



SLOVENSKI STANDARD
SIST EN ISO 4611:2000
01-december-2000

Polimerni materiali - Ugotavljanje vplivov vlažne toplote, vodne prhe in slane meglice (ISO 4611:1987)

Plastics - Determination of the effects of exposure to damp heat, water spray and salt mist (ISO 4611:1987)

Kunststoffe - Bestimmung des Verhaltens bei Einwirkung von warmfeuchtem Klima, Sprühwasser und Salznebel (ISO 4611:1987)

Plastiques - Détermination des effets d'une exposition a la chaleur humide, au brouillard d'eau et au brouillard salin (ISO 4611:1987)

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Ta slovenski standard je istoveten z: EN ISO 4611:1999

ICS:

83.080.01	Polimerni materiali na splošno	Plastics in general
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SIST EN ISO 4611:2000	en
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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN ISO 4611

November 1999

ICS 83.080.00

English version

Plastics - Determination of the effects of exposure to damp heat,
water spray and salt mist (ISO 4611:1987)

Plastiques - Détermination des effets d'une exposition à la
chaleur humide, au brouillard d'eau et au brouillard salin
(ISO 4611:1987)

Kunststoffe - Bestimmung der Verhaltens bei Einwirkung
von warmfeuchtem Klima, Sprühwasser und Salznebel
(ISO 4611:1987)

This European Standard was approved by CEN on 17 January 1999.

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 Central Secretariat 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 Central Secretariat 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, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

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Foreword

The text of the International Standard from Technical Committee ISO/TC 61 "Plastics" of the International Organization for Standardization (ISO) has been taken over as an European Standard by Technical Committee CEN/TC 249 "Plastics", the secretariat of which is held by IBN.

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 May 2000, and conflicting national standards shall be withdrawn at the latest by May 2000.

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, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Endorsement notice

The text of the International Standard ISO 4611:1987 has been approved by CEN as a European Standard without any modification.

NOTE: Normative references to International Standards are listed in annex ZA (normative).

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Annex ZA (normative)**Normative references to international publications
with their relevant European publications**

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN</u>	<u>Year</u>
ISO 295	1991	Plastics - Compression moulding of test specimens of thermosetting materials	EN ISO 295	1998
ISO 2818	1994	Plastics - Preparation of test specimens by machining	EN ISO 2818	1996

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INTERNATIONAL STANDARD

ISO
4611

Second edition
1987-12-15



INTERNATIONAL ORGANIZATION FOR STANDARDIZATION
ORGANISATION INTERNATIONALE DE NORMALISATION
МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ

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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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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 4611 was prepared by Technical Committee ISO/TC 61, *Plastics*.

This second edition cancels and replaces the first edition (ISO 4611 : 1980), of which it constitutes a minor revision.

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Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

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

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 radiations of 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 plastic 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.

1 Scope and field of application

1.1 This International Standard specifies the exposure conditions of plastics to

- damp heat,
- water spray,
- salt mist,

and the methods for the evaluation of the change of some significant characteristics after given exposure stages.

1.2 This International Standard is, in general, suitable for all plastics in the form of standard test specimens, and finished articles or parts thereof.