

# High-Throughput Adsorption Contract R&D

## Breakthrough Analysis – Volatile Liquid Purification and Separation



With over 20 years of expertise in high-throughput testing, Avantium accelerates research in (ad)sorbent development and volatile liquid-phase adsorption applications through our dedicated systems. Our high-throughput technology enables parallel screening of numerous adsorbents and adsorption process conditions.



### Benefits

Accelerating your experiments by parallelization  
Unparalleled reproducibility between columns  
Scalable results by mimicking full scale conditions



### Features

Small sample size  
Pretreatment  
Nitrogen purge  
Flammable and volatile feeds  
Volatile fixed bed breakthrough experiments  
Cyclic adsorption and desorption  
Gas phase online analysis and/or offline analysis  
Data mining and visualization

### Applications

- Olefin/Paraffin separation
- Xylene isomers separation
- BTX separation
- Pyrolysis oil purification





## Volatile Liquid Purification and Separation Specifications

Process Conditions	Range	Remarks
Adsorption temperature range	30 – 250 °C	
Desorption temperature range	< 250 °C	
Operating pressure	4 - 80 barg	
Sample volume	0.1 - 2.0 mL	
Flow	0 – 50 NmL/min	
LHSV	1 – 10 hr <sup>-1</sup>	



## Dedicated Service Process

- Intake by detailed scoping process
- Setup by scalable (ad)sorbent preparation
- Analytical method development
- Test program, executing the design of experiment (DOE)
- Regular data reporting in pre-defined formats
- Evaluation and close-out include support for data interpretation

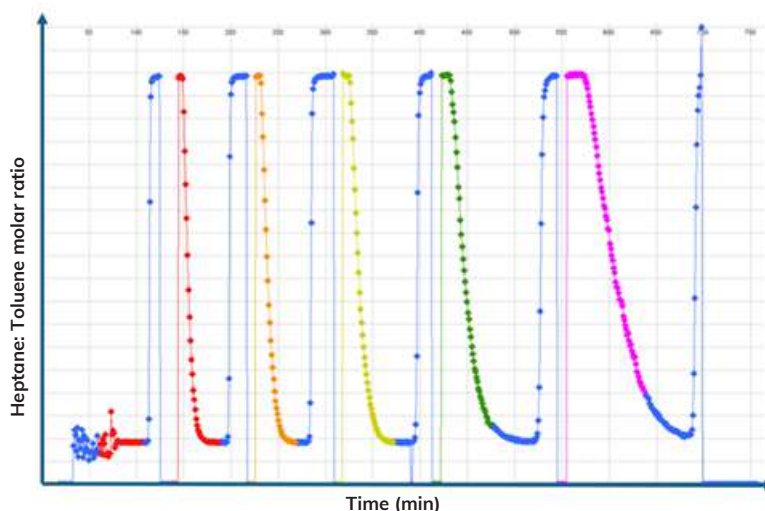
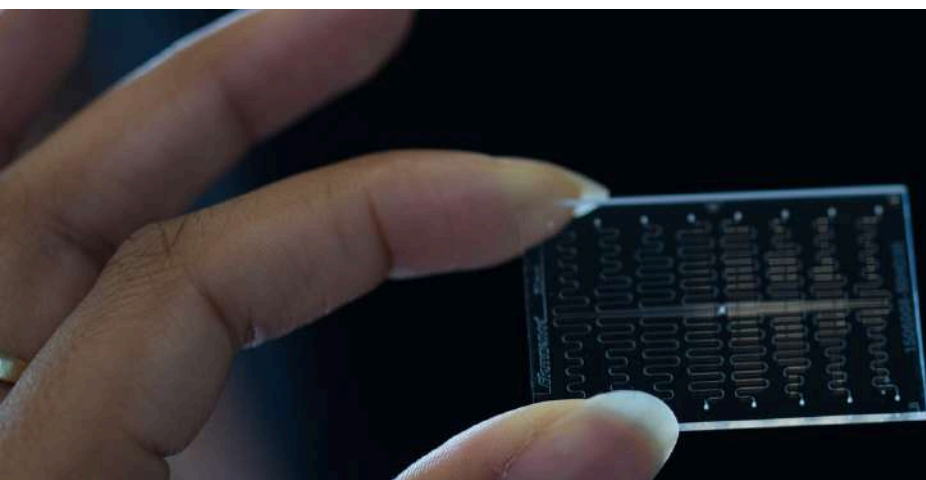


Fig: Switching between heptane and toluene over multiple cycles with different space velocities to show case the residence time distribution



Avantium R&D Solutions is provider of advanced testing units and services. We provide leading producers and research institutes developing better and more efficient (ad)sorbents and catalysts with our high-throughput technology. We offer customized catalyst and (ad)sorbent testing systems & services.

