HortiSoil

LABORATORY TRAINING PROSPECTUS 2018

HortiSoil

Contents

Hortisoil Company Profile

Business Name: Hortisoil Pty Ltd.

Mailing Address: P.O. Box 727 Sedgefield 6573

Phone: 061 455 6981

Email: info@hortisoil.co.za

Website: www.hortisoil.co.za

Business Type: private company

Primary Line of Business: Training, Analytical and Consultation Services

Primary Audience: Mining and Agricultural Industries

Leadership/Management

Coenie Potgieter, Manager

Conrad Potgieter, Director

Johan Potgieter Pr.Sci.Nat , Director

Company Overview

Brief History:

We saw the need for individualized vocational training in 2015. Coenie Potgieter joined the team with more than 30 years' experience in laboratory management and training while he also owned his own analytical laboratories. Coenie was privileged to set up various Laboratories in the Uranium ore field as well as Iron and Manganese ore in the Northern Cape. With Dr. Clive Feather some of the most comprehensive Iron and Manganese's calibrations was done on Pressed powder pellets and Fused beads for XRF. Most of the start-up mine laboratories where done with traditional titrations. From 2005 Coenie trained nearly a thousand learners in the mining laboratory industry in the whole of Southern Africa.

With the experience and deeper understanding that Coenie brings to our team, we were compelled to extend our reach to the agricultural sector by becoming an accredited training provider with the AgriSETA (Provider number: AGRI/c prov/0823/17, ETQA Id : 694), for the agricultural industry we recruited Johan Potgieter Pr.Sci.Nat (Professional Natural Scientist, registration number 117501) with a BScAgric in Soil Science and Horticultural and he is currently finishing a MScAgric in Greenhouse Crop Production Systems at the university of Stellenbosch. Johan worked for both primary agricultural farms and agricultural consultation companies before joining forces with Hortisoil. Johan's primary focus is to consult small, upcoming and commercial farmers on an independent, holistic and scientific base, as well as providing more than just consultation by empowering the farmworkers with knowledge and self-esteem which is provided by the AgriSETA. Given Hortisoil's holistic approach to agricultural, it only makes sense that we also provide analytical services for the agricultural sector.

Hortisoil also boasts with a financial services department which is led by Conrad Potgieter (Bcom, BCom(Hons), BCompt and almost finished with his Chartered Accountant Studies). The financial department provide financial services for clients in the agricultural, mining and private sectors. We also train non-financial managers to manage their responsible finances.

Summary of Primary Offering:

Hortisoil offers professional consultation and training to the mining, agriculture and private sector.

HortiSoil

Course Title: GOOD LABORATORY PRACTICE (GLP)

Aim of Workshop

To create an awareness regarding the importance of delivering and maintaining quality laboratory services through the Good Laboratory Practice Principles and Applications.

Duration

2.5 Days

Safety

- General Lab Safety Overview.

Critical Parameter

- Introduction and History of GLP.
- Definition of GLP.
- Purpose of GLP.
- Principles of good laboratory practice in a mining analytical laboratory:
- Laboratory safety and hazardous chemical handling.
- Sampling.
- Sample receiving.
- Sample Preparation – the complete process.
- Analytical equipment and testing methods.
- Report generation (raw data) and reporting.
- Sample and document storage and Retention times.
- Comparison ISO 17025 and GLP.
- Test Facilities and Infrastructure.
- Bench analytical techniques and correct use of glassware and laboratory items – the fine detail.
- Receipt, handling, samples and storage – overview.
- Quality Management System:
    - Policies and Procedures
    - SOP'S Methods
    - Forms

  - Procedure changes
  - Procedure Review
- Conducting sample analyses – turnaround time management.
- Validation of Methods.
- Calibration of Balances, Glassware, Instrumentation and evidence gathering.
- The importance of Round Robins and Inter Laboratory Proficiency Testing.
- Saving on Consumables, Reagents and caring for laboratory equipment!
- Summary

Assessment Feedback

HortiSoil

Course Title: ICP-OES TRAINING – A Practical Approach

Aim of Workshop

Skills development to operate the ICP effectively and to process analytical data. Practical approach for day to day smooth operation.

Duration

10 Days. At Hortisoil Research Laboratory in the Western Cape.

Safety

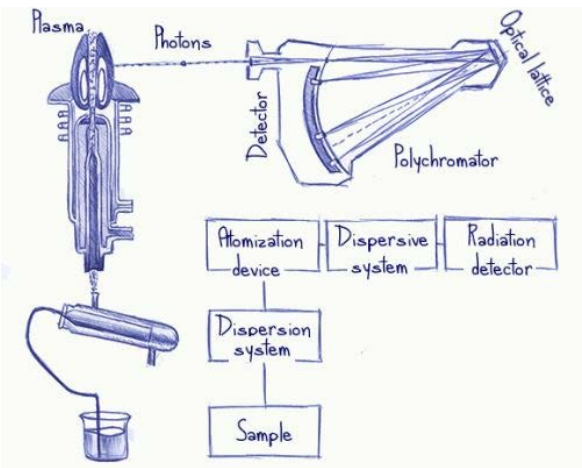
- Safe Argon gas changing procedure
- MSDS review

Critical Parameter

Outline

- Background of technique - Instrumentation and theory
- First line maintenance
- Calibration, internal standards and control samples
- Overview of calibration period, Linear calibration models and associated uncertainty
- Assessment of linear dynamic range
- Non-linear system
- General Pitfalls and common errors
- Separation measurement and requirement
- Interference correction and, if appropriate, removal
- Optimization and verification
- Problem solving
- Database management

Assessment Feedback



Jan Thieleke, Institute of Inorganic Chemistry (Hanover)

HortiSoil

Course Title: SAMPLE PREPARATION COURSE

Aim of Workshop

The art and science of sample preparation. Developing the understanding with learners about the importance of proper sample preparation techniques. Why do we need to adhere to sample preparation procedures?

Duration

3 days including practical sessions.

Safety

- Preparation area - Safety induction
- PPE
- Using compressed air safely
- Lock out systems
- Physical hazards
- Hand tool safety
- GLP/ISO 17025 PRINCIPLES in the Sample Prep Section
- Particle size effects

Critical Parameter

- Receiving of samples, sample containers, identification
- The science and skill towards drying, crushing, pulverizing, splitting, homogenizing, weighing
- Contamination from equipment and from sample to sample
- Cleaning and first line maintenance of various sample preparation equipment
- Operation of various sample preparation equipment for example:
    - Swing mill single and six pots
    - Manual or Semi Auto Pellet Press
    - Jaw Crusher
    - Riffle Divider
    - Rotary Sample Splitter

    - Turbula shaker
    - Ultrasonic Cleaner
    - Keegor Vertical Spindle Pulverizer
    - Mechanical Sieve Shaker and cleaning of sieves
    - Drying Ovens and Muffle Furnaces
    - Balances and their use in the Analytical Laboratory
    - Filter press
- Particle size analysis on materials
- Identifying samples
- Coal Laboratories specific:
    - Grading analysis operation
    - Proximate analysis – Coal/Anthracite/Coke
    - Total Moisture determination / Inherent moisture / Surface moisture
- Cleaning and maintenance of micro test sieves
- Operating micro test sieves
- Standby samples and housekeeping

Please note: This course could be tailor-made to the specified needs of the Client

Assessment Feedback

Breitlander

HortiSoil

Course Title: SAMPLING COURSE (PROCESS SAMPLING AND RAW MATERIAL SAMPLING)

Aim of Workshop

Developing the understanding with learners about the importance of quality sampling principles in the mining industry. Why do we need representative samples for laboratory analysis?

Duration

2.5 Days

Safety

- Risk Assessments
- PPE
- Safe sampling practices

Critical Parameter

- Establishing a Sampling Scheme
- Fundamentals of Sampling – What is a representative sample
- Major sampling errors: Errors due to segregation of the bulk
- Statistical errors
- Sample selection
- Different stages of sample reduction
- Sampling method e.g. Scoop, Shovel, Rod, cup samplers and Auto samplers
- Raw material sampling practices; Rail, Road, Belt sampling (Belt cutter), Cyclone
- Segregation
- Segregation in free-flowing powders
- Golden Rules of Sampling
- Sampling stored materials
- Sampling stored non –flowing materials
- Sampling from heaps
- Sampling stored bulk free-flowing powders

- Sampling from bags and drums
- Sampling from trucks and railcars
- Sampling flowing streams
- Traversing Cutters
- In-line Sampling
- Sample Reduction
- Cone and Quartering
- Table Sampling
- Chute Splitting
- Spinning rifflers
- Sampling technique reliability
- Sampling technique comparison
- Weight of sample required
- Sample containers and storing of samples
- Examples of some sampling equipment used in the sampling industry

Please note: This course could be tailor-made to the specified needs of the Client

Assessment Feedback

HortiSoil

Course Title: XRF TRAINING COURSE

Aim of Workshop

To develop the skills to understand the XRF principle and the safe use of XRF Instruments.

Duration

3 days

Safety

- Safe operation of P10 gas
- Radiation principles
- Safe instrument operation

Critical Parameter

- First line maintenance
- Components, Start-up, Shutdown procedure
- UPS, Chiller and Aircon pointers
- Software utilization
- Instrument calibration – Introduction to setting up a calibration
- Instrument standardization
- Particle Size analysis
- Infinite thickness
- Sample Matrix solutions
- Sample analysis
- Result retrieval
- SPC
- Transmission setup
- Problem solving
- Database maintenance
- Backup procedures
- Sample preparation specifics

Please note: This course could be tailor-made to the specified needs of the Client

Assessment Feedback

HortiSoil

Course Title: WET CHEMICAL COURSE

Aim of Workshop

To develop the skills to conduct traditional wet chemical methods effectively and safely.

Duration

2.5 days

Safety

- Safe operation of LPG gas
- Safe operation of muffle furnace
- MSDS review
- Safe handling of chemicals and containers

Critical Parameter

- Handling and Operation of Analytical balances e.g. weighing by difference.
- Cleaning of apparatus
- Weighing of sample and fluxes
- Fusion of samples
- Cooling of crucible
- Dissolution of sample
- Transferring of sample
- Oxidation process
- Titration: Manual and auto Processes
- Instrumentation operation e.g. Spectrophotometer
- Calculation and Transferring of data

Please note: This course could be tailor-made to the specified needs of the Client.

Assessment Feedback

Course Title: OES SPARK COURSE

(SMS 2000 Robot and Milling Machine configuration training available)

Aim of Workshop

To develop the skill to carry out proper first line maintenance and general understanding of the OES spark principle.

Duration

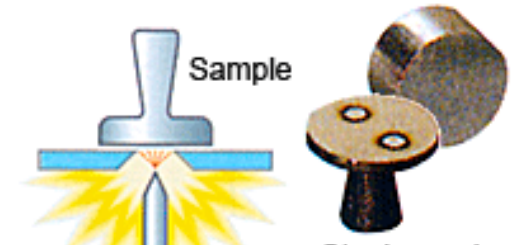
2.5 Days

Safety

- Safe Argon gas changing procedure
- First line maintenance safety rules
- Safe instrument operation
- Instrument Set-up

Critical Parameter

- First line maintenance
- Software utilization
- Instrument calibration (If applicable)
- Instrument standardization
- Sample analysis
- Result retrieval
- SPC
- Transmission setup
- Problem solving
- Database maintenance
- Backup procedures
- Proper use and handling of Set-up and check standards



Shimadzu

Please note: This course could be tailor-made to the specified needs of the Client

Assessment Feedback

HortiSoil

Course Title: FIRE ASSAY LABORATORY TRAINING (UNIT STANDARD BASED)

Aim of Workshop

Skills development to conduct fire assay effectively and to process analytical data. Practical approach for day to day smooth operation.

Duration

3 days.

Safety

- Safe operation procedure
- MSDS review

Critical Parameter

- Introduction to assaying.
- Fire assaying and mineral identification.
- Classical wet assaying and qualitative analysis.
- Selectivity and specificity of analytical procedures.
- Furnace theory and practical.
- Furnace maintenance.
- Sampling theory and methods related to Fire assay.
- Statistical analysis.
- Reference standards and quality control practices.
- Prevention of sample contamination – pre and post operation practices.

Assessment Feedback

Course Title: LABORATORY SAFETY

Aim of Workshop

To provide laboratory personnel with the appropriate knowledge of their responsibilities within the analytical laboratory context and to raise awareness on how to safely interact with hazardous materials and equipment.

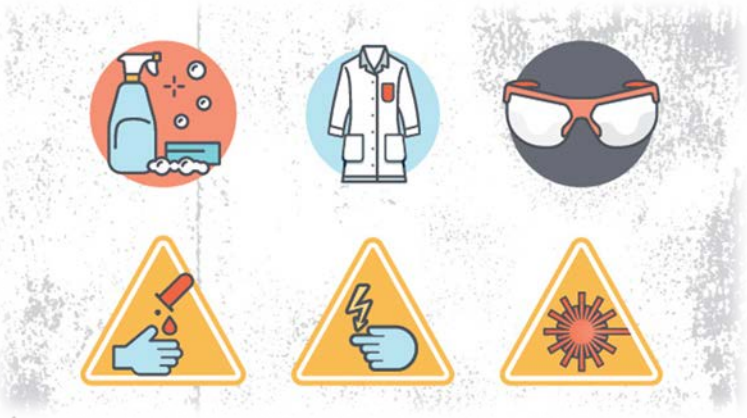
Duration

2 days

Critical Parameter

- Laboratory layout
- Chemical store safety
- Hazardous chemical handling
- Safe gas cylinder handling
- Chemical storage and transport
- Emergency protocols
- Fume extraction design and operation
- Dust extraction principles

Assessment Feedback



Labmanager

HortiSoil

Course Title: LABORATORY SUPERVISION

Aim of Workshop

To establish the best supervision practices in the analytical laboratory environment, through sustained superior performance.

Duration

3 days

Safety

- Legislation
- Responsibilities regarding safe working areas.
- Planned and unplanned job observations.

Critical Parameter

- The role of the supervisor
- What is Discipline
- What is an employee
- Best way to resolve conflict
- Job descriptions
- Maslow's Hierarchy of Needs
- Two basic theories of supervision
- How to measure productivity
- How to motivate employees
- Most effective mechanisms for controlling work
- What does the supervisor represent and what is supervision supposed to be?

Assessment Feedback

HortiSoil

Course Title: MICROBIOLOGICAL TESTING TRAINING (UNIT STANDARD BASE)

Aim of Workshop

To empower water laboratory personnel to safely conduct microbiological testing.

Duration

3 days

Safety

- Bio-safety hazards
- Safe use of Bio Safety cabinet

Critical Parameter

- Detection and Enumeration of Total Coliforms and Escherichia coli Bacteria
- Colilert® - 18/ Quanti - Tray® method and Quanti-Tray® and Quanti-Tray®/ 2000
- Heterotrophic plate count (HPC) - SimPlate ® for HPC, multi-dose or relevant method.
- Aseptic, Sterile techniques and Autoclave operation
- Fecal Coliform Membrane Filter Procedure
- Analysis of NLA samples

Assessment Feedback

lifescience

Course Title: WATER QUALITY AND TESTING

Aim of Workshop

To provide water laboratory personnel the skills to conduct reliable and on-time results.

Duration

2.5 Days

Safety

- General water laboratory safety.

Critical Parameter

- Safety in the water laboratory
- Glassware calibration
- Pipette calibration
- Use of Laboratory instruments:
- BOD and COD Analyzer
- Bunsen burners
- Conductivity Meter
- Dissolved Oxygen Meters
- Ion Concentration Meters

Assessment Feedback

HortiSoil

Summary of Primary Offering:

Hortisoil offers professional consultation and training to the mining, agriculture and private sector.

Mining and Laboratory industries (coenie@hortisoil.co.za):

- Various laboratory training courses presented on site:
  Good Laboratory Practice
  Sampling Course
  Sample Preparation Course
  XRF, AA and ICP Courses
  Laboratory Supervision Course
  Various specific laboratory safety courses
- Analytical consultation services
- Sourcing laboratory equipment and optimize laboratory budget capacity
- Mentoring and laboratory management development consultation
- We also focus on water laboratory operation optimisation for municipalities and mines.

- **Purpose:**

Hortisoil's main aim is to empower employees and employers alike with accredited vocational training to enhance the workplace experience and to stimulate lifelong learning. We want to help individuals to become more skilful in their trade and create job security by means of quality job performance.

- **Vision:**

Hortisoil want to be a leader in the vocational training industry through continues research and development and applying scientific methods to achieve the best training that would stay with the trainee. We would also want to be known as a reliable independent scientific reference in the agricultural and mining consultation and analytical industries. Soon we would like to boast to be the most integrated laboratory service provider in Southern Africa. We want to be a holistic, scientific and trusted name in the mining, agricultural and financial industries.

- **Mission statement**

Our mission at Hortisoil is to uplift individuals to their fullest potential in the workplace to help that individual again to uplift his community. We at Hortisoil are confident in our

specialities and we know where to get the necessary expertise for any specific project. We only believe in being professional and delivering high quality service, tailored according to our client's need.

- **Core values:**

Our core values are based on the moto: *Do to others what you want to have done to yourself.* We believe to be honest, unbiased and respectful and humble toward our fellow human beings and especially our students and clients.

- **Goals:**

Being a trusted and referred name in the fields of agriculture, laboratories, mining and finances through continues research and development.

HortiSoil

Contact:

Coenie Potgieter

+27 81 379 2078

coenie@hortisoil.co.za

www.hortisoil.co.za