International Standard 718

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Laboratory glassware — Methods for thermal shock tests

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Foreword

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Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 718 was developed by Technical Committee ISO/TC 48, *Laboratory glassware and related apparatus*, and was circulated to the member bodies in September 1979.

It has been approved by the member bodies of the following countries :

Australia	India	Portugal
Brazil	Italy	Romania
Canada	Korea, Rep. of	South Africa, Rep. of
Czechoslovakia	Libyan Arab Jamahiriya	Spain
France	Mexico	United Kingdom
Germany, F. R.	Netherlands	USSR
Hungary	Poland	

No member body expressed disapproval of the document.

This International Standard cancels and replaces ISO Recommendation R 718-1968 of which it constitutes a technical revision.

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Laboratory glassware — Methods for thermal shock tests

1 Scope and field of application

This International Standard specifies general methods of test intended to assess the resistance of glassware used in laboratories to a shock arising from a predetermined change in temperature.

Three methods are prescribed :

a) Method A, for testing whole articles at temperature differences of less than 100 °C.

b) Method B, for testing whole articles at temperature differences of 80 °C or more;

c) Method C, for testing the rims of articles.

NOTE — Method B is recommended also for testing small articles at temperature differences of less than 100 °C, in cases for which Method A is inappropriate.

2 Definitions

For the purposes of this International Standard, the following definitions apply :

2.1 thermal shock : The difference between the upper temperature t_1, to which the article is heated, and the lower temperature t_2 of the cold water bath, in which the article is placed.

2.2 temperature variation : The difference at any moment between the temperature at the centre of the working space and at any other point in the working space of the test oven.

2.3 temperature fluctuation : The short-term changes in temperature at any point in the working space of the test oven.

3 Apparatus

3.1 Method A : For testing whole articles at temperature differences less than 100 °C

3.1.1 Bath (warm), having a capacity of at least double the total volume[1] of the articles being tested at one time, and in any case having a capacity not less than 5 l. This bath shall be fitted with a thermometer and with a means of heating and stirring so that the temperature variation does not exceed ± 1 °C.

3.1.2 Bath (cold), having a capacity of at least 5 times the total volume[1] of the articles being tested at one time. The bath shall be fitted with a circulator and thermometer, and shall be capable of being maintained at a stated temperature between 0 and 27 °C as required.

3.1.3 Basket, for testing two or more articles simultaneously. The basket shall be made from, or coated with, a material which will not scratch or scuff the articles during the test procedure. It shall be capable of holding the articles upright and separate and of allowing a free passage of water between them.

3.2 Method B : For testing whole articles at temperature differences of 80 °C or more

3.2.1 Oven, having a temperature range up to at least 300 °C and fitted with an air-stirrer or circulator to ensure that the temperature variation does not exceed ± 5 °C. The oven shall be fitted with a thermostat capable of maintaining the temperature fluctuation within ± 1 °C up to 180 °C and within ± 2 °C between 180 and 300 °C.

3.2.2 Bath, the bath shall be similar to that described for the cold bath (3.1.2) specified for Method A.

3.2.3 Basket, for testing two or more articles simultaneously. The basket shall be made from, or coated with, a material which will not scratch or scuff the articles during the test procedure. It shall be capable of holding the articles upright and separate and of allowing a free passage of water and air between them.

3.3 Method C : For testing the rims of articles

As for Method B.

1) The total volume of the articles is taken as the sum of the volumes of the individual articles, each article being regarded as a solid.