Tamped density

of AEROSIL®, AEROPERL® and AEROXIDE® products

PA 0701 or ACM 104

1. Background / Reason

The tamped density of powders depends upon density, particle shape, and particle size. It allows conclusions to be drawn on e.g. the required size of packaging and the regularity of deliveries. The tapped density is equal to the ratio between the mass and the volume of a powder after it has been tapped in the Tap-Pak volumeter under stipulated conditions. The tapped density is specified in g/cm^3 in compliance with ISO 787-11. However, we specify the value in g / l due to the very low tapped density of synthetic silica.

2. Apparatus and Reagents

Apparatus

Tap-Pak Volumeter (or similar)
Top loading balance, accurate to $\pm$ 0.1 g
250 ml graduated glass cylinder, 6 cm circular base
plastic funnel, runout 3 cm diameter
spoon, longer than the height of the sample bottle

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. Procedure

1. Shake the sample bottle for a short time.
2. Take a sample right from the bottom of the sample bottle with a spoon. Using a funnel, put powder into a tared cylinder, filling it to the 200 - 250 ml level, making sure there are no cavities and the surface is horizontal.
3. Record the weight to the nearest $\pm$ 0.1g.
4. Place the cylinder in the Tap-Pak volumeter, set for 1250 taps, and start apparatus.
5. Record the volume of the tapped silica to a precision of 1ml when apparatus stops.

4.2. Calculation

The g/l of tapped density is calculated by the following equation:

$$\text{Tapped density [g/l]} = \frac{\text{weight of sample [g]} * 1000}{\text{volume of sample [ml]}}$$

5. Reference

This method is in accordance with ISO 787-11