SLOVENSKI STANDARD
SIST EN 60436:2020/oprAB:2021

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Električni pomivalni stroji za gospodinjstva - Preskusne metode za merjenje lastnosti - Dopolnilo AB

Electric dishwashers for household use - Methods for measuring the performance

Elektrische Geschirrspüler für den Hausgebrauch - Messverfahren für Gebrauchseigenschaften

Lave-vaisselle électriques à usage domestique - Méthodes de mesure de l'aptitude à la fonction

Ta slovenski standard je istoveten z: **EN 60436:2020/prAB**

ICS:

97.040.40	Pomivalni stroji	Dishwashers

SIST EN 60436:2020/oprAB:2021 **en,fr**

EUROPEAN STANDARD

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English Version

Electric dishwashers for household use - Methods for measuring the performance

Lave-vaisselle électriques à usage domestique - Méthodes de mesure de l'aptitude à la fonction

Elektrische Geschirrspüler für den Hausgebrauch - Messverfahren für Gebrauchseigenschaften

This draft amendment prAB, if approved, will modify the European Standard EN 60436:2020; it is submitted to CENELEC members for enquiry.
Deadline for CENELEC: 2021-10-01.

It has been drawn up by CLC/TC 59X.

If this draft becomes an amendment, CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment the status of a national standard without any alteration.

This draft amendment was established by CENELEC in three official versions (English, French, German).
A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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CENELEC

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

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Contents

European foreword

This document (EN 60436:2020/prAB:2021) has been prepared by CLC/TC 59X “Performance of household and similar electrical appliances”.

This document is currently submitted to the Enquiry.

The following dates are proposed:

• latest date by which the existence of this document has to be announced at national level	(doa)	dor + 6 months
• latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	dor + 12 months
• latest date by which the national standards conflicting with this document have to be withdrawn	(dow)	dor + 36 months (to be confirmed or modified when voting)

This document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For the relationship with EU Directive(s) see informative Annexes ZZA and ZZB, which are an integral part of EN 60436:2020/A11:2020.

This document amends EN 60436:2020. It includes the following significant changes with respect to:

— editorial improvement regarding consistent use of terms;

— realignment of headings (IEC vs EN);

— update of milk preparation procedure;

— guidance on use of plastic fork as soiling tool;

— rounding of reported numbers in alignment with amendment of EU energy labelling and ecodesign regulation;

— necessary change of specified ranges for test load weight;

— update of supplier information annex;

— addition of Annex ZC Test report template;

— withdrawal of corrigendum (change of detergent annex);

— amendment of Annex ZA Measurement procedure for low power modes reflecting learnings of round robin test.

1 Modifications to Clause 6, "Combined cleaning and drying performance test"

***Modify** the title of* Clause 6 *as follows:*

"Combined cleaning and drying performance tests"

*In 6.4.2.4 "Application", **modify** the text of the last bullet point as follows:*

"Upon removal from the refrigerator, gently shake the milk for approximately 5 s before each application. Immediately after shaking add 10 ml of milk to each glass using a pipette and immediately carry out the cooking process."

*In 6.4.4.3, "Application", **add** a note at the end of the paragraph:*

"

NOTE Alternatives to single-use plastic forks are available. It is expected to use an alternative with soft and flexible prongs to minimize the risk of scratching of dish load items."

*In 6.4.7.3, "Application", **add** a note at the end of the paragraph:*

"

NOTE Alternatives to single-use plastic forks are available. It is expected to use an alternative with soft and flexible prongs to minimize the risk of scratching of dish load items."

***Replace** Figure 4, "The thermal cabinet with soiled load items (30 place settings)" with the following:*

"

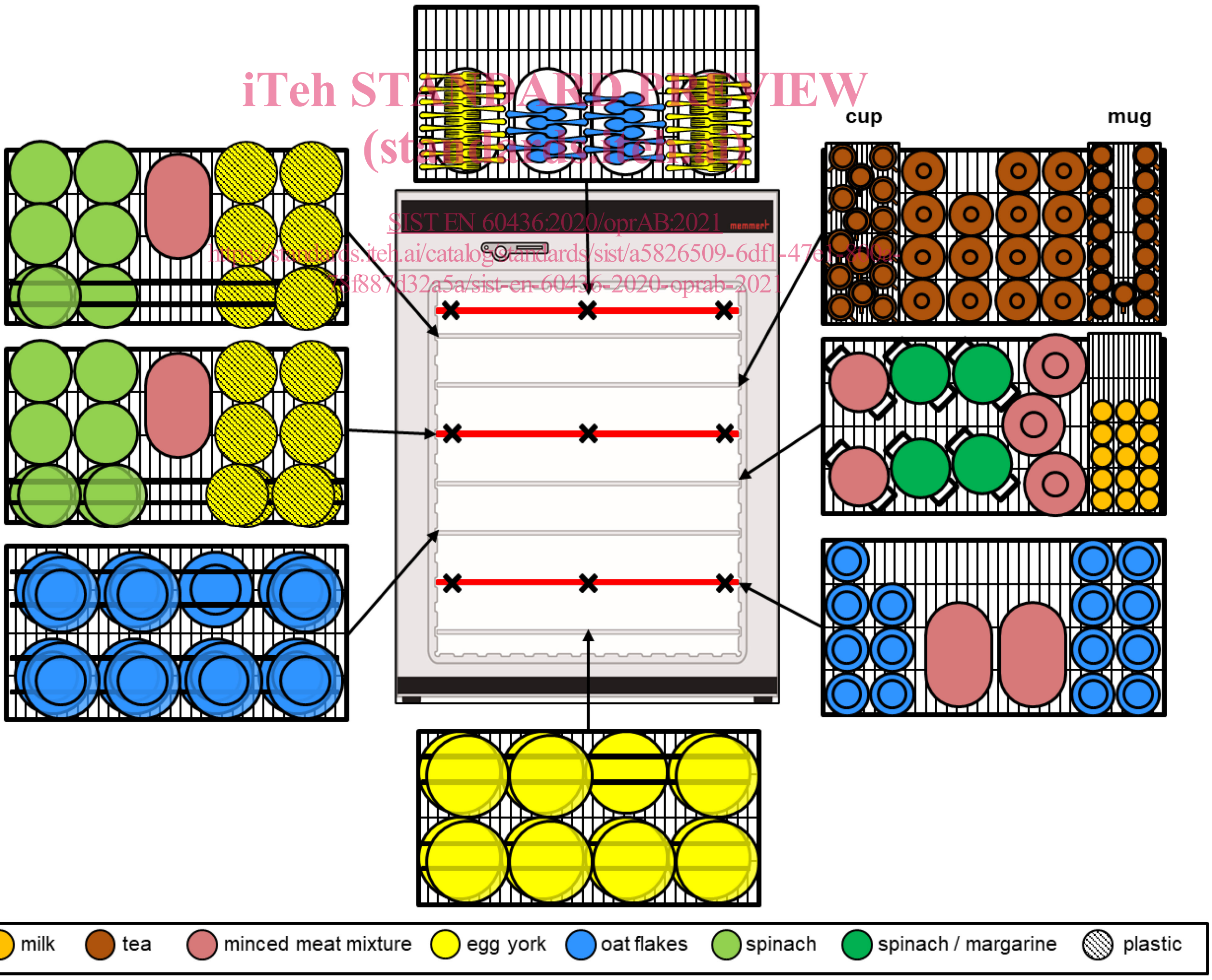


Figure 4 — *The thermal cabinet with soiled load items (30 place settings)"*

2 Modifications to Clause 7, "Combined cleaning and drying performance assessment"

Modify *7.4.1, "Expressing drying results" as follows:*

"The final drying result of the **test machine** shall be reported in relation to the **reference machine**. Record the drying performance index for the **test series** P_D [P_D= exp (ln P_D)] of the **test machine** rounded to 3 decimal places."

Modify *7.4.2, "Expressing cleaning results" as follows:*

"The final cleaning result of the **test machine** is the average of the initial series of **test runs** without filter cleaning, in relation to the **reference machine**. Record the cleaning performance index for the **test series** P_C [P_C = exp (ln P_C)] of the **test machine**, rounded to 3 decimal places. The filter system is to be declared as **automatic** or **self-cleaning**.

If the **dishwasher** is tested with filter cleaning (see **7.3.4**), the score is the average of the 5 test **cycles**, in relation to the **reference machine**. Record the cleaning performance index for the **test series** P_C [P_C = exp (ln P_C)] of the **test machine**, rounded to 3 decimal places. The filter system shall be declared as a **manual filter**."

3 Modification of Annex A, " Place settings and serving pieces"

Modify *Table A.1, "Specification of tableware items" as follows:*

"

Table A.1 — Specification of tableware items

Item Id.	Item description	Material	Diameter/ length in mm [a]	Weight in g [b]	Surface colour
Load items type A + type B					
A 1	Dinner plate	porcelain	**250**	**530**	**white**
A 2	Dessert plate	porcelain	**190**	**250**	**white**
A 3	Dessert bowl	Corelle glass	**130**	**118**	**white**
A 4	Mug	porcelain	**70**	**268**	**white**
B 1	Soup plate	porcelain	**230**	**460**	**white**
B 2	Melamine dessert plate	melamine	**195**	**130**	**white**
B 3	Saucer	porcelain	**140**	**140**	**white**
B 4	Cup	porcelain	**78**	**120**	**white**
A 5 + B 5	Glass	borosilicate glass	**60**	**110**	**transparent**
A 6 + B 6	Fork	(18/10) stainless steel	**188**	**41**	**metallic**
A 7 + B 7	Knife	(18/10) stainless steel	**209**	**55**	**metallic**
A 8 + B 8	Soup spoon	(18/10) stainless steel	**190**	**51**	**metallic**
A 9 + B 9	Dessert spoon	(18/10) stainless steel	**156**	**34**	**metallic**
A 10 + B 10	Teaspoon	(18/10) stainless steel	**136**	**23**	**metallic**

Item Id.	Item description	Material	Diameter/ length in mm a	Weight in g b	Surface colour
Serving pieces					
S 1 a	Small pot	(18/10) stainless steel	**160**	**820**	**metallic**
S 1 b	Oven pot	(18/10) stainless steel	**160**	**475**	**metallic**
S 2	Glass bowl	borosilicate glass	**186**	**330**	**transparent**
S 3	Oval platter	porcelain	**320**	**850**	**white**
S 4	Melamine bowl	melamine	**213**	**170**	**white**
S 5	Serving spoon	(18/10) stainless steel	**260**	**75**	**metallic**
S 6	Serving fork	(18/10) stainless steel	**190**	**35**	**metallic**
S 7	Gravy ladle	(18/10) stainless steel	**180**	**50**	**metallic**

a A length and diameter tolerance of 2,5 % of the absolute values is acceptable

b The weight tolerance for single items B4 Cup, A5+B5 Glass and S2 Glass bowl, A7+B7 Knife, S5 Serving Spoon, S6 Serving fork and S7 Gravy ladle shall be within ± 20 % of the absolute values; for all other single items the weight tolerance shall be within ± 10 % of the absolute values.

79 “

80 ***Modify*** *Table A.2, "Composition of test loads" as follows:*

81 "

82 **Table A.2 — Composition of test loads**

	Rated dishwasher capacity (place settings):	Number of each type of load item to be included in each test load															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Item No.	**Item description**																
A 1	Dinner plate	**0**	**0**	**0**	**2**	**3**	**3**	**4**	**4**	**5**	**5**	**6**	**6**	**7**	**7**	**8**	**8**
A 2	Dessert plate	**3**[b]	**3**[b]	**5**[c]	**2**	**3**	**3**	**4**	**4**	**5**	**5**	**6**	**6**	**7**	**7**	**8**	**8**
A 3	Dessert bowl	**1**	**1**	**2**	**2**	**3**	**3**	**4**	**4**	**5**	**5**	**6**	**6**	**7**	**7**	**8**	**8**
A 4	Mug	**1**	**1**	**2**	**2**	**3**	**3**	**4**	**4**	**5**	**5**	**6**	**6**	**7**	**7**	**8**	**8**
A 5	Glass	**1**	**1**	**2**	**2**	**3**	**3**	**4**	**4**	**5**	**5**	**6**	**6**	**7**	**7**	**8**	**8**
B 5	Glass	**0**	**1**	**1**	**2**	**2**	**3**	**3**	**4**	**4**	**5**	**5**	**6**	**6**	**7**	**7**	**8**
A 6 + B 6	Fork	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**
A 7 + B 7	Knife	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**
A 8	Soup spoon	**1**	**1**	**2**	**2**	**3**	**3**	**4**	**4**	**5**	**5**	**6**	**6**	**7**	**7**	**8**	**8**
B 8	Soup spoon	**0**	**1**	**1**	**2**	**2**	**3**	**3**	**4**	**4**	**5**	**5**	**6**	**6**	**7**	**7**	**8**
A 9 + B 9	Dessert spoon	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**
A 10 + B 10	Teaspoon	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**
B 1	Soup plate	**0**	**1**	**1**	**2**	**2**	**3**	**3**	**4**	**4**	**5**	**5**	**6**	**6**	**7**	**7**	**8**
B 2	Melamine dessert plate	**0**	**1**	**1**	**2**	**2**	**3**	**3**	**4**	**4**	**5**	**5**	**6**	**6**	**7**	**7**	**8**
B 3	Saucer	**0**	**1**	**1**	**2**	**2**	**3**	**3**	**4**	**4**	**5**	**5**	**6**	**6**	**7**	**7**	**8**
B 4	Cup	**0**	**1**	**1**	**2**	**2**	**3**	**3**	**4**	**4**	**5**	**5**	**6**	**6**	**7**	**7**	**8**
S 1 a	Small pot	**0**	**0**	**0**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**
S 1 b	Oven pot	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**1**	**1**	**1**	**1**
S 2	Glass bowl	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**
S 3	Oval platter	**0**	**0**	**0**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**

	Rated dishwasher capacity (place settings):	Number of each type of load item to be included in each test load															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Item No.	**Item description**																
S 4	Melamine bowl	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**2**	**2**	**2**	**2**	**2**	**2**
S 5	Serving spoon	**0**	**0**	**0**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
S 6	Serving Fork	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**
S 7	Gravy ladle	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**
Total number of items		**14**	**24**	**34**	**47**	**57**	**67**	**77**	**88**	**98**	**108**	**120**	**130**	**140**	**150**	**160**	**170**
Total mass of crockery including glasses (kg)		**1,25**	**2,21**	**3,20**	**4,47**	**5,75**	**6,71**	**7,98**	**8,94**	**10,22**	**11,18**	**12,46**	**13,42**	**14,69**	**15,65**	**16,93**	**17,89**
Total mass of cutlery excluding serving pieces (kg)		**0,20**	**0,41**	**0,61**	**0,82**	**1,02**	**1,22**	**1,43**	**1,63**	**1,84**	**2,04**	**2,24**	**2,45**	**2,65**	**2,86**	**3,06**	**3,26**
Total mass of serving pieces (kg)		**0,26**	**0,26**	**0,26**	**2,08**	**2,08**	**2,08**	**2,08**	**2,41**	**2,41**	**2,41**	**3,05**	**3,05**	**3,05**	**3,05**	**3,05**	**3,05**
Total mass of load (kg)[a]		**1,71**	**2,87**	**4,07**	**7,36**	**8,84**	**10,01**	**11,49**	**12,98**	**14,46**	**15,63**	**17,75**	**18,91**	**20,39**	**21,56**	**23,04**	**24,20**

a Loads prepared in accordance with this table shall have the mass indicated ± 5 %.

b One dinner plate (A1) and oval platter (S3) is replaced by a dessert plate (A2) each. The respective soil agent and amount for A1 and S3 is applied to the substituted dessert plate(s).

c Two dinner plates (A1) and one oval platter (S3) are replaced by a dessert plate (A2) each. The respective soil agent and amount for A1 and S3 is applied to the substituted dessert plate(s).

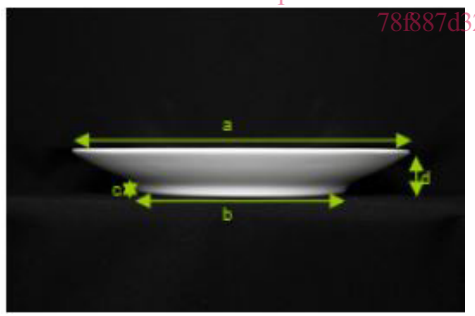
83 “

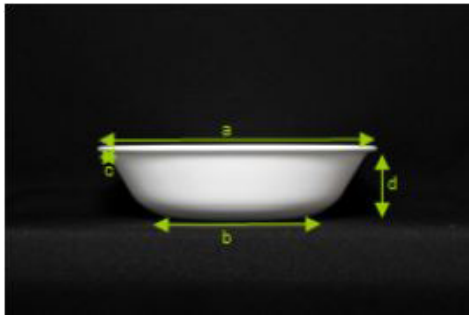
4 Modification to Annex B, “Tableware specifications”

Modify Table B.1, “Tableware specifications” as follows:

“

Table B.1 — Tableware specifications

Item Id.	Item Description	Photograph	Measured value[a] (a, b, c, d, e, f)	Weight in g[b]	Material thickness bottom	Shape/style[c]	Producer[c]
A 1	Dinner plate		a = 250 mm b = 150 mm c = 2 mm d = 30 mm e = – f = –	530 g	4,4 mm	Form 2000 *(Arzberg product number: 20000000226)*	Arzberg / Rosenthal
A 2	Dessert plate		a = 190 mm b = 115 mm c = 2 mm d = 24 mm e = – f = –	250 g	3,2 mm	Form 2000 *(Arzberg product number: 2000000010219)*	Arzberg /Rosenthal

Item Id.	Item Description	Photograph	Measured value[a] (a, b, c, d, e, f)	Weight in g[b]	Material thickness bottom	Shape/style[c]	Producer[c]
A 3	Dessert bowl		a = 130 mm b = 65 mm c = 5 mm d = 28 mm e = – f = –	118 g	3,8 mm	Corelle 10 oz *(Corning/Comcor product number: 6003899, AHAM)*	Corning/ Comcor
A 4	Mug		a = 70 mm b = 35 mm c = 105 mm d = 70 mm e = – f = –	268 g	3,0 mm	Solo 8000 / Aronda 0,30 l	Kahla/Thüringer Porzellan GmbH
A 5 + B 5	Glass		a = 60 mm b = – c = 50 mm d = 120 mm e = – f = –	110 g	3,4 mm	Beaker (250ml)/Tall Form/Without Drain *(Schott Duran product number: 211173603)*	Schott DURAN