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ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION

R 720

DETERMINATION OF THE HYDROLYTIC RESISTANCE OF GLASS GRAINS AT 121 °C

1st EDITION

May 1968

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Also issued in French and Russian. Copies to be obtained through the national standards organizations.

BRIEF HISTORY

The ISO Recommendation R 720, *Determination of the hydrolytic resistance of glass grains at 121 °C*, was drawn up by Technical Committee ISO/TC 48, *Laboratory glassware and related apparatus*, the Secretariat of which is held by the British Standards Institution (BSI).

Work on this question by the Technical Committee began in 1950 and led, in 1961, to the adoption of a Draft ISO Recommendation.

In December 1963, this Draft ISO Recommendation (No. 719) 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	Germany	Poland
Australia	Greece	Spain
Austria	Hungary	Sweden
Belgium	India	Switzerland
Brazil	Israel	Turkey
Canada	Italy	U.A.R.
Chile	Japan	United Kingdom
Colombia	Korea, Rep. of	U.S.S.R.
Czechoslovakia	Netherlands	Yugoslavia
France	New Zealand	

One Member Body opposed the approval of the Draft :

U.S.A.

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

ISO Recommendation R 720 May 1968

DETERMINATION OF THE HYDROLYTIC RESISTANCE OF GLASS GRAINS AT 121 °C

1. SCOPE

The purpose of this ISO Recommendation is to describe a method for determining the hydrolytic resistance of glass grains at 121 °C. The resistance is measured inversely by the volume of acid required for titration of the alkali extracted from unit mass of glass, and is expressed by the amount of sodium oxide equivalent to this volume of acid.

This method is recommended for use on all types of glass. For the less resistant glasses, the method described in ISO Recommendation R 719, *Determination of the hydrolytic resistance of glass grains at 98 °C*, is also suitable.

2. APPARATUS

2.1 *Autoclave.* An autoclave or steam sterilizer should be used which is capable of withstanding a pressure of 1.7×10^5 N/m^2 (1.7 kgf/cm^2) and of carrying out the heating cycle described in section 5. It should preferably be equipped with a constant pressure regulator or other means for maintaining the temperature at 121 ± 0.5 °C. The vessel should be capable of containing at least six 250 ml conical flasks and should be equipped with a rack for supporting the flasks, a thermometer, a pressure gauge and a vent cock.

2.2 *Balance,* accuracy ± 5 mg or better.

2.3 *Beakers,* 50 ml capacity, made of chemically resistant glass and suitably aged by heating in steam at 121 °C for 30 min in the autoclave.

2.4 *Burettes,* 25 ml, graduated in 0.05 ml, and 2 ml, graduated in 0.01 ml.

2.5 *Drying oven,* suitable for operation up to 150 °C.

2.6 *Flasks* conical, 250 ml capacity, made of chemically resistant glass and suitably aged by heating in steam at 121 °C for 30 minutes in the autoclave.

2.7 *Hammer,* weighing about 1 kg.

2.8 *Mortar and pestle,* made of hardened steel and of the design and approximate dimensions shown in the figure, page 6.

2.9 *Pipette,* 50 ml.

2.10 *Sieves,* a set of 200 mm diameter square-aperture sieves, with stainless steel mesh, including :

- a sieve (A)* of 420 μm aperture,
- a sieve (B)* of 300 μm aperture,
- a sieve (O)* of a convenient aperture between 600 and 1000 μm.

The cover, pan, and especially the rings should be of stainless steel or lacquered wood.

2.11 *Stoppered storage vessels.*

2.12 *Weighing bottles,* stoppered, about 20 ml capacity.

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* The aperture size of sieves A and B is subject to reconsideration, since the sizes 420 μm and 300 μm have not been included in ISO Recommendation R 565, *Woven wire cloth and perforated plates in test sieves – Nominal sizes of apertures.*

** The use of sieve O is recommended to retain larger pieces of glass and to avoid heavy wear on sieve A.

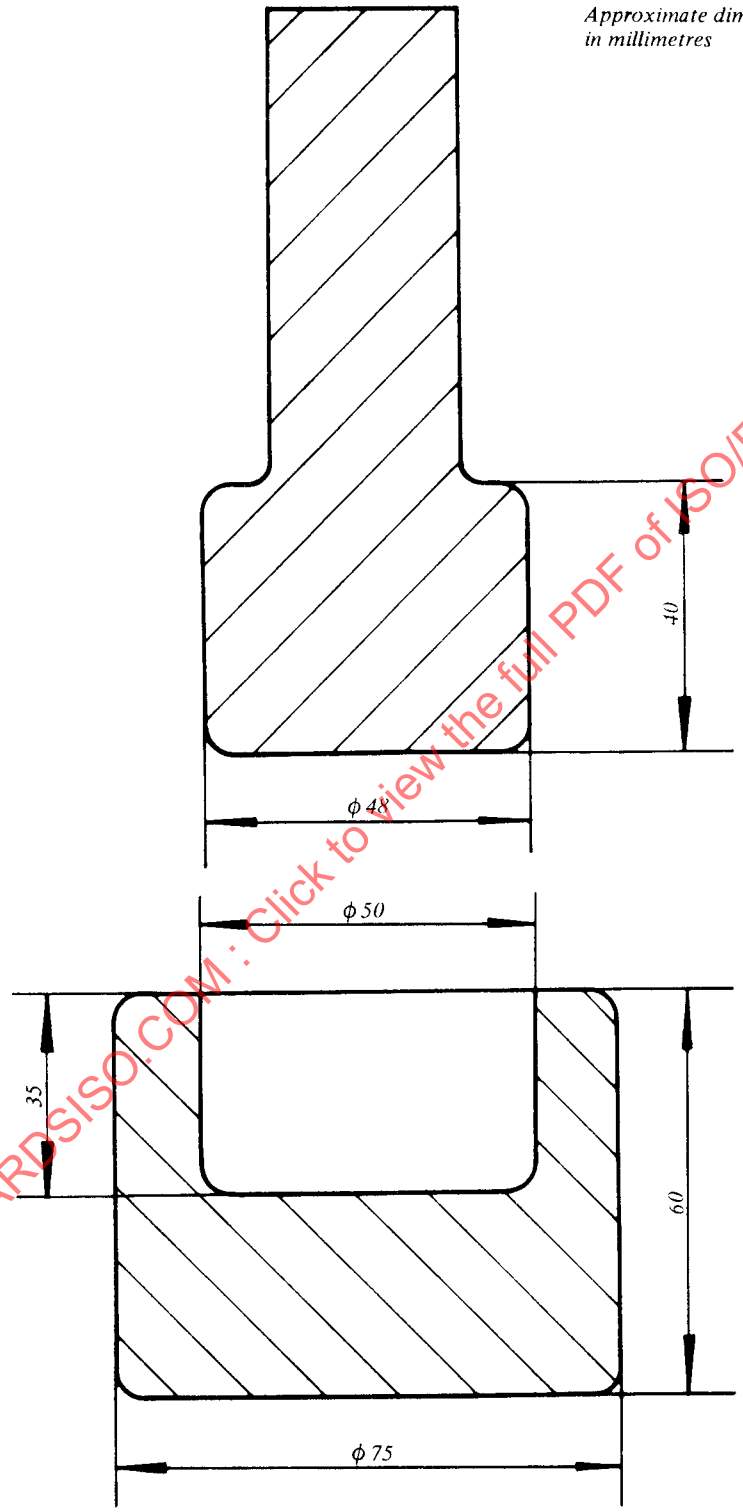

FIGURE – **Hardened steel mortar and pestle**