

# Electrically operated food preparation appliances — Methods for measuring the performance

The European Standard EN 60619:1993, with the incorporation of A1:1995 and A2:2004, has the status of a British Standard

ICS 97.040.50  
UDC 64.06-83:641.5

## Cooperating organizations

The European Committee for Electrotechnical Standardization (CENELEC), under whose supervision this European Standard was prepared, comprises the national committees of the following countries:

|         |                |
|---------|----------------|
| Austria | Italy          |
| Belgium | Luxembourg     |
| Denmark | Netherlands    |
| Finland | Norway         |
| France  | Portugal       |
| Germany | Spain          |
| Greece  | Sweden         |
| Iceland | Switzerland    |
| Ireland | United Kingdom |

This British Standard, having been prepared under the direction of the Light Electrical Engineering Standards Policy Committee, was published under the authority of the Standards Board and comes into effect on 15 July 1993

© BSI 23 February 2005

### Amendments issued since publication

| Amd. No. | Date             | Comments              |
|----------|------------------|-----------------------|
| 9016     | August 1996      | See national foreword |
| 15476    | 23 February 2005 | See national foreword |
|          |                  |                       |
|          |                  |                       |

The following BSI references relate to the work on this standard:  
Committee reference LEL/59  
Draft for comment 92/24059 DC

ISBN 0 580 22184 9

## National foreword

This British Standard has been prepared by Technical Committee CPL/59/7 (formerly LEL/59) and is the English Language version of EN 60619:1993 *Electrically operated food preparation appliances — Measuring methods*, including amendments A1:1995 and A2:2004, published by the European Committee for Electrotechnical Standardization (CENELEC). It is identical with IEC 619:1993, second edition, including amendment 1:1995 and amendment 2:2004, published by the International Electrotechnical Commission (IEC).

This British Standard supersedes BS 3999-3:1967 which is withdrawn.

The start and finish of text introduced or altered by amendment is indicated in the text by tags **A1** **A1**. Tags indicating changes to IEC text carry the number of the amendment. For example, text altered by IEC amendment 1 is indicated by **A1** **A1**.

NOTE In 3.1.12 the term should be “french fry chipping”.

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

**Compliance with a British Standard does not of itself confer immunity from legal obligations.**

### Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, the EN title page, pages 2 to 26, an inside back cover and a back cover.

The BSI copyright notice displayed in this document indicates when the document was last issued.



ICS 97.040.50  
UDC 64.06-83:641.5

Descriptors: Household electrical appliances, food preparation, performance, measurements, comparative tests

English version

## Electrically operated food preparation appliances — Methods for measuring the performance (includes amendments A1:1995 and A2:2004)

(IEC 619:1993 + A1:1995 + A2:2004)

Appareils électriques pour la préparation de la  
nourriture —  
Méthodes de mesure de l'optitude à la fonction  
(inclut les amendements A1:1995 et A2:2004)  
(CEI 619:1993 + A1:1995 + A2:2004)

Elektrische Kuchenmaschinen —  
Prüfverfahren zur Bestimmung der  
Gebrauchseigenschaften  
(enthält Änderungen A1:1995 und A2:2004)  
(IEC 619:1993 + A1:1995 + A2:2004)

This European Standard was approved by CENELEC on 1992-12-09. Amendment A1 was approved by CENELEC on 1995-09-20; amendment A2 was approved by CENELEC on 1 September 2004. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists 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 Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

## CENELEC

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

Central Secretariat: rue de Stassart 35, B-1050 Brussels

## Foreword

The text of document 59G(CO)25, as prepared by sub-committee 59G: Small kitchen appliances, of IEC technical committee 59: Performance of household electrical appliances, was submitted to the IEC-CENELEC parallel vote in March 1992.

The reference document was approved by CENELEC as EN 60619 on 9 December 1992.

The following dates were fixed:

- latest date of publication of an identical national standard (dop) 1994-02-01
- latest date of withdrawal of conflicting national standards (dow) 1994-02-01

## Foreword to amendment A1

The text of document 59G/49/DIS, future amendment 1 to IEC 619:1993, prepared by SC 59G, Small kitchen appliances, of IEC TC 59, Performance of household electrical appliances, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as amendment A1 to EN 60619:1993 on 1995-09-20.

The following dates were fixed:

- latest date by which the amendment has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 1996-07-01
- latest date by which the national standards conflicting with the amendment have to be withdrawn (dow) 1996-07-01

## Foreword to amendment A2

The text of document 59G/156/FDIS, future amendment 2 to IEC 60619:1993, prepared by SC 59L, Small household appliances, of IEC TC 59, Performance of household electrical appliances, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as amendment A2 to EN 60619:1993 on 2004-09-01.

The following dates were fixed:

- latest date by which the amendment has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2005-06-01
- latest date by which the national standards conflicting with the amendment have to be withdrawn (dow) 2007-09-01

## Contents

|                                       | Page | Page                                                                        |
|---------------------------------------|------|-----------------------------------------------------------------------------|
| Foreword                              | 2    | 12.1 Ingredients 12                                                         |
| Scope and object                      | 4    | 12.2 Procedure 12                                                           |
| 1.1 Scope                             | 4    | 12.3 Result 12                                                              |
| 1.2 Aspects excluded from the scope   | 4    | 13 Emulsifying 12                                                           |
| 2 Normative references                | 4    | 13.1 Ingredients 12                                                         |
| 3 Definitions                         | 4    | 13.2 Procedure 12                                                           |
| 4 List of measurements                | 6    | 13.3 Result 13                                                              |
| 5 General conditions for measurements | 6    | 14 Chopping 13                                                              |
| 5.1 General                           | 6    | 14.1 Chopping of meat 13                                                    |
| 5.2 Electrical supply                 | 6    | 14.2 Chopping of onions 13                                                  |
| 5.3 Ambient temperature               | 6    | 14.3 Chopping of almonds 14                                                 |
| 5.4 Movement of hand-held machines    | 7    | 15 Slicing 14                                                               |
| 5.5 Type of bowl                      | 7    | 15.1 Slicing of carrots 14                                                  |
| 5.6 Ingredients                       | 7    | 15.2 Slicing of cucumber 15                                                 |
| 5.7 Preliminary tests                 | 7    | 15.3 Slicing of leeks 15                                                    |
| 5.8 Baking temperature                | 7    | 16 Shredding 16                                                             |
| 6 Whisking                            | 7    | 16.1 Shredding of carrots 16                                                |
| 6.1 Ingredients                       | 7    | 16.2 Shredding of cheese 16                                                 |
| 6.2 Procedure                         | 7    | 17 French fries chipping 17                                                 |
| 6.3 Specific volume                   | 7    | 17.1 Ingredients 17                                                         |
| 6.4 Result                            | 8    | 17.2 Procedure 17                                                           |
| 7 Whipping cream                      | 8    | 17.3 Result 17                                                              |
| 7.1 Ingredients                       | 8    | 18 Juice separation 18                                                      |
| 7.2 Procedure                         | 8    | 19 Citrus juice extraction 18                                               |
| 7.3 Measurement of specific volume    | 8    | 20 Coffee milling and grinding 19                                           |
| 7.4 Result                            | 8    | 21 Splashing and spillage 20                                                |
| 8 Beating                             | 8    | 22 Cleaning efficiency and cleaning time 20                                 |
| 8.1 Ingredients                       | 8    | Annex A (normative) Ingredients used for<br>the purpose of this standard 25 |
| 8.2 Procedure                         | 9    | Annex B (informative) Information to be<br>provided to the point of sale 25 |
| 8.3 Result                            | 9    | Figure 1 — Standard 4 I “MEPAL” mixing<br>bowl 21                           |
| 9 Heavy mixing                        | 9    | Figure 2 — Standard 1,5 I “MEPAL” mixing<br>bowl 22                         |
| 9.1 Ingredients                       | 10   | Figure 3 — Standard 1 I mixing bowl for<br>use with immersion blenders 22   |
| 9.2 Procedure                         | 10   | Figure 4 — Dish for measurement of<br>specific volume 23                    |
| 9.3 Result                            | 10   | Figure 5 — Baking tin 23                                                    |
| 10 Mixing                             | 11   | Figure 6 — Glass funnel 24                                                  |
| 10.1 Ingredients                      | 11   |                                                                             |
| 10.2 Procedure                        | 11   |                                                                             |
| 10.3 Result                           | 12   |                                                                             |
| 11 Kneading                           | 11   |                                                                             |
| 11.1 Ingredients                      | 11   |                                                                             |
| 11.2 Procedure                        | 12   |                                                                             |
| 11.3 Result                           | 12   |                                                                             |
| 12 Blending/Pureeing                  | 12   |                                                                             |

## 1 Scope and object

### 1.1 Scope

This International Standard applies to electrically operated food preparation appliances for household use.

The purpose of this standard is to state and define test methods of measuring the functions that can be carried out by means of household electrical food preparation appliances, which are of interest to the user and to give some guidelines for the evaluation of test results.

Taking into account the lower grade of accuracy and repeatability, due to variations in time and origin of test materials and ingredients and to the influence of the subjective judgement of test operators, the described test methods may be applied more reliably for comparative testing of a number of appliances at approximately the same time, in the same laboratory, by the same operator and with the same utensils, rather than for testing of single appliances in different laboratories.

As there is no definition of a given type or size of oven, and as a number of the tests involve baking of the final product in order to make a determination of volume, a variation in results can be expected between ovens used. All comparative tests should be under taken in the same oven.

### 1.2 Aspects excluded from the scope

This standard is not concerned with safety.

It does not apply to appliances designed exclusively for commercial or industrial use.

Attention is drawn to the fact that sometimes the same result may be obtained using different functions.

## 2 Normative references

Void.

NOTE Other clauses which include normative references will be developed later.

## 3 Definitions

For the purpose of this International Standard the following definitions apply.

### 3.1 Terms used to define the functions

#### 3.1.1

##### **whisking**

to incorporate air and increase the volume of egg-whites

#### 3.1.2

##### **whipping cream**

to incorporate air and increase the volume of cream

#### 3.1.3

##### **beating**

to mix and incorporate air (e.g. cake batter)

#### 3.1.4

##### **heavy mixing**

to incorporate ingredients evenly into a heavy mixture without chopping (e.g. fruit cake containing glacé cherries)

#### 3.1.5

##### **mixing**

to combine ingredients evenly (e.g. pastry, pie)

#### 3.1.6

##### **kneading**

to work a heavy mixture to form a smooth, pliable mass

**3.1.7****blending/pureeing**

to make semi-solid ingredients liquid or to chop with liquid (e.g. babyfood, fruit, soup)

**3.1.8****emulsifying**

to combine together insoluble liquids so that one or more is suspended in droplets throughout the other (e.g. mayonnaise)

**3.1.9****chopping**

to reduce solid ingredients to small particles (e.g. meat, onions, almonds)

**3.1.10****slicing**

to cut into slices (e.g. carrots, cucumber, leeks)

**3.1.11****shredding**

to reduce to small strips (e.g. carrots, cheese)

**3.1.12****french fry**

to cut potatoes into the shape of French fries

**A1 3.1.13****juice separation**

to remove juice from fruit or vegetables by centrifugal force after breaking them up

**3.1.14****citrus juice extraction**

to remove juice from citrus fruits by applying fruit halves to a rotating cone

**3.1.15****coffee milling and grinding**

to break up whole coffee-beans in small particules by means of grinding discs, cylinders or cones and similar devices or by means of high-speed rotating cutting blades A1

**3.2 Terms used to define the major families of appliances****3.2.1****mono-function appliance**

appliance designed to perform only one function

**3.2.2****multi-function appliance**

appliance designed to perform more than one function

Appliances can be either hand-held type or table type.

NOTE Sometimes, for some appliances, it may be necessary to change the attachments or tools in order to perform the different functions.

**A1 3.3 Terms used to define the convenience in use****3.3.1****splashing and spillage**

unintentional loss of ingredients during switching on and operation of an appliance

**3.3.2****cleaning efficiency and cleaning time**

effort and time necessary to empty, clean and dry an appliance (or separate parts), including the disassembling of the appliance A1

## 4 List of measurements

This standard covers the following functions:

- whisking (Clause 6);
- whipping cream (Clause 7);
- beating (Clause 8);
- heavy mixing (Clause 9);
- mixing (Clause 10);
- kneading (Clause 11);
- blending/pureeing (Clause 12);
- emulsifying (Clause 13);
- chopping of meat (subclause 14.1);
- chopping of onions (subclause 14.2);
- chopping of almonds (subclause 14.3);
- slicing of carrots (subclause 15.1);
- slicing of cucumbers (subclause 15.2);
- slicing of leeks (subclause 15.3);
- shredding of carrots (subclause 16.1);
- shredding of cheese (subclause 16.2);
- french fries chipping (Clause 17);
- juice separation (Clause 18);
- citrus juice extraction (Clause 19);
- coffee milling and grinding (Clause 20).

This standard also covers:

- Ⓐ — splashing and spillage (Clause 21);
- cleaning efficiency and cleaning time (Clause 22). Ⓐ

## 5 General conditions for measurements

Unless otherwise specified, the measurements are conducted under the following conditions.

### 5.1 General

The attachments, speed, tools and quantities of ingredients used shall be those recommended by the manufacturer. In the absence of manufacturer's recommendations, the quantities quoted shall be used. The ingredients specified have been selected primarily to ensure uniform and reproducible results. A list of ingredients known to be suitable is given in Annex A. Unless otherwise stated, the appliance shall be operated in accordance with the manufacturer's instructions.

Ⓐ All the tests from 6 to 20 have to be carried out three times (repeated twice). Ⓐ

### 5.2 Electrical supply

The measurements shall be made at rated frequency and at a voltage which is within  $\pm 0,5$  % of the rated voltage or the mean of the rated voltage range.

**NOTE** If the rated voltage differs from the nominal supply voltage of the country concerned, measurements carried out at rated voltage may be misleading. Therefore, for comparative testing the voltage used for the tests is to conform to the nominal supply voltage and this shall be reported.

### 5.3 Ambient temperature

The ambient temperature and the temperature of all utensils and ingredients shall be maintained at  $(20 \pm 5)$  °C, unless otherwise specified.

**NOTE** In tropical climates, the ambient temperature may be  $(27 \pm 5)$  °C but the temperature should be recorded.