

# RUBOLAB



## RuboSORP BTC/PSA

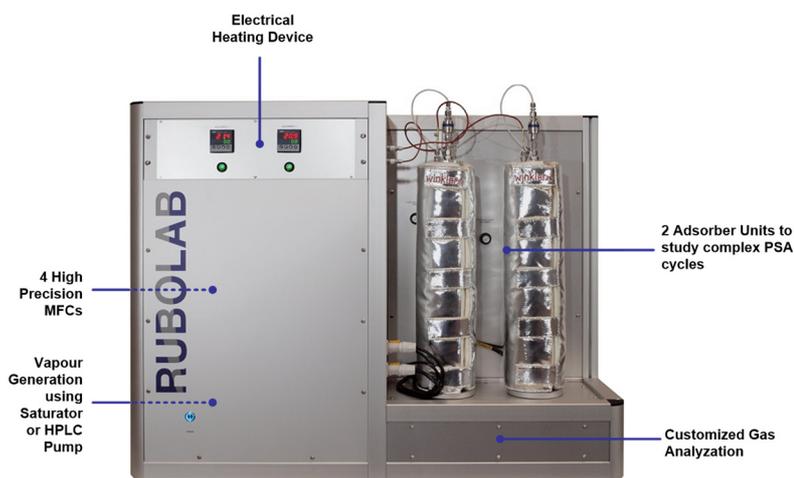
- 7 bar (higher pressure on request)
- 300 °C
- 1 Adsorber (BTC), 2 or more Adsorbers (PSA)
- Dosing of up to 4 Gases
- Vapour Generation (optional)
- Customer-specific Gas Analysis

### Background

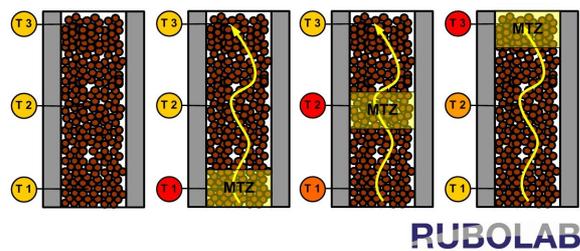
The technical use of sorption processes has reached an increasing importance during the last decades. The applications are widely diversified, ranging from biogas processing to medical technology or gas storage. The characterization of correspondent sorbent materials often occurs by means of gravimetrically or volumetrically methods. In addition, the detection of breakthrough curves within an adsorber column can be used to determine sorption capacity, heat of adsorption and corresponding kinetic.

### The Instrument

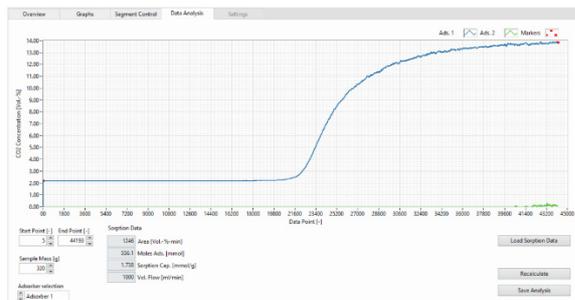
Measuring instruments of the RuboSORP series impress with their compact design, which can be modified according to customer requirements. A single adsorber can be used to measure breakthrough curves. In addition, the system can be equipped with 2 or more adsorbers, allowing the study of most complex pressure swing adsorption cycles (PSA).



## Measurement Method



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Adsorption processes are exothermic reactions in which heat energy is released. In an adsorber filled with sorbent, this heat can be measured by sensors. The resulting breakthrough curve allows conclusions to be drawn about the sorption capacity as well as corresponding kinetic.

The figure on the left shows a recorded breakthrough curve of a gas mixture, consisting of CO<sub>2</sub> and N<sub>2</sub> measured on an adsorber filled with zeolite. In this case, the CO<sub>2</sub> fraction was measured with a mass spectrometer.

## Technical Specifications (Standard Version)

|  |                      |   |
|--|----------------------|---|
| Number of gas inlets                             |                      | 4   |
| Flow range of each gas MFC                       | ml <sub>n</sub> /min | 10-500 (other on request)   |
| Gas types  |                      | He, Ar, CO <sub>2</sub> , H <sub>2</sub> , CH <sub>4</sub> , NH <sub>3</sub> and others |
| Pressure range                                   | bar                  | vacuum – 7  |
| Accuracy of pressure detection                   | % F.S.               | 0.5   |
| Temperature range                                | °C                   | 25-300  |
| Temperature sensor                               |                      | Pt100   |
| Pre-heating to avoid cooling effects in adsorber |                      | no  |
| Temperature ramp                                 | °C                   | 1-25  |
| Humidity generation                              |                      | optional via saturator  |
| Vapour generation                                |                      | optional, HPLC pump and evaporator  |
| Vapour type                                      |                      | H <sub>2</sub> O, toluene, benzene and others   |
| Temperature controlled chamber                   |                      | optional  |
| Adsorber size, sample holder (diameter)          | mm                   | customized  |
| TCD  |                      | optional  |
| MS   |                      | optional  |
| Dimensions (W x H x D)                           | mm                   | 990 x 850 x 565   |
| Power supply                                     |                      | AC 110V/220V  |
| Gas connections                                  |                      | 1/8" Swagelok™  |

### CONTACTS

For further information about our products please contact our head office or the corresponding local distributor.

Please find more detailed information about our sales network on [www.rubolab.de/distributors](http://www.rubolab.de/distributors)

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