

INTERNATIONAL STANDARD

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Household electrical appliances – Performance – Hard water for testing

*Appareils électrodomestiques –
Aptitude à la fonction –
Eau dure pour les essais*

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International Electrotechnical Commission 3, rue de Varembé Geneva, Switzerland
Telefax: +41 22 919 0300 e-mail: inmail@iec.ch IEC web site <http://www.iec.ch>



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**HOUSEHOLD ELECTRICAL APPLIANCES –
PERFORMANCE –
HARD WATER FOR TESTING**
FOREWORD

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International standard IEC 60734 has been prepared by subcommittee 59D: Home laundry appliances, of IEC Technical Committee 59: Performance of household electrical appliances.

This third edition of IEC 60734 replaces the second edition published in 1993.

The text of this standard is based on the following documents:

FDIS	Report on voting
59D/201/FDIS	59D/210/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 3.

Annex B forms an integral part of this standard.

Annexes A and C are for information only.

Words in **bold** in the text are defined in clause 3.

The committee has decided that the contents of this publication will remain unchanged until 2006. At this date, the publication will be

- reconfirmed;
- withdrawn;
- replaced by a revised edition, or
- amended.

A bilingual version of this standard may be issued at a later date.

INTRODUCTION

This publication describes several methods to prepare water of standardised hardness to be used for testing household appliances in cases where the water quality is important for the reproducibility of the test results.

It is based on the second edition of IEC 60734, which describes two methods, A and B, of preparing water of three different water hardnesses. Experiences from application of the methods have shown that they are unnecessarily rigid for some purposes and thus expensive or not suited for the preparation of large quantities of water. Furthermore the hardness given is not in line with those stated in some performance standards. Complementary methods C1 and C2 have been developed to be used in such cases. These allow the use of natural instead of demineralised water.

Method A is used to prepare hard water of the correct total hardness. Preparation starts with demineralised water in which hardening salts are dissolved by bubbling carbon dioxide through the mixture.

Method B involves preparation in a similar way but with other salts, which are soluble without addition of carbon dioxide. This method will result in excessive amounts of some ions compared to method A. Both methods give water with specified temporary as well as permanent hardness.

Method C1 starts with natural water with higher hardness than required, while method C2 starts with soft natural water, which is hardened. Depending on the composition of the natural water, several other ions might be present. Restrictions regarding the amounts are given for some ions, which may influence the cleaning results when testing washing machines and dishwashers. No specification regarding temporary and permanent hardness is given.

HOUSEHOLD ELECTRICAL APPLIANCES – PERFORMANCE – HARD WATER FOR TESTING

1 Scope

This International Standard describes the preparation of three types of water of different hardness intended to be used for testing the performance of household appliances such as washing machines, dishwashers, dryers, steam irons etc.

It defines the characteristics of these waters and establishes various methods to be used for obtaining them.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 6059:1984, *Water quality – Determination of the sum of calcium and magnesium – EDTA titrimetric method*