



SLOVENSKI STANDARD

SIST EN ISO 4611:2009

01-februar-2009

BUXca Yý U
SIST EN ISO 4611:2000

Polimerni materiali - Ugotavljanje vplivov vlažne toplote, vodne prhe in slane megle (ISO 4611:2008)

Plastics - Determination of the effects of exposure to damp heat, water spray and salt mist (ISO 4611:2008)

Kunststoffe - Bestimmung des Verhaltens bei Einwirkung von warmfeuchtem Klima, Sprühwasser und Salznebel (ISO 4611:2008)

Plastiques - Détermination des effets d'une exposition à la chaleur humide, au brouillard d'eau et au brouillard salin (ISO 4611:2008)

Ta slovenski standard je istoveten z: EN ISO 4611:2008

ICS:

83.080.01	Polimerni materiali na splošno	Plastics in general
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SIST EN ISO 4611:2009

en,fr,de

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN ISO 4611

October 2008

ICS 83.080.01

Supersedes EN ISO 4611:1999

English Version

Plastics - Determination of the effects of exposure to damp heat, water spray and salt mist (ISO 4611:2008)

Plastiques - Détermination des effets d'une exposition à la
chaleur humide, au brouillard d'eau et au brouillard salin
(ISO 4611:2008)

Kunststoffe - Bestimmung des Verhaltens bei Einwirkung
von warmfeuchtem Klima, Sprühwasser und Salznebel
(ISO 4611:2008)

This European Standard was approved by CEN on 18 September 2008.

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

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

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Foreword

This document (EN ISO 4611:2008) has been prepared by Technical Committee ISO/TC 61 "Plastics" in collaboration with Technical Committee CEN/TC 249 "Plastics", the secretariat of which is held by NBN.

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 April 2009, and conflicting national standards shall be withdrawn at the latest by April 2009.

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

This document supersedes EN ISO 4611:1999.

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

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The text of ISO 4611:2008 has been approved by CEN as a EN ISO 4611:2008 without any modification.

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INTERNATIONAL STANDARD

**ISO
4611**

Third edition
2008-10-15

Plastics — Determination of the effects of exposure to damp heat, water spray and salt mist

*Plastiques — Détermination des effets d'une exposition à la chaleur
humide, au brouillard d'eau et au brouillard salin*

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ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
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ISO 4611:2008(E)**Foreword**

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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

ISO 4611 was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 6, *Ageing, chemical and environmental resistance*.

This third edition cancels and replaces the second edition (ISO 4611:1987), of which it constitutes a minor revision, the main purpose of which was to update the normative references.

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0 Introduction

0.1 Various test methods are available for the exposure of plastics to different aggressive agents acting in a combined and simultaneous fashion, such as natural weathering. Other test methods are available for the purpose of a separate evaluation of the action of individual aggressive agents. Among the latter there are, for example, tests for the resistance to specific chemicals and to radiation in a definite spectral range.

For some applications, it may be desirable to evaluate the behaviour of the materials in a hot damp atmosphere just below the saturation limit of water vapour, as well as in the presence of the liquid phase.

In these conditions, not only water absorption or leaching of some ingredients of the composition may be observed but also degradation phenomena due to hydrolysis, exudation of plasticizers, etc.

It may also be desirable sometimes to evaluate the behaviour of materials in the presence of a highly corrosive electrolyte, such as a sodium chloride solution (salt mist), which is the principal aggressive agent present in marine environments and of particular importance in the case of nautical applications. It is well known that sodium chloride has no noticeable action on the polymers that are the basic components of plastics, and that salt solutions, owing to their higher osmotic pressure, are normally absorbed by plastics to a lesser degree than pure water, but it cannot be assumed *a priori* that they have no action on composite materials, containing fillers, reinforcing components or pigments, for instance.

Furthermore, the evaluation of the effect of salt mist can be very important for finished or semi-finished articles which, while basically consisting of plastics materials, do contain some metallic elements, such as moulded-in inserts, thin laminated foils, surface coatings applied by electro-plating or other procedures, or, lastly, metal cores sheathed with plastics by extrusion or by dipping in pastes or fluidized-bed powders.

0.2 Methods and equipment for obtaining reproducible aggressive environments of the above types are well known and have been described by International Standards relevant to other materials and IEC (International Electrotechnical Commission) standards relevant to electrical and electronic components. The same equipment and procedures described in these standards can also be employed for plastics, with appropriate care and adjustments.

0.3 The present International Standard is intended to provide general guidance only, on the choice of suitable equipment and procedures for obtaining the exposure conditions described above and for the preparation of test specimens. It also only gives general guidance on the properties to be evaluated. Specific details are given in the various ISO and IEC publications.

For the expression of results, the present International Standard follows, as far as possible, the same criteria adopted in the existing test methods for the exposure to chemicals (see ISO 175) and to natural weathering or artificial light (see ISO 4582).

0.4 These tests are intended to yield data about the effects of the described exposures on the materials; however, a direct correlation between the experimental results and the behaviour in service is not to be inferred.