

New Literature Information

Mass Spectrometers for Catalytic and Thermal Reaction Processes

Hidden Analytical release their new catalogue describing the latest range of mass spectrometers and micro-reactor systems designed specifically for gas and vapour analysis in catalytic and thermal reaction and desorption processes. Systems feature application-specific operating programs for both automated and manual control of the mass spectrometer and of the thermal process, integrating gas species and temperature data in real time. Inputs provide for integration of additional process-specific parameters, weight change in TGA processes for example.

Featured products include the Hidden CATLAB systems with cartridge-style sample insertion for quantification of catalytic activity through a temperature range to 1000°C. The Hidden TPD Workstation enables high temperature gas desorption studies under true ultra-high vacuum(UHV) conditions, a sample cassette and load-lock ensuring fast throughput for multiple sample analysis. The fast-response quadrupole mass spectrometer used in the TPD system, the Hidden PIC-series analyser with digital ion counting detector, is separately available as a standalone product for integration in the user's own UHV process system. Other products range from the HPR-20 series dynamic gas analysis systems through to the HPR-60 MBMS system with multi-stage vacuum pumping for direct measurement of reactive ion species in flames and plasma at pressures from sub-atmospheric through to 5 bar.

CATALYSIS & THERMAL ANALYSIS

HIDEN ANALYTICAL

CATLAB
Automated Microreactor/MS System

The Hidden CATLAB is a bench-top microreactor and combined mass spectrometer system for rapid and reproducible catalyst characterisation and reaction studies. The microreactor and mass spectrometer are delivered as a complete system from a single manufacturer, unique to the industry, ensuring optimum analysis via seamless hardware and software integration. The modular design further allows both instruments to operate as stand-alone components so that they may be integrated with existing laboratory equipment such as TGA (TG-MS) or Gas Chromatographs.

The Hidden CATLAB delivers a range of completely automated, dynamic, temperature programmed, pulse characterisation and sorption techniques. Template driven CATLAB software provides automatic control of gas composition and delivery temperature ramp and sorption as well as full mass spectrometric parameter control - a true fit for the catalyst researcher. The standard system has 5,200 amu capability with options extending this to 1000 amu.

APPLICATIONS:

- ▶ temperature programmed desorption (TPD)
- ▶ temperature programmed reduction/oxidation (TPRO)
- ▶ temperature programmed reaction (TPR)
- ▶ pulse characterisation
- ▶ pulse calibration
- ▶ dispersion measurements
- ▶ adsorption isotherms
- ▶ reaction studies

TPD WORKSTATION
A System for UHV Temperature Programmed Desorption (TPD/TDS) Studies

The Hidden TPD Workstation is a complete experimental system for analysis of thermal desorption products by UHV TPD/TDS. The TPD Workstation features a multiport UHV chamber with heated sample stage coupled to a high precision triple filter analyser with digital pulse ion counting detector for ultimate sensitivity and time resolution. The triple filter mass analyser is configured with a cooled pre-filtration stage giving minimum outgassing with optimum sensitivity of the analyser to desorption products from the sample. A fast sample load lock with sample transfer mechanism is included to provide for rapid sample change. The unique sample transfer mechanism means only the sample is transferred from the load lock to the heater stage ensuring no sample holder outgassing during the TPD experiment.

Hidden's TPD software analysis PC software included with the Workstation provides automatic control of sample temperature integrated with analyser control. TPD analysis routines (e.g. peak integration, deconvolution and background subtraction etc.) are also included in this package.

Mass Spectrometers for Catalysis & Thermal Analysis Applications

TPD Workstation

TPD Workstation with hot sample

TPD Workstation for control and analysis of TPD experiments

FEATURES:

- ▶ Hidden SP PIC mass spectrometer for fast data acquisition (1500 data points per second)
- ▶ multiport UHV chamber for attachment of additional instrumentation (e.g. effluent)
- ▶ sample transfer mechanism and load lock, including gate valve and viewport
- ▶ heated sample stage to 1000°C
- ▶ Z-chill for optimum sample/detector posturing
- ▶ baked-out jacket GDSiC mass
- ▶ integrated software control of experimental protocols

New Catalysis & Thermal Analysis Catalogue

The catalogue is available to download at <http://tinyurl.com/cta-catalogue-166-3>. For further information on this or any other Hidden Analytical products contact Hidden Analytical at info@hidden.co.uk or visit the main website at www.HiddenAnalytical.com.

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