BS EN 60734:2012

BSI Standards Publication

Household electrical appliances — Performance — Water for testing

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National foreword

This British Standard is the UK implementation of EN 60734:2012. It is identical to IEC 60734:2012. It supersedes BS EN 60734:2003 which is withdrawn.

The UK participation in its preparation was entrusted by Technical Committee CPL/59, Performance of household electrical appliances, to Subcommittee CPL/59/1, Dishwashers and washing machines.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Published by BSI Standards Limited 2013

ISBN 978 0 580 71058 2

ICS 97.030

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 January 2013.

Amendments issued since publication

Date	Text affected

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 60734

September 2012

ICS 97.060

Supersedes EN 60734:2003

English version

Household electrical appliances - Performance - Water for testing

(IEC 60734:2012)

Appareils électrodomestiques - Aptitude à la fonction - Eau pour les essais (CEI 60734:2012)

Elektrische Geräte für den Hausgebrauch - Gebrauchseigenschaften - Wasser für Prüfungen (IEC 60734:2012)

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Management Centre: Avenue Marnix 17, B - 1000 Brussels

Ref. No. EN 60734:2012 E

Foreword

The text of document 59D/398/FDIS, future edition 4 of IEC 60734, prepared by SC 59D, Home laundry appliances, of IEC TC 59, Performance of household and similar electrical appliances was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60734:2012.

The following dates are fixed:

• latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2013-05-01
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2015-08-01

This document supersedes EN 60734:2003.

EN 60734:2012 includes the following significant technical changes with respect to EN 60734:2003:

a) four types of standard water, from soft to very hard, are defined with specification for hardness**,** **alkalinity** and **conductivity**;

b) preparation method A is no longer maintained; and

c) method C3 is added to prepare water of specified hardness, **conductivity** and **alkalinity** starting with natural water while the natural water based methods C1 and C2 focus on **water hardness** only, without allowing control or setting of **alkalinity** and **conductivity**.

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

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

Endorsement notice

The text of the International Standard IEC 60734:2012 was approved by CENELEC as a European Standard without any modification.

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Publication	Year	Title	EN/HD	Year
ISO 6059	-	Water quality - Determination of the sum of calcium and magnesium - EDTA titrimetric method	-	-
ISO 7888	-	Water quality - Determination of electrical conductivity	EN 27888	-
ISO 9963-1	-	Water quality - Determination of alkalinity - Part 1: Determination of total and composite alkalinity	EN ISO 9963-1	-
ISO 10523	-	Water quality - Determination of pH	EN ISO 10523	-

CONTENTS

INTRODUCTION

This publication specifies water qualities with regard to hardness, **alkalinity** and **conductivity** and describes several methods to prepare water to be used for testing household appliances in cases where the water quality is important for the reproducibility of the test results. The described methods allow the preparation of water complying with all three target requirements (hardness, **alkalinity**, **conductivity**), or just hardness – depending on the requirements set out in the referring appliance test method.

Compared to the third edition of IEC 60734 (2001), method A is no longer maintained and another method, method C3, is added.

Method B is used to prepare water of the correct **total hardness**. Preparation starts with demineralised water in which hardening salts are dissolved. It will give water specified temporary as well as **permanent hardness**, whilst complying with the specifications for **alkalinity** and **conductivity**.

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.

The development of method C3 appreciates the need for water of specified **conductivity** and **alkalinity** for testing the performance of tumble dryers. While synthetic method B meets this need, the natural water based methods C1 and C2 focus on **water hardness** only without allowing control or setting of **alkalinity** and **conductivity**. The new method C3, which starts with natural water, fills that gap.

HOUSEHOLD ELECTRICAL APPLIANCES – PERFORMANCE – WATER FOR TESTING

1 Scope

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

It defines the characteristics of these waters and establishes various methods to be used for obtaining them. It also includes specifications for required measurements.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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

ISO 7888, *Water quality – Determination of electrical conductivity*

ISO 9963-1, *Water quality – Determination of alkalinity – Part 1: Determination of total and composite alkalinity*

ISO 10523, *Water quality – Determination of pH*

3 Terms, definitions and symbols

3.1 Terms and definitions

For the purposes of this document, the following definitions apply.

3.1.1
water hardness
parameter indicating the quantity of alkaline earth salts (bicarbonates, sulphates, chlorides etc.) present in the water

3.1.2
total hardness
sum of calcium and magnesium ions in the water

3.1.3
temporary hardness
fraction of the **total hardness** equivalent to the bicarbonate content

3.1.4
permanent hardness
difference between the **total hardness** and the **temporary hardness**