

# ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

## ISO RECOMMENDATION

### R 697

SURFACE ACTIVE AGENTS

DETERMINATION OF APPARENT DENSITY  
OF WASHING POWDERS BEFORE AND AFTER COMPACTION

1st EDITION  
Mars 1968

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## BRIEF HISTORY

The ISO Recommendation R 697, *Surface active agents – Determination of apparent density of washing powders before and after compaction*, was drawn up by Technical Committee ISO/TC 91, *Surface active agents*, the Secretariat of which is held by the Association Française de Normalisation (AFNOR).

Work on this question by the Technical Committee ISO/TC 91 began in 1960 and led, in 1965, to the adoption of a Draft ISO Recommendation.

In May 1966, this Draft ISO Recommendation (No. 986) was circulated to all the ISO Member Bodies for enquiry. It was approved, subject to a few modifications of an editorial nature, by the following Member Bodies :

Argentina	Israel	Sweden
Austria	Italy	Switzerland
Belgium	Japan	Turkey
Brazil	Korea, Rep. of	U.A.R.
Canada	Netherlands	United Kingdom
Chile	New Zealand	U.S.S.R.
Czechoslovakia	Poland	Yugoslavia
France	Portugal	
Germany	Romania	
Greece	South Africa,	
Hungary	Rep. of	
Ireland	Spain	

No Member Body opposed the approval of the Draft.

The Draft ISO Recommendation was then submitted by correspondence to the ISO Council which decided, in March 1968, to accept it as an ISO RECOMMENDATION.

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## SURFACE ACTIVE AGENTS

## DETERMINATION OF APPARENT DENSITY

## OF WASHING POWDERS BEFORE AND AFTER COMPACTION

## 1. SCOPE

This ISO Recommendation describes a method for determining the density of washing powders, before and after compaction.

## 2. FIELD OF APPLICATION

This method is equally suitable for all other substances in the form of powder or granules.

In the case of powder containing lumps, the method is applicable only if these can be disintegrated readily without breaking down the particles of the powder.

## 3. DEFINITIONS \*

- 3.1 *Apparent density of a powder before compaction.* Mass (in grammes) of unit volume (1 millilitre) of the powder after free fall.
- 3.2 *Apparent density of a powder after compaction.* Mass (in grammes) of unit volume (1 millilitre) after the container has been jolted until the sample has reached a constant volume.

## 4. PRINCIPLE

Measurement of the volume of a given mass of the powder in a graduated measuring cylinder

- after free fall,
- after jolting the measuring cylinder until constant volume is obtained.

\* The gramme per millilitre (g/ml) is the unit of density of the CGS system.  
The unit of density of the International System of Units (SI) is the kilogramme per cubic metre (kg/m<sup>3</sup>) :  
1 kg/m<sup>3</sup> = 10<sup>-3</sup> g/ml.

## 5. APPARATUS

### 5.1 Apparatus comprising :

5.1.1 *Measuring cylinder*, 250 ml, of glass or plastics, complying with ISO Recommendation R..., \* and having the following characteristics :

- graduations at every 2 ml,
- maximum overall height 335 mm,
- minimum interior height to the top graduation 200 mm.

5.1.2 *Funnel* to fit on the measuring cylinder.

One form of this apparatus is shown, as an example, in the Figure, page 8.

### 5.2 Precision balance.

## 6. PROCEDURE

### 6.1 Preparation of sample

Break down any lumps present in the laboratory sample by shaking and rotating the container, taking care to avoid breaking down the particles of the powder.

Render the sample homogeneous and reduce its size to one half by means of a conical divider as described in ISO Recommendation R 607, *Surface active agents in powder form. – Preparation of a reduced sample*.

### 6.2 Test portion

Take the test portion from the sample prepared in accordance with clause 6.1. A test portion of  $50 \pm 0.1$  g is recommended, but for very light powders a smaller mass should be taken.

### 6.3 Determination

Carry out two determinations before compaction and two after compaction, on two different test portions, as follows :

6.3.1 *Determination before compaction*. Pour the test portion into the measuring cylinder through the funnel and level the surface of the powder without compressing it. Read the volume in the cylinder.

6.3.2 *Determination after compaction*. Having filled the measuring cylinder as described in clause 6.3.1, allow it to fall from a height of 2.5 cm on to a wooden surface and repeat this operation until the volume no longer decreases. Read the final volume obtained.

\* At present in the form of a draft proposal.