



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 11986-1989

**Surface active agents. Powders and granules. Measurement of
the angle of repose**

表面活性剂 粉体和颗粒休止角的测量

(English Translation)

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1 Scope and field of application

This Standard specifies a conventional method for the determination of the angle of repose of surface active agents in powder or granular form and of washing powders, free from agglomerates.

This Standard is also applicable to other powders and granules with comparable properties.

2 Definition

angle of repose: The base angle of the cone obtained by flow under the specified conditions.

3 Principle

Determination of the angle of repose of the cone obtained by passing a given volume of the product in the form of powder or granules through a special funnel placed at a fixed height above a completely flat and level plate.

4 Apparatus

Only the dimensions given in the text are mandatory.

4.1

Measuring equipment, consisting of the following parts (see the figure):

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4.1.4 Transparent plastic vessel, of minimum diameter 100 mm and minimum height

25 mm, placed 75 mm below the lower end of the funnel (4.1.1). Its internal surface shall be slightly rough. It shall be positioned on the base-plate in such a way that the center of the vessel and the axis of the funnel coincide, the centering being facilitated by the graduation of the concentric circles on the base-plate.

4.1.5 Funnel support, fixed and positioned so that the axis of the funnel (4.1.1) is the vertical line passing through the center of the concentric circles engraved on the base-plate (4.1.3).

4.1.6 Supporting rod, comprising a scale graduated in millimeters from 0 to 100, starting from the base-plate. A rod, integral with a horizontal slide moves on this scale, allowing the height of the cone to be measured

The whole apparatus shall be protected against vibration.

4.2 Graduated measuring cylinder, of capacity 250 mL.

5 Sampling

The laboratory sample of surface active agent or washing powder shall be prepared using a conical sample divider, to obtain a uniform mixed sample for determination.

6.1 Preparation of sample and test portion

If the laboratory sample has formed agglomerates after a prolonged period of storage, it may still be examined if it regains the fluid state after the vessel containing it has been inverted.

Take 150 mL of the laboratory sample with the graduated measuring cylinder (4.2).

6.2 Determination

Carry out the measurements in the standard atmosphere. The recommended temperature is 21 ~ 25 °C and the recommended relative humidity is 45% ~ 55%; alternatively, it is most suitable for measurement in a standard atmosphere with a temperature of 25 ~

29 °C and a relative humidity of 60% ~ 70%.

Place the test portion in the funnel (4.1.1), having previously blocked the stem. Unblock the stem and allow the powder to flow through, slowly agitating it using the agitator (4.1.2).

Note: 1. The agitator is not always required, but to achieve the specified reproducibility of the tests, the agitation process shall always be included.

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