PRODUCT DATASHEET

Chemisorption Analyser (TPD, TPR, TPO and Pulse)

Active sites, reducibility and acidity of catalysts





DETAIL – CLAMSHELL FURNACE AND QUARTZ REACTOR

OVERVIEW

The Tech Inc. Chemisorption Analyser (TPD, TPR, TPO and Pulse) characterises catalysts by temperature-programmed reaction and pulse chemisorption. A U-tube quartz reactor sits in a clamshell furnace; mass flow controllers feed reactive and carrier gases, and a thermal conductivity detector records how much gas the sample takes up or releases as the temperature ramps.

MODELS AND CONFIGURATIONS

- **Standard analyser** – TPR, TPD, TPO and pulse chemisorption.
- **With BET** – flowing-gas single-point BET on the same sample.
- **With mass spectrometer** – identifies desorbing species.

TYPICAL DESIGN DATA

Model	TI-CHEM-200 series
Furnace	Ambient to 1100 °C, ramps 1 to 50 °C/min
Gases	H2/Ar, NH3/He, O2/He, CO, N2O and others via 4 MFCs
Detector	TCD; MS port optional
Pulse loop	Calibrated, interchangeable volumes
Sub-ambient	Cooling option for TPD from low temperature

APPLICATIONS

Metal dispersion and active metal area, acid site density by ammonia TPD, reducibility of oxides, coke burn-off by TPO, and catalyst ageing studies.

KEY ADVANTAGES

- **Versatile** – four techniques on one instrument
- **Quantitative** – calibrated pulses and TCD
- **Safe** – leak-tight gas paths and gas detection option
- **Linked** – pairs with our fixed-bed test units for activity tests

Designed and built by Tech Inc. · **Part of the Davey Group since 1990**

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