

# Miniplant Distillation Unit

Technische Universität Braunschweig | Institut für Chemische und Thermische Verfahrenstechnik  
ictv@tu-braunschweig.de | Telefon +49 (0) 531 391-2791



## Objectives

- Continuous operation for separation of mixtures
- Measurement of separation efficiency of column internals for viscous mixtures or mixtures with non-volatile components

## Capabilities and measured parameters

- Column can either be equipped with 40 bubble cap trays or 2.6 m of structured packing (default operation mode)
- Measurement of separation efficiency and pressure loss of individual column sections
- Measurement of dynamic liquid hold-up

## Plant details

- Miniplant column QVF, DN50
- 4 beds of structured packings or 4 elements with 10 bubble cap trays each
- Operation pressure: 20 ... 1000 mbar(a)
- Feed rate: 2 ... 20 kg/h, feed can be preheated
- Gas load: 0.6 ... 3.5 Pa<sup>0.5</sup>
- Heat duty up to 2 kW, max. operation temperature: 180 °C
- Thermal insulation by vacuum jacket
- Electrical trace heating for feed and product streams
- Various temperature sensors and sampling sockets along column height for determining temperature and column profiles
- Forced circulation shell and tube evaporator for operation at low operation pressures and increased viscosity
- Stationary conditions after approx. 2 h

## Analyzed systems and equipment

- Separation efficiency measurements with standard test mixture (chlorobenzene/ethylbenzene) and with viscous test mixtures (2-Methyl-2-butanol/2-Methyl-1-propanol, chlorobenzene/ethylbenzene/polybutadiene)
- Structured packings of type Mellapak 500.Y at various operating pressures and gas loads

