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STANDARD

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JIS K 7227 : 1998

(ISO 4611 : 1987)

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

ICS 83.080.01

Descriptors : plastics, damp-heat tests, water, salt-spray tests, environmental testing

Reference number : JIS K 7227 : 1998 (E)

K 7227 : 1998 (ISO 4611 : 1987)

Foreword

This translation has been made based on the original Japanese Industrial Standard established by the Minister of International Trade and Industry through deliberations at Japanese Industrial Standards Committee in accordance with the Industrial Standardization Law:

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In the event of any doubts arising as to the contents,
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Plastics—Determination of the effects of exposure to damp heat, water spray and salt mist

Introduction This Japanese Industrial Standard has been prepared based on **ISO 4611 : 1987** *Plastics—Determination of the effects of exposure to damp heat, water spray and salt mist* without modifying its technical content and structure.

1 Scope This Japanese Industrial Standard specifies the exposure conditions of plastics to

- a) damp heat,
- b) water spray,
- c) salt mist,

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

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

Informative reference : This Standard considers separately methods for the determination of

- 1) change of mass,
- 2) change of dimensions and appearance,
- 3) change of physical properties.

2 Normative references The following standards contain provisions which, through reference in this text, constitute provisions of this Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below.

JIS K 7151 : 1995 *Plastics—Compression moulding test specimens of thermoplastic materials*

Remarks : **ISO 293** : 1986 *Plastics—Compression moulding test specimens of thermoplastic materials* is identical with **JIS K 7151**.

JIS K 7152 : 1995 *Plastics—Injection moulding of test specimens of thermoplastic materials*

Remarks : **ISO 294** : 1995 *Plastics—Injection moulding test specimens of thermoplastic materials* is identical with **JIS K 7152**.

ISO 175 : 1981 *Plastics—Determination of the effects of liquid chemicals, including water*

ISO 295 : 1991 *Plastics—Compression moulding of test specimens of thermosetting materials*

ISO 2557-1 : 1989 *Plastics—Amorphous thermoplastics—Preparation of test specimens with a specified maximum reversion—Part 1 : Bars*

ISO 2557-2 : 1986 *Plastics—Amorphous thermoplastics—Preparation of test specimens with a specified reversion—Part 2 : Plates*

ISO 2818 : 1994 *Plastics—Preparation of test specimens by machining*

ISO 3205 : 1976 *Preferred test temperatures*

ISO 4582 : 1980 *Plastics—Determination of changes in colour and variations in properties after exposure to daylight under glass, natural weathering or artificial light*

ISO 9227 : 1990 *Corrosion tests in artificial atmospheres—Salt spray tests*

IEC Publication 60068 *Basic environmental testing procedures*

60068-2-3 *test Ca : Damp heat, steady state*

60068-2-3 *test Ka : Salt mist*

60068-2-30 *test Db : Damp heat cyclic (12+12-hour cycle)*

60068-2-38 *test Z/AD : Composite temperature/humidity cyclic test*

3 Principle Determination of one or more properties before and after given periods of exposure in the specified environmental conditions, and observation of any change in appearance. If required, the determination of one or more properties may be carried out after exposure and a subsequent drying treatment or a reconditioning treatment carried out with the aim of obtaining the same state of equilibrium with atmospheric humidity as that of the initial specimens.

4 General test conditions

4.1 Environmental conditions and equipment

4.1.1 Damp heat The preferred test conditions are those described in 4.1.1.1 and 4.1.1.2. Different temperature and/or humidity conditions may be specified, however, in the relevant product specifications or by agreement between the interested parties.

4.1.1.1 Steady state test A suitable test method is specified in IEC 60068-2-3. The following conditions are specified:

Temperature: $40\text{ °C} \pm 2\text{ °C}$

Relative humidity: $(93 \pm 3)\%$

4.1.1.2 Cyclic test If a cyclic test is required, the conditions specified in IEC 60068-2-30 can be adopted.

Informative reference : This Publication specifies 12 h + 12 h cycles with temperature change from:

$25\text{ °C} \pm 3\text{ °C}$ to a) $40\text{ °C} \pm 2\text{ °C}$

b) $55\text{ °C} \pm 2\text{ °C}$

Relative humidity is maintained at $(93 \pm 3)\%$ at the higher temperature and not less than 95 % during the rest of the cycle.

Informative reference : For composite temperature/humidity cycles, with the addition of a number of excursions to sub-zero temperatures, some guidance can be found in IEC 60068-2-38.