International Standard 4794

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Laboratory glassware — Methods for assessing the chemical resistance of enamels used for colour coding and colour marking

Verrerie de laboratoire — Méthodes d'évaluation de la résistance chimique des émaux utilisés pour le code de couleurs et les couleurs d'identification

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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 4794 was developed by Technical Committee ISO/TC 48, *Laboratory glassware and related apparatus*, and was circulated to the member bodies in June 1979.

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

Australia	India	Romania
Czechoslovakia	Israel	South Africa, Rep. of
Egypt, Arab Rep. of	Italy	Spain
France	Korea, Rep. of	United Kingdom
Germany, F. R.	Mexico	USA
Hungary	Poland	USSR

No member body expressed disapproval of the document.

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Laboratory glassware — Methods for assessing the chemical resistance of enamels used for colour coding and colour marking

0 Introduction

The following methods of test are intended to give an assessment of the chemical resistance of colour marking enamels used on laboratory glassware, e.g. pipettes colour coded according to ISO 1769. Detergent and acid solutions have been chosen to represent the most severe conditions to be encountered in practice.

A proposal to include a test for resistance to autoclaving was considered, but was rejected as unnecessary on the grounds that the test for resistance to detergent solutions would cover the same ground.

Consideration was also given to a test involving immersion in a chromic/sulphuric acid solution, but this was thought to be unnecessary because of the decreasing use of these solutions for cleaning laboratory glassware, the difficulty in specifying such a solution precisely, and evidence that the degree of attack on colour coding enamels would be no greater than with the hydrochloric acid solution specified in this International Standard.

1 Scope and field of application

This International Standard specifies test methods for the assessment of the service performance of enamels used for colour coding and colour marking of laboratory glassware. It does not purport to classify enamels by their degree of resistance; it provides standard procedures for determining whether an enamel resists the specified treatment without a change such that the colour can no longer be identified, or might be confused with any other colour used in colour coding.

The procedures involve treatment for specified periods with an alkaline detergent solution at 80 °C and a dilute acid solution at room temperature.

2 Reference

ISO 1769, *Laboratory glassware — Pipettes — Colour coding.*

ISO 3819, *Laboratory glassware — Beakers.* [1]

3 Reagents

3.1 Distilled water or **deionized water.**

3.2 Detergent solution.

Dissolve 50 g of tetrasodium pyrophosphate ($Na_4P_2O_7$) and 5 g of sodium dodecylbenzene sulphonate ($C_{18}H_{29}SO_3Na$) in 1 litre of water.

3.3 Hydrochloric acid [c(HCl) = 2 mol/l], analytical grade.

3.4 Acetone (CH_3COCH_3), pure.

4 Apparatus

4.1 Beaker, of capacity 1 litre, complying with ISO 3819.

4.2 Beaker cover glass, of diameter sufficient to cover the 1 litre beaker (4.1).

4.3 Heating bath, with suitable heating equipment which enables a test solution to be maintained at a constant temperature of 80 ± 1 °C.

4.4 Sample holder, made from inert material.

4.5 Stoppered storage vessels.

4.6 Thermometer, suitable for use in the heating bath (4.3) and capable of measuring to ± 1 ° C at a temperature up to 100 °C.

4.7 Cleaning cloth, made of pure cellulose.

1) At present at the stage of draft.