

The Care of Test Sieves with Metal Wire Gauze

Test sieves are analytical instruments and should be carefully treated as such before, during and after sieving. We recommend that, before new sieves are used for the first time, they are rinsed with ethanol or isopropanol to remove any preservative residues. When not in use they should be stored in a dry, dust-free location.

During the sieving process no attempt should be made to force the sample through the wire gauze. Even gently brushing the sample, particularly with fine mesh gauzes, or the use of improper mechanical sieving aids (such as metal balls, cubes, chains, etc.) could result in alterations to the gauze or even damage to the sieve body.

Cleaning

When the sieving process has finished the sieving fractions are removed from the individual sieves. Any near-mesh particles or other particles which remain attached to the sieve gauze can often be removed without wetting by gently tapping the inverted sieve frame on the bench surface. If any particles cannot be removed in this way then the bottom of the gauze can be gently brushed with a fine hair brush.

Coarse gauzes with a mesh size >500 μ m can be cleaned well and effectively, both wet and dry, by using a nailbrush with plastic bristles. The use of such an implement will not damage the gauze.



In principle, test sieves with a mesh size < 500 μ m should only be cleaned in an ultrasonic cleaning bath.

The high intensity of the ultrasound is necessary to remove near-mesh particles, particularly from fine gauze meshes. The cleaning process is nevertheless gentle, as no mechanical forces act on the sieve.

Fig. 1 Ultrasonic Cleaning Bath UR 3 for 5 test sieves (height 50 mm)







We recommend the use of water with a normal commercially available wetting agent as the cleaning liquid. In the ultrasonic bath the cleaning process is usually finished after 2-3 minutes. The sieves are then rinsed thoroughly with clear water and dried. Cleaning with strong alkalis or acids is generally not to be recommended. However, under exceptional circumstances 5% acetic acid or sodium carbonate solutions can be used to remove very fine particles from the sieve. After such a cleaning process the sieves must be particularly thoroughly rinsed to ensure that all residues which could cause corrosion are completely removed.

Ultrasonic Cleaning Bath UR 1 for test sieve (height 50 mm)

Drying

Different sizes of laboratory ovens can be used for drying test sieves. It is an advantage if the test sieves can be placed vertically in the oven. The drying temperature for test sieves should not exceed 80 °C. At higher temperatures the fine metal gauze sieves in particular could become distorted, the gauze tension in the sieving frame could be reduced and the sieve could become less effective during the sieving process.

The TG 200 Rapid Dryer has proved to be particularly suitable for drying test sieves up to 200 mm diameter.

The wet sieves are assembled to form a set – in this case starting with the largest mesh at the bottom and with the smallest at the top. A variable, preheated stream of air is blown through the tower to accelerate the drying process. After only 3-5 minutes the sieves are dry and ready for use again.

The rubber or plastic seals should be removed from the sieves before they are cleaned or dried.



Fig. 3 Rapid Dryer TG 200 for drying test sieves

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Checking

Before use and after cleaning the sieves must be visually checked for signs of damage and to ensure that they are clean. By holding the sieve against the light any slight material residues, cracks or holes in the gauze can be detected. If the sieve is held at a slight angle any unevenness, dents and waves in the gauze become visible.

If such deviations from the uniformity of the gauze are detected then the sieve is no longer suitable for use in quality control and must be replaced (ISO 3310). Proper handling, cleaning, drying and storage will ensure that the test sieves will retain their accuracy and readiness for use for several years.

References

- 1. DIN Taschenbuch 133 "Partikelmesstechnik", Beuth Verlag
- 2. ISO 3310-1:2016 (Test sieves; Technical requirements and testing)

Part 1 Test sieves of metal wire cloth