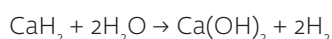


HYDROTRACER

Moisture Analyzer

Tinius Olsen introduces a moisture analyzer that will appeal to all manufacturers with moisture concerns. This new tester is less expensive, just as swift to generate a result, and as accurate as comparable heat and weigh or microwave technique-based testers. The patented method of the HydroTracer determines the absolute water content where the mass of the water is measured within the reactor.

Operation is just as simple. The sample is weighed and filled into the HydroTracer's sample tray, which is then placed in the tester's heating chamber. The heater warms the sample to a temperature chosen by the operator, and water within the sample evaporates. The heating chamber is connected with the cooled upper reactor chamber of the HydroTracer – this is where the calcium hydride reagent is placed. The volatile water rises to the upper reactor chamber and when the humid air flows over the reagent, the gaseous water reacts with calcium hydride according the following equation:



The cooled, dry air returns to the lower heating chamber and the process continues. The circulation of air through the HydroTracer is supported by natural convection, which is promoted by the unique design of the HydroTracer; even hygroscopic materials are completely dried with the analyzer. The final concentration of hydrogen in the reactor is proportional to the water content of the sample before the measurement. The whole operation process is controlled by PC-based software and the results calculated for the operator.

The ambient air also contributes water to the reactor atmosphere; to achieve accurate results the ambient

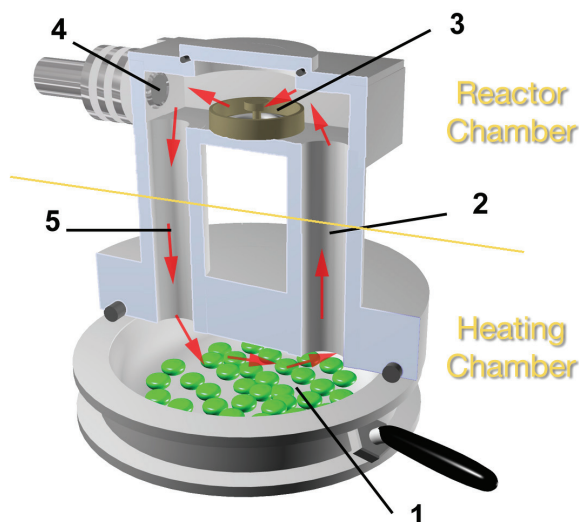
HydroTracer with accessories



air humidity and density needs to be determined and 'removed from the equation'. Integrated sensors in the reactor do this. The concentration of hydrogen is measured by thermal conductivity sensors.

Chemical reactions and the reagent

Calcium hydride reacts with water to form calcium hydroxide (also called hydrated lime, or agricultural hydrate), which is a weak base and quite harmless; it also does not require any special disposal techniques. The small amount of reagent needed for the test means that the amount of hydrogen produced is small and subsequently does not pose any operational concerns.



HydroTracer principle of operation

1. Sample in removable heating tray
2. Hot humid gas rises into the reactor chamber
3. Reagent absorbs water vapour and releases hydrogen gas
4. Sensors measure the concentration of hydrogen gas
5. Cooled, dry gas descends and can absorb more water vapour

Specifications

TECHNICAL DATA

Sample weight	0.01-200g , depending on sample density
Reproducibility	±0.05mg H ₂ O (1mg water content) up to ±0.5mg H ₂ O (20mg water content)
Display via PC	Absolute water content of sample in x.xxmg Relative water content in x.xxxx% and xppm Additionally ambient air temperature, relative humidity and pressure
Measuring range	0.2-30mg H ₂ O
Test temperatures	50-210°C in 1°C steps
Reagent	CaH ₂ powder-form approx. 0.1g each measurement
Ambient air temperature	In °C in 0.1°C steps
Ambient air pressure	700-1100 mbar in 0.1 mbar steps
Relative air humidity	0-100% in 0.1% steps
Power supply	115 VAC, 50/60Hz, 2.8A or 230VAC, 50Hz, 1.6A
Weight	4.9kg
Dimensions	285 x 170 x 250mm (HxWxD)
Interface	Bi-directional RS232 interface
Required PC	Windows® 98, ME, 2000, NT, XP; Pentium® 233 or equivalent; 64MB RAM minimum, 128MB recommended; serial interface RS232

COMMON APPLICATIONS

- Plastics – ABS, PA 6, PA 6.6, PA 12, PAA, PAI, PBT, PC, PE, PE Talcum, PEI, PETa, PETc, PMMA, POM, PP, PS, PS expanded, PVC, TPE
- Anorganic salts
- Calcium carbonate
- Caprolactam
- Sand
- Carbon black