methods."

As a fertilizer manufacturer that is providing agronomic recommendations to advise farmers on the requirements for soil augmentation, accurate and reliable results are essential. They hope to add validated tests for total nitrogen and Mehlich III Phosphorus (P) in soil. Since phosphorus is an essential growth element for plants, it is more accurate to determine the concentration of "plant-available" P and decide whether that concentration is sufficient for optimal plant growth. "Plant-available" P is defined as a correlation between the amounts of

P chemically extracted from soil vs. the amount of P absorbed by the plant. The better the correlation is, the better the test. The Mehlich III P test was developed in 1984 to test acid/neutral soils in the North Central Region of the United States. It was found that by using this test, the concentrations of "plant-available" potassium (K) and other nutrients could potentially be determined at the same time.

At Omnia Fertilizer, the R&D department is client driven and focused on improving yields for farmers by examining the nutritional issues of plants. Extensive research is conducted on commercial farms across a range of environments prior to product development. With 4000 samples to test every day during the busy season, the lab managers updated their instrumentation to include an automated Gallery discrete analyzer. They not only realized the benefits of an operator friendly, simple to use instrument capable of saving significant amounts of time, they realized that tests demonstrated good repeatability.



Vossie Wilsnach, Chemtech Manager
Edna Laubscher, Chemtech Analytical Services Manager

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Edna Laubscher,
Chemtech Analytical Services Manager,
Omnia Fertilizer

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