

Loss on drying at 105°C

of AEROSIL®, AEROPERL® and AEROXIDE® products PA 0300 or ACM-101

1. Background / Reason

The determination of the amount of moisture or volatile compounds adsorbed by the surface of fumed oxides is obtained by drying the sample in an oven for two hours at 105°C.

2. Apparatus and Reagents

Drying oven

Desiccator (with indicator desiccant)

Analytical balance, accurate to $\pm 0.0001\text{g}$

Glass crucibles, e.g. diameter 40 mm, height 80 mm, with lid

Tongs or gloves

3. Sampling

Before the sample is taken out of the sample box provided, a good mixing of the sample should be ensured.

4. Description

4.1. Preparation of the weighing bottle

1. Place the crucible with tilted lid position in the oven at 105°C for at least 2 hours.
2. Place the crucible in the desiccator by using tongs or gloves and allow cooling for at least 30 minutes.

4.2. Procedure

Handling the crucibles you always need tongs or gloves

1. Weigh a prepared crucible with lid and record weight (W_{tare}).
2. Place approx. 1.0 g of sample into the crucible and tap carefully, record the weight (W_{start}) to $\pm 1\text{ mg}$.
3. Place the crucible into the drying oven with lid in tilted position at $105 \pm 2^\circ\text{C}$ for exactly two hours.
4. After the 2-hour time period, take the crucible out of the oven, being careful not to create turbulence. Replace lid to closed position. Place the crucible in the desiccator and allow cooling for at least 30 minutes.
5. Reweigh the crucible with closed lid (W_{dry}) to $\pm 1\text{ mg}$.

4.3. Calculation

The % loss on drying is calculated by the following equation:

$$\% \text{ loss on drying at } 105^\circ\text{C (LOD)} = \frac{W_{\text{start}} - W_{\text{dry}}}{W_{\text{start}} - W_{\text{tare}}} * 100$$

5. Reference

This method is in accordance with:

- ISO 787-2
- ASTM D 280
- JIS K 5101/24