

# TECHNICAL SPECIFICATION



**Electric dishwashers for household use – Methods for measuring the  
microbiological efficacy of the dishwashing process**

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**ELECTRIC DISHWASHERS FOR HOUSEHOLD USE –  
METHODS FOR MEASURING THE MICROBIOLOGICAL  
EFFICACY OF THE DISHWASHING PROCESS**

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IEC TS 63331 has been prepared by subcommittee 59A: Electric dishwashers, of IEC technical committee 59: Performance of household electrical appliances. It is a Technical Specification.

The text of this Technical Specification is based on the following documents:

Draft	Report on voting
59A/262/DTS	59A/267/RVDTS

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

The language used for the development of this Technical Specification is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at [www.iec.ch/members\\_experts/refdocs](http://www.iec.ch/members_experts/refdocs). The main document types developed by IEC are described in greater detail at [www.iec.ch/publications](http://www.iec.ch/publications).

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# ELECTRIC DISHWASHERS FOR HOUSEHOLD USE – METHODS FOR MEASURING THE MICROBIOLOGICAL EFFICACY OF THE DISHWASHING PROCESS

## 1 Scope

This document applies to electric **dishwashers** for household and similar use that are supplied with hot and/or cold water.

This document deals with measurement procedures regarding the reduction of microbial contamination resulting from the use of electric **dishwashers** for household and similar use.

This document specifies methods that enable reproducible measurements. These derived measurement results can only be used for a relative statement. Absolute statements, i.e. health-related claims or conclusions about prevention or treatment of a disease or health improvement, are reserved for explicit regulatory action after a medical assessment.

This document does not apply to appliances intended to be used in medical, veterinary, or pharmaceutical applications.

This document does not address sanitization, disinfection or sterilization measures.

The dishwashing process is a complex **operation** consisting of cleaning dish items and cleaning the **dishwasher** itself. This document only focusses on the dish items to be cleaned.

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60436:2015, *Electric dishwashers for household use – Methods for measuring the performance*

IEC 60436:2015/AMD1:2020<sup>1</sup>

ISO 607:1980, *Surface active agents and detergents – Methods of sample division*

ISO 15883-1:2006, *Washer-disinfectors – Part 1: General requirements, terms and definitions and tests*

ISO/TS 15883-5:2005<sup>2</sup>, *Washer-disinfectors – Part 5: Test soils and methods for demonstrating cleaning efficacy*

ISO 19458:2006, *Water quality – Sampling for microbiological analysis*

NSF/ANSI 184-2019, *Residential Dishwashers*

<sup>1</sup> A consolidated version of this document exists, comprising IEC 60436:2015 and IEC 60436:2015/AMD1:2020.

<sup>2</sup> This standard has been revised by ISO 15883-5:2021 but the listed edition applies.



EN 10088-1:2014<sup>3</sup>, *Stainless steels – Part 1: List of stainless steels*

### 3 Terms, definitions, symbols and abbreviated terms

#### 3.1 Terms and definitions

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

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- IEC Electropedia: available at <https://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>

##### 3.1.1

###### **dishwasher**

machine that cleans, rinses and dries **tableware** by chemical, mechanical, thermal and electric means

[SOURCE: IEC 60436:2015, 3.1.1, modified – The notes to entry have been omitted.]

##### 3.1.2

###### **microbiological efficacy**

antimicrobial action created by the properties of the appliance

##### 3.1.3

###### **test machine**

**dishwasher** under test

[SOURCE: IEC 60436:2015, 3.1.5]

##### 3.1.4

###### **test run**

single **cycle** performance assessment of a selected test programme

##### 3.1.5

###### **test series**

set of **test runs** which are collectively used to assess the performance

[SOURCE: IEC 60436:2015, 3.1.8]

##### 3.1.6

###### **tableware**

dishware, glassware, cutlery and **serving pieces** used according to this standard to test a **dishwasher**

[SOURCE: IEC 60436:2015, 3.1.9]

##### 3.1.7

###### **operation**

each event that occurs during the **dishwasher programme** such as cleaning, rinsing or drying

[SOURCE: IEC 60436:2015, 3.1.13]

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<sup>3</sup> Withdrawn.

### 3.1.8 programme

series of **operations** which are pre-defined within the **dishwasher** and which are declared as suitable for specified levels of soil and/or type of load

Note 1 to entry: Usually, an end of programme indicator signals the end of the programme and the user has access to the load.

[SOURCE: IEC 60436:2015, 3.1.14 and IEC 60436:2015/AMD1:2020, 3.1.14]

### 3.1.9 automatic dispenser

device activated automatically which injects or dispenses **detergent** or **rinse aid**, one or more times into the **dishwasher** at predetermined points in the **dishwasher programme**

[SOURCE: IEC 60436:2015, 3.1.18]

### 3.1.10 water softener

device which reduces the hardness of water

[SOURCE: IEC 60436:2015, 3.1.20]

### 3.1.11 rack

support for holding dishware, cutlery, and/or glassware in the **dishwasher**

[SOURCE: IEC 60436:2015, 3.1.22]

### 3.1.12 place setting

set of **tableware** for the use by one person, not including **serving pieces**

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Note 1 to entry: A **place setting** is comprised of different items used for breakfast and lunch (type A); and dessert and dinner (type B). For details, see IEC 60436:2015 and IEC 60436:2015/AMD1:2020.

[SOURCE: IEC 60436:2015, 3.1.10, modified – Note 1 to entry has been modified to add reference to IEC 60436.]

### 3.1.13 serving pieces

set of items for preparation and serving of food which can include pots, serving bowls, serving cutlery and a platter

[SOURCE: IEC 60436:2015, 3.1.11]

### 3.1.14 rated dishwasher capacity

whole number of **place settings** together with the **serving pieces** which can be cleaned and dried in one **cycle** when loaded in accordance with the manufacturer's instructions

Note 1 to entry: The **rated dishwasher capacity** is declared by the manufacturer and expressed as a number of **place settings**.

[SOURCE: IEC 60436:2015, 3.1.12]

**3.1.15  
detergent**

cleaning agent for use in **dishwashers** to aid in the removal of food soils by chemical means

Note 1 to entry: A reference **detergent** in powder form is specified for use in IEC 60436:2015, 5.7.

[SOURCE: IEC 60436:2015, 3.1.23, modified – Note 1 to entry has been modified to clarify the reference to IEC 60436.]

**3.1.16  
rinse aid**

chemical agent added to the water in the last rinsing **operation** to improve the drying effect and reduce water marks

Note 1 to entry: A reference **rinse aid** is specified for use in 60436:2015, 5.8.

[SOURCE: IEC 60436:2015, 3.1.24, modified – Note 1 to entry has been modified to clarify the reference to IEC 60436.]

**3.1.17  
refrigerated**

storage of foods at a temperature of  $(4 \pm 3)$  °C

[SOURCE: IEC 60436:2015, 3.1.32]

**3.1.18  
freeze**

storage of foods at a temperature of  $(-18 \pm 3)$  °C

[SOURCE: IEC 60436:2015, 3.1.33]

**3.1.19  
filter**

device in the sump of the **dishwasher** to separate soils out of the dishwashing solution

**3.1.20  
temperature profile**

temperature data collected in the **dishwasher** over the duration of the **programme**

**3.1.21  
demineralized water**

water that has been depleted of the salt content by reverse osmosis or ion exchange processes

Note 1 to entry: E.g. by ion exchange or reverse osmosis processes.

**3.1.22  
bio indicator**

standardized test object which has been contaminated with an embedding matrix and test bacteria and is used for checking the microbial efficacy of **dishwashers**

**3.1.23  
stainless steel strips**

standardized test object which is intended to be contaminated with an embedding matrix and test bacteria