

Materials and articles in contact with foodstuffs — Plastics — Determination of temperature of plastics materials and articles at the plastics/food interface during microwave and conventional oven heating in order to select the appropriate temperature for migration testing

The European Standard EN 14233:2002 has the status of a British Standard

ICS 67.250; 83.080.01

National foreword

This British Standard is the official English language version of EN 14233:2002.

The UK participation in its preparation was entrusted by Technical Committee CW/47, Materials and articles in contact with foodstuffs, to Subcommittee CW/47/1, Migration from plastics, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

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

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English version

**Materials and articles in contact with foodstuffs - Plastics -
Determination of temperature of plastics materials and articles at
the plastics/food interface during microwave and conventional
oven heating in order to select the appropriate temperature for
migration testing**

Matériaux et objets en contact avec les denrées
alimentaires - Matières plastiques - Détermination de la
température des matières plastiques et objets à l'interface
matières plastiques/denrées alimentaires lors du chauffage
en four classique ou à micro-ondes afin de sélectionner la
température appropriée pour les essais de migration

Werkstoffe und Gegenstände in Kontakt mit Lebensmitteln
- Kunststoffe - Temperatur an der Kunststoff-Lebensmittel-
Schnittstelle - Bestimmung der Temperatur von
Werkstoffen und Gegenständen aus Kunststoff an der
Kunststoff-Lebensmittel-Schnittstelle während der
Erwärmung im Mikrowellengerät oder im herkömmlichen
Ofen zur Auswahl der geeigneten Temperatur für die
Migrationsprüfung

This European Standard was approved by CEN on 25 July 2002.

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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 CEN member into its own language and notified to the Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.



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Foreword

This document EN 14233 has been prepared by Technical Committee CEN/TC 194 "Utensils in contact with food", the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by March 2003, and conflicting national standards shall be withdrawn at the latest by March 2003.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

For relationship with EU Directive(s), see informative annex ZA, which is an integral part of this document.

In this standard the annex A is normative and annex B is informative.

This standard should be read in conjunction with EN 1186-1 and ENV 13130-1.

WARNING Food heated in microwave ovens can bubble and splatter. Caution should be taken when handling hot foods. Metal thermocouples should not be used in microwave ovens unless special precautions are taken.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Introduction

Migration tests for plastics materials and articles are to be carried out, selecting times and temperatures, which correspond to the worst foreseeable conditions of contact for the materials or articles being studied. For materials and articles intended for use in microwave ovens, migration testing is carried out using a conventional oven and appropriate time and temperature conditions selected from Table 3 of EN 1186-1:2002.

In order to be able to select the appropriate temperature for migration testing, it is necessary to know the temperature which occurs at the food-packaging interface under the worst foreseeable conditions of use of the material.

For plastics materials and articles used in microwave ovens for the microwave cooking or heating of mainly aqueous foods, it is generally recognized that the temperature at the food-packaging interface does not exceed 100 °C. For more complex food matrices, including those of a high fat and/or sugar content, temperatures generated during microwave heating and cooking cannot be predicted readily. Thus it can be necessary to measure temperatures at the food-packaging interface during the cooking or heating of such foods.

For cooking or heating in conventional ovens, the temperature at the food/packaging interface is dependant upon the temperature of the oven, the thermal conductivity of the plastics material or article, the nature of the food and the heating time. Temperatures at the food-packaging interface cannot be predicted readily. Thus it can be necessary to measure temperatures at the food-packaging interface during heating and cooking in conventional ovens.

The methods described here can be used to measure the temperature of plastics materials and articles at the food-plastic interface during microwave and conventional oven heating and thereby enable selection of the appropriate temperature for migration testing.

Migration testing can be carried out by selection of contact conditions generally recognized as more severe without the need of pre-application of this standard.

NOTE The basic rules necessary for testing the overall migration of the constituents of plastics materials and articles intended to come into contact with foodstuffs are laid down in Council Directive 82/711/EEC [1] and its subsequent amendments, [2] and [3].