



BSI Standards Publication

**Clothes washing machines and washer-dryers for household and similar use -  
Method for the determination of rinsing effectiveness by measurement of the surfactant content at textile materials**

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## National foreword

This Published Document is the UK implementation of CLC/TS 50677:2019.

The UK participation in its preparation was entrusted to Technical Committee CPL/59, Performance of household electrical appliances.

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

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English Version

**Clothes washing machines and washer-dryers for household and similar use - Method for the determination of rinsing effectiveness by measurement of the surfactant content at textile materials**

Machines à laver le linge et machines à laver et à sécher pour usages domestiques et analogues - Méthode pour la détermination de l'efficacité de rinçage par la mesure de la teneur en tensioactifs des matières textiles

Waschmaschinen und Wäschetrockner für den Hausgebrauch und ähnliche Zwecke - Verfahren zur Bestimmung der Spülwirkung durch Messung des Tensorgehalts an Textilien

This Technical Specification was approved by CENELEC on 2018-12-31.

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## Contents

Page

European foreword.....	5
1 Scope .....	6
2 Normative references .....	6
3 Terms and definitions .....	6
4 Symbols and abbreviated terms .....	6
4.1 The variables for Rinse Effectiveness calculations are defined as: .....	6
4.2 Symbols relating to Annex A.....	7
5 Requirements .....	7
6 Test method .....	8
6.1 Equipment and materials.....	8
6.1.1 Climate chamber.....	8
6.1.2 Ultraviolet (UV) spectrophotometer.....	8
6.1.3 Quartz cuvette.....	8
6.1.4 Cuvette rack.....	8
6.1.5 Orbital shaker.....	8
6.1.6 Scale for weighing detergent and samples .....	8
6.1.7 Weigh bowl.....	9
6.1.8 Volumetric flask.....	9
6.1.9 Graduated cylinder, 100 ml .....	9
6.1.10 Magnetic stirrer.....	9
6.1.11 Magnetic stir bar.....	9
6.1.12 Pipette.....	9
6.1.13 Disposable glass pipettes (e.g. Pasteur pipettes).....	9
6.1.14 Pipette bulbs, 2 ml or greater .....	9
6.1.15 Sample bottle with cap (for test solution extraction) .....	9
6.1.16 Laboratory wipes .....	9
6.1.17 Distilled water .....	9
6.1.18 Squirt bottle.....	10
6.1.19 Funnel.....	10
6.1.20 Reference detergent A* base powder.....	10
6.2 Preparation of equipment.....	10
6.2.1 UV spectrophotometer check.....	10
6.2.2 Cleanliness.....	10
6.2.3 Cuvette filling and cleaning.....	10
6.2.4 Checking the quality of the distilled water .....	10
6.2.5 Cuvette matching.....	13
6.3 Procedure.....	13
6.3.1 Detergent concentration curve .....	13
6.3.2 Test run procedure.....	14
6.3.3 Acquiring samples.....	14
6.3.4 UV Absorbance Measurements.....	15
6.4 Expression of results .....	16
6.4.1 Rinsing Effectiveness .....	16
6.4.2 Rinse Evenness .....	18
7 Data to be reported.....	18
Annex A (normative) Procedure for Determining Detergent Concentration Curve.....	19

A.1	General approach .....	19
A.2	IEC-A* base detergent sampling.....	19
A.3	Distilled Water.....	19
A.4	Preparation of Stock 1 solution (IEC-A* base powder detergent) .....	19
A.4.1	Sample Weighing.....	19
A.4.2	Mix the Sample .....	19
A.4.3	Stock 1 Calculation.....	20
A.5	Preparation of Stock 2.....	20
A.5.1	Mix the Sample .....	20
A.5.2	Stock 2 Calculation .....	20
A.6	Preparation of Working Standards .....	21
A.6.1	Mix the Solutions.....	21
A.6.2	Working Standard Calculations .....	21
A.7	Measure the Absorbance of the Working Standard Solutions .....	22
A.8	Calculations .....	23
A.8.1	Initial Treatment of the Data .....	23
A.8.2	Single sample data (per detergent sample).....	23
A.8.3	Combined sample data (all detergent samples) .....	23
Annex B (normative)	IEC-A* base powder detergent sampling.....	24
B.1	Purpose .....	24
B.2	Devices and Materials .....	24
B.3	Sampling procedure.....	24
Annex C (informative)	Acquiring samples using a dispenser .....	28
C.1	General .....	28
C.2	Calibration of the dispenser .....	28
C.2.1	General .....	28
C.2.2	Priming .....	28
C.2.3	Setting the volume .....	28
C.2.4	Calibration .....	28
C.2.5	Calculation: .....	29
C.3	Acquiring samples (with dispenser).....	29
Annex D (informative)	Quartz cuvette and glassware cleaning and handling.....	30
D.1	Purpose .....	30
D.2	Cuvettes.....	30
D.3	General Cleaning .....	30
D.4	Periodic Glass Cleaning .....	31
D.4.1	General .....	31
D.4.2	Standard Glassware Cleaning Solutions .....	31

<b>Annex E (informative) Uncertainty of the test method .....</b>	<b>32</b>
<b>Annex F (informative) Reduction of the test effort .....</b>	<b>33</b>
<b>Annex G (normative) Test report – Data to be recorded .....</b>	<b>34</b>
<b>G.1 General .....</b>	<b>34</b>
<b>G.2 Data for test washing machine.....</b>	<b>34</b>
<b>G.3 Data, parameters and results for the test series .....</b>	<b>35</b>
<b>G.4 Example of calibration data collection (including calculation) .....</b>	<b>36</b>
<b>G.5 Example of data collection for measurement.....</b>	<b>37</b>
<b>Bibliography.....</b>	<b>39</b>

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## European foreword

This document (CLC/TS 50677:2019) has been prepared by CLC/TC 59X "Performance of household and similar electrical appliances".

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

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## 1 Scope

This Technical Specification provides a method for the evaluation of the rinsing effectiveness of household clothes washing machines, washer dryers and commercial washing machines. The amount of residual linear alkylbenzene sulfonate surfactant (LAS) extracted from the unstained test swatches of the strips used in the washing performance test is determined. This is accomplished by measuring the ultraviolet (UV) light absorbance at the wavelength particular to LAS, a key ingredient of the detergent.

Assuming a fixed linear relationship between LAS amount and quantity of detergent mixture and using a concentration versus absorbance curve developed as part of this procedure, the absorbance values are then converted into detergent concentrations, which together with the test solution mass data, yields detergent quantities. This assumption is done, because in the frame of this test it is not possible to determine the exact amount of LAS involved, even in the concentration curves, but only the amount of detergent used.

On the textiles, this linear relationship is not given, but it is nevertheless used to express the amount of LAS as determined by UV light absorbance measurements in terms of a detergent amount.

Using a concentration versus absorbance curve developed as part of this procedure, the absorbance values can then be converted into detergent concentrations, which together with the test solution mass data, yields detergent quantities.

## 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.

EN 60456:2016, *Clothes washing machines for household use — Methods for measuring the performance (IEC 60456)*

## 3 Terms and definitions

No terms and definitions are listed in this document.

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

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

## 4 Symbols and abbreviated terms

### 4.1 The variables for Rinse Effectiveness calculations are defined as:

$Asp_a$	average absorbance
$Asp_{avg,j}$	average net absorbance of the sample $j$ <sup>1)</sup>
$Asp_i$	net absorbance for specimen $i$ <sup>1)</sup>
$A_{223,i}$	absorbance reading at 223 nm for specimen $i$ <sup>1)</sup>
$A_{330,i}$	absorbance reading at 330 nm for specimen $i$ <sup>1)</sup>
$Asp_m$	peak absorbance at wavelength $m$ <sup>1)</sup>

<sup>1)</sup> Care shall be taken in the calculations of Clause 6, as these variables are depending on additional parameters, e.g. index of the sample, swatch or test run.