

BSD-MAB

Multi-component Adsorption Breakthrough Curve Analyzer



Gas & Vapor Adsorption and Separation

Multicomponent Competitive Adsorption

Pressure Swing Adsorption Analysis (PSA)

Air Pollutant Purification Analysis

Application

Gas Separation

- ◆ Scaled lab level gas separation process.
- ◆ Design and application of adsorption tower.
- ◆ Selective adsorption in separation technics.
- ◆ Separation coefficient (S) analysis.

Adsorption at Different Pressure and Temp

- ◆ PSA analysis
- ◆ TSA analysis

Hydrogen Purification

- ◆ PSA Hydrogen purification analysis.
- ◆ Removal of micro impurity in hydrogen gas with PSA method.

Multi-component Competitive Adsorption

- ◆ Adsorption kinetics analysis of adsorbent
- ◆ Co-adsorption and replacement desorption analysis
- ◆ Dynamic and cycle adsorption & desorption analysis
- ◆ (Investigate the regenerative capacity of adsorbent)
- ◆ Adsorption bonding energy comparison with TPD
- ◆ Temperature of activated adsorbent (TPD)

Membrane for gas separation characterization

- ◆ Membrane for gas separation kit available;
- ◆ Support characterisation with steady state and unsteady method.

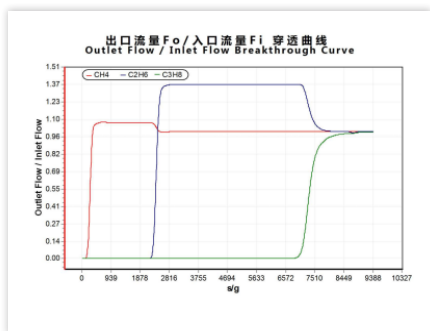
Function

- ◆ Bi-component gas/ vapor adsorption breakthrough analysis with equipped thermal conductivity detector;
- ◆ Support all kinds of conditions: different adsorbent, test temp, pressure and layers of adsorbent, concentration and flow rate of gas;
- ◆ Multi-component gas/vapor competitive, selective adsorption and replacement desorption analysis with equipped chromatography or mass spectrometry;
- ◆ Support adsorption of pollutant gas (e.g. TVOC, SO₂, NH₃ and etc) at ppm-level concentration;
- ◆ Support adsorption performance analysis on micro pollutant and relevant parameters analysis of adsorbent in room, vehicle, etc indoor environments.

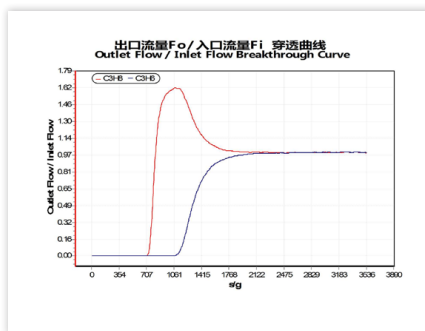
Testing Principle

◆ In penetration column, a bed of granular adsorbent is arranged to a specific height, remaining stationary. As the mixed gas flows through the adsorbents, it's adsorbed by the material and exits through the outlet. The outlet gas composition is tracked over time to assess the breakthrough curve, which helps determine the breakthrough times for all components except the carrier gas and the adsorbent's selectivity for each gas component.

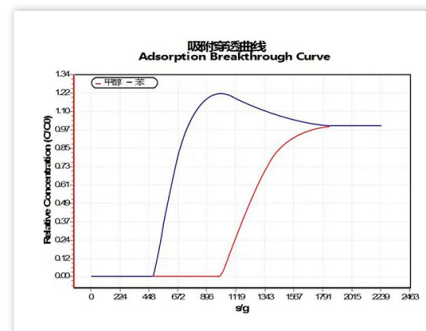
Test Reports



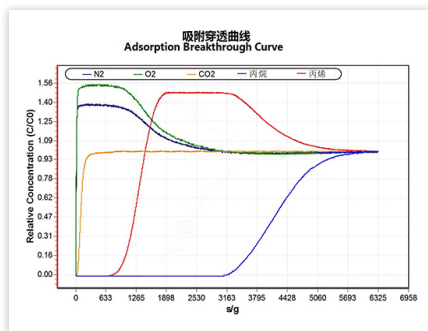
Adsorption and Separation evaluation on Alkene



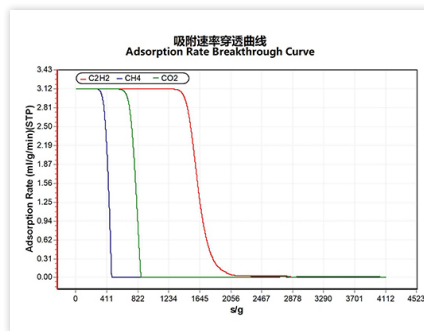
Adsorption Breakthrough Curve of Alkene



Adsorption Breakthrough Curve of Bi-vapor



Adsorption Breakthrough Curve of 5-component gas



Adsorption Rate Breakthrough Curve of 3-component



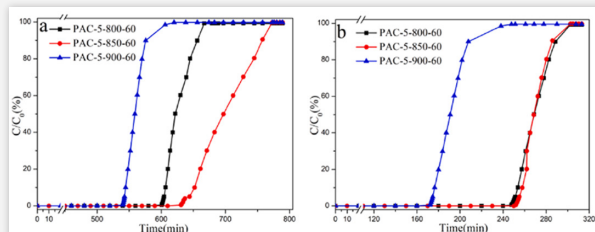
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Self S-doping activated carbon derived from lignin-based pitch for removal of gaseous benzene

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Test Report

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