

## WORKGROUP FOR MULTIPHASE FLOWS

### **cascade impactor**

Cascade impactors are used for fractionating sampling of particles in a gas laden state. They are suitable for partial removal with simultaneous separation into fractions in sense of the VDI standard 2066. The mass distribution of the aerodynamic particle diameter can be determined in connection with a gravimetric analysis.

Cascade impactors can be used for different measuring tasks in chemical engineering as well as for measurements of emissions and immissions. In the operating practice they often have the advantage of measuring the particle size directly in the gas load state in contrast to other particle measuring techniques. Because of their compact construction cascade impactors can be directly placed inside the flow channel avoiding error sources resulting from a partial removal of the gas stream.

Generally, the measuring range of a cascade impactor approximately lies between 0.5 and 15  $\mu\text{m}$ . With this, it mostly meets the requirements on a measurement of emissions in industrial plants. The application of cascade impactors for measurements of emissions is explained in the VDI standard 2066 Bl. 5.

The particle size range less than 1  $\mu\text{m}$  is important for some special measuring tasks and also for the measurements of immissions. For those cases low pressure impactors can be used making a classification down to approximately 0.05  $\mu\text{m}$  possible. The particles are subjected to a chemical analysis after classification, high volume cascade impactors with volume flow rates up to 1000 l/min could be used.

#### **in-house devices:**

- ▶ cascade impactor, 7 stages, 1 m<sup>3</sup>/h
- ▶ cascade impactor, 7 stages, 10 m<sup>3</sup>/h
- ▶ cascade impactor, 7 stages, 0.2 m<sup>3</sup>/h
- ▶ low pressure impactor after BERNER, 7 stages
- ▶ low pressure impactor after BERNER, 10 stages