PRODUCT DATASHEET

Solid Sorbent CO_2 Breakthrough and Cycling Rig

Fixed-bed breakthrough and TSA/VSA cycling of CO_2 sorbents for direct air capture and flue gas

Product page





Close-up: two heated sorbent beds, humidifier and outlet analysers

OVERVIEW

The Tech Inc. Solid Sorbent CO_2 Breakthrough and Cycling Rig measures how much CO_2 a solid sorbent takes up, how fast, and how well it keeps that capacity over hundreds of cycles. Air or simulated flue gas, humidified to a set level, flows through a packed bed of sorbent while an analyser records CO_2 at the outlet: the breakthrough curve.

TYPICAL DESIGN DATA

Feed	Air or simulated flue gas blended by mass flow controllers; humidity set by the humidifier
Beds	Heated columns with internal temperature measurement; sizes to order
Regeneration	Temperature swing, vacuum swing or both, with purge gas option
Codes and standards	CE marking
Analysis	NDIR CO_2 and humidity on the outlet; mass spectrometer option
Results	Breakthrough curves, CO_2 capacity, mass-transfer zone and capacity against cycle number
Control	PLC with programmable cycles, unattended running and data logging

MODELS AND CAPACITIES

- **TI-SBC-1** – single-bed rig
- **TI-SBC-2** – two-bed rig
- **TI-SBC-K** – larger beds for kilogram sorbent batches

Rigs are built to the bed sizes, gases and cycle types you test.

ORDERING CODE

Example **TI-SBC-2**: **2** number of beds; K for kilogram-scale beds.

SCOPE OF SUPPLY

Included: factory acceptance test with a written report; drawings for approval, material certificates and manual. **Options:** mass spectrometer; kilogram-scale beds; steam-assisted regeneration; installation, commissioning and operator training.

KEY ADVANTAGES

- **Realistic beds** – packed beds, not milligram samples
- **Humid feed** – water co-adsorption measured
- **Any swing** – temperature, vacuum or both
- **Unattended cycling** – hundreds of cycles by programme

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

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