Temperature

Temperature controlled enclosure

Control range: 10°C to 70°C

Regulation accuracy: ± 0.02°C

Enclosure provides anti-condensation protection.

High temperature pre-heater for sample drying/activation

Delivers local sample temperatures of up to 200 °C

Heating ramp rates: up to 10 °C / min

Sensors: Pt-100 thermocouple

Endeavour Stand

Manifold: 316 stainless steel

Seals: Viton

Tubing: 1/4 inch stainless steel

Water Reservoir

Material: glass

0.5 and 1L as standard

Relative humidity generation and measurement

High accurate digital mass flow controllers and capacitance probe

Organic Vapor Generation and Measurement

High accuracy digital mass flow controllers for vapor and gas delivery

– Relative Humidity Sensor

Capacitance probe

Carrier Gas – Dry air or Nitrogen
Relative humidity range from 0 to 98%
RH range accuracy from 5 – 60 °C ±1%
RH range accuracy from 60 – 85 °C ±2%

– Speed of Sound Sensor for organic vapors

Carrier Gas – Dry air or Nitrogen
Partial Pressure range from 0 to 90%
Partial Pressure accuracy from 10 – 70 °C ±1%

– System Software

Next generation purpose built control and evaluation software for the most advanced experimental design and data analysis.

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DVS Control

Complex protocols for multiple experimental sequences using sample pre-heating and conditioning; isotherm, isobar and ramped humidity and organic vapor methods; single or dual vapor delivery and control; fixed time or mass derivative steps.

Multiple-method protocols incorporating:
- Sample pre-heating
- Vapor sorption
- Vapor exchange
- Dual vapor co-adsorption
- Temperature changes in a single experiment, including
- Ramp or step changes in relative humidity
- Automated video image acquisition
- Organic vapor sorption partial pressure
- Temperature stages may be based on fixed-time or user defined dm/dt criteria
- Complex isotherm experiments
- Experiments may include half, full or multiple partial pressure or temperature cycles

Analysis
- Isotherms
- Permeability and diffusion
- Kinetics information
- Heat of sorption
- Tg determinations
- Amorphous content
- BET

21CFR Part 11 software solution is available for all DVS software upon request.

– Mass measurement

UltraBalance™ low mass

Sample mass: between 1 and 1000mg

Mass change: ±150mg

Resolution (precision): 0.1 µg

Root mean square

balance noise: ≤ 0.3 µg

UltraBalance™ high mass

Sample mass: between 10 and 5000mg

Mass change: ±1000mg

Resolution (precision): 1 µg

Root mean square

balance noise: ≤ 3 µg

DVS Endeavour Schematic

