

Loss on ignition
2 hours at 1000°C
relating to the dried substance (2 hrs at 105°C)
of AEROSIL®, AEROPERL® and AEROXIDE® products
PA 0400

1. Background / Reason

The loss on ignition is determined at 1000°C at which the chemically bonded water as well as the physically bonded water is lost.

2. Apparatus and Reagents

Muffle furnace
Porcelain crucibles¹, diameter, with lid
Desiccator (with indicator desiccant)
Analytical balance, accurate to $\pm 0.0001\text{g}$
Long crucible tongs
Heat resistant glove

3. Sampling

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

4. Description

1. Weigh a prepared crucible without lid and record weight.
2. Place 0.5 - 0.7g of sample (no more than 3/4 of crucible volume) into the crucible and tap carefully. Record the weight to a precision of 0.1mg.
3. Place in the muffle furnace (1000°C or cold). (It is better to place the weighed samples in the muffle furnace while it is still cold. Stronger air turbulence in the porcelain crucibles is avoided when the furnace is heated slowly.)
4. After reaching 1000°C the loss on ignition is continued for 2 hours.
5. After at least 2 hours remove the sample. Put the lid on and place the crucible in the desiccators.
6. Allow cooling for 60 minutes.
7. Reweigh the crucible without the lid.

4.1. Calculation

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

$$\text{loss_on_ignition _}[\%] = \frac{m_0 * \frac{100 - LD}{100} - m_1}{m_0 * \frac{100 - LD}{100}} * 100$$

m_0 = initial weigh of sample [g]
LD = Loss on drying (PA 0300) [%]
 m_1 = final weigh of sample [g]

5. Reference

This method is according to ISO 3262-20.

¹ Crucibles to be used for the first time should be ignited empty prior to use