

WORKGROUP FOR MULTIPHAS FLOWS

Sieve analysis

With the screening technique, grain size analyses and sorting down to $5 \cdot 10^{-6} \text{m}$ can be carried out. The method is simple and therefore wide spread. Condition for the comparability of screen analyses is the standard execution of the procedure. In Germany the basis for this is given by the standards DIN 66165 and DIN 48188.

If the screen analyses are always related with the same product, as this is often the case for example in the quality assurance of the industry, the accuracy and reproducibility required in connection with the task can be achieved relatively easily. That should not mislead about the fact that screen analyses with high requirements to an absolute accuracy are very complex and therefore lengthy.

The material to be analysed, principally, can be sieved in dry or wet state. Therefore, different screen methods are used:

dry	wet
▶ vibration screening	▶ vibration screening
▶ air jet screening	▶ ultrasonic wet screening

The selection of the screening method primarily depends on the material to be analysed. The air jet sieving is a very effective procedure for numerous tasks. In contrast to the other screening methods, however, it supplies only one separation cut and thus one analysis value per screening process.

The sample quantity necessary for a screen analysis depends on numerous factors and is comparatively large. As standard values are considered:

tissue test sieve $> 40 \cdot 10^{-6} \text{m}$ $< 100 \text{g}$

micro sieve $5 \cdot 10^{-6} \text{m}$ - $100 \cdot 10^{-6} \text{m}$ 1-10g

The air jet screening is particularly suitable for the preparatory fractionating of products. Small quantities of sharply limited fractions can be obtained with micro sieves (precision sieve foils).