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BS 2782-0:2011



BSI Standards Publication

Methods of testing plastic

Part 0: Introduction

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Publishing information

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Supersession

This British Standard supersedes BS 2872:2004, which is withdrawn.

Information about this document

Currently, the majority of these test methods are identical to the methods standardized by Technical Committee ISO/TC 61, *Plastics*, and where this is so, they have taken the ISO number (designated BS ISO nnnn, where n is a digit in the identifier) or are dual numbered with the ISO and BS 2782 numbers. Additionally, many methods have been adopted as European Standards by CEN/TC 249, *Plastics* (designated BS EN ISO nnnn). As methods are revised, the policy is to discontinue dual numbering and to adopt the ISO number only. Some methods for which there is no ISO equivalent or where the British Standard differs from the ISO standard continue as methods within BS 2782. It is intended that the appropriate test methods, however numbered, be specified in all British Standards for plastics materials and products. Annex A lists the remaining methods and the ISO and CEN methods that have been adopted as British standards.

Contractual and legal considerations

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

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This part of BS 2782 gives a general introduction to the methods of test for plastics some of which are presented in the other Parts.

Annex A lists the individual methods and Annex B describes an obsolescent method (508A), formerly given in BS 2782:1970 and still referred to by the Building Regulations [1].

2 Content and usage of BS 2782

The ISO test methods adopted as British Standards together with the methods in BS 2782 provide a rationalized collection of methods for testing plastics materials and includes tests that are applied to moulding and extrusion compounds, synthetic resins, reinforced plastics, semi-fabricated products such as sheet, film, rod and tube, and finished articles in the form of mouldings and extrusions. Many of the methods are restricted to one set of conditions, and are not necessarily adequate for the production of design data; attention is therefore drawn to BS 4618. The acquisition and presentation of comparable data for properties of plastics is given in BS EN ISO 10350 and BS EN ISO 11403. Many of the methods are not suitable for cellular plastics.

3 Units

Numerical values in BS 2782 are normally expressed in the units of the *Système International d'Unités* (SI units), described in ISO 1000.

4 Apparatus and reagents

Apparatus should comply with the requirements of the appropriate British Standard. Reagents should be of recognized analytical reagent quality unless otherwise stated, and distilled or demineralized water should be used wherever water is specified (see BS EN ISO 3696).

5 Sampling

In cases where special precautions are needed to ensure that the test pieces adequately represent the properties of the material in bulk, a sampling procedure is given in the specification for the material.

6 Number of test pieces

It is recognized that specifications for test programmes sometimes require use of different numbers of test pieces from those given in the test method standard. For example, in production, a more informative and accurate result can be obtained if fewer test pieces are taken from one article but more articles are tested. It should be noted, however, that in general, the use of fewer test pieces yields less reliable results.

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Preparation of test pieces is often one of the most critical stages of the test procedure, and the specified conditions of preparation should be adhered to. In general, the procedure adopted enables a test piece representative of the material under test to be obtained with minimal effect on the properties of the material. Test piece preparation is normally referred to in each test method standard, usually by reference to general methods of preparation (see Annex A) or by reference to standards for the materials or products. It should be noted that, where no British Standard or other recognized specification exists, the procedure should be as agreed between the interested parties.

8 Direction of testing

The properties of certain types of sheet material can vary with direction in the plane of the sheet. In practice it is usual to cut two groups of test pieces with their major axes respectively parallel and perpendicular to the direction of some feature of the sheet that is either visible or inferred from knowledge of the method of its manufacture. For a particular test, the direction of testing is the direction of the long axis of the test pieces, unless otherwise stated.

9 Test report

When referring to a test procedure, the full reference should be quoted by giving the number of this British Standard, the method number and the date of publication, e.g. BS 2782:Method 360A:1991, or BS EN ISO 75-1:1996.

10 Standard atmospheres for conditioning and testing

The properties of plastics can alter considerably with changes in temperature and relative humidity. It is usually necessary to condition test pieces before testing, in addition to controlling the atmosphere during testing, in order to improve the reproducibility of test results. As large a surface as possible of each test piece should be exposed to the conditioning atmosphere. Where appropriate, the test method specifies the conditioning procedure. The standard atmospheres for conditioning and testing given in BS EN ISO 291 should be used whenever possible.

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(informative)

and degree of equivalence to international standards

A.1 Parts

BS 2782 comprises the following 12 parts:

Part 1: Thermal properties;

Part 2: Electrical properties;

Part 3: Mechanical properties;

Part 4: Chemical properties;

Part 5: Optical and colour properties, weathering;

Part 6: Dimensional properties;

Part 7: Rheological properties;

Part 8: Other properties;

Part 9: Sampling and test specimen preparation;

Part 10: Glass reinforced plastics;

Part 11: Thermoplastics pipes, fittings and valves;

Part 12: Reinforced plastics pipes, fittings and valves.

A.2 Correspondence between BS 2782 and international standards

The relationship between the individual methods of BS 2782 and international standards is given in Table A.1. The equivalent ISO numbers are given.

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Method number (BS 2782 method unless otherwise stated)	Title	Date of publication ^{A)}	Alternative number
130A	<i>Part 1: Thermal properties – Determination of the thermal stability of polyvinyl chloride by the Congo red method</i>	1991 (2002)	ISO 182-1 (Dual numbered)
131B	<i>Part 1: Thermal properties – Determination of extensibility after heat ageing of flexible polyvinyl chloride sheet</i>	1983 (1994)	—
131C and 131D	<i>Part 1: Thermal properties – Crushing strength after heating (heat resistance) of thermosetting moulding material – Crushing strength after heating (heat resistance) of thermosetting laminated sheet or mouldings</i>	1978 (2002)	—
134A and 134B	<i>Part 1: Thermal properties – Determination of the oxidation induction time of thermoplastics</i>	1992 (1999)	—
140A ^{B)}	<i>Part 1: Thermal properties – Determination of the burning behaviour of horizontal and vertical specimens in contact with a small-flame ignition source</i>	1992	ISO 1210 (Dual numbered)
140D	<i>Part 1: Thermal properties – Flammability of a test piece 550 mm × 35 mm of thin polyvinyl chloride sheeting (laboratory method)</i>	1997	—
140E (obsolescent)	<i>Part 1: Thermal properties – Flammability of a small, inclined test piece exposed to an alcohol flame (laboratory method)</i>	1982 (1988)	—
150C	<i>Part 1: Thermal properties – Determination of low temperature extensibility of flexible polyvinyl chloride sheet</i>	1983 (1994)	—
150D	<i>Part 1: Thermal properties – Cold crack temperature of film and thin sheeting</i>	1976 (1993)	—
151A	<i>Part 1: Thermal properties – Determination of cold bend temperature of flexible polyvinyl chloride extrusion compound</i>	1984 (1992)	—
153A	<i>Part 1: Thermal properties – Determination of stiffness in torsion of flexible materials (general method)</i>	1991 (2002)	ISO 458-1 (Dual numbered)
153B	<i>Part 1: Thermal properties – Determination of stiffness in torsion of flexible materials (method for vinyl chloride compounds)</i>	1991 (2002)	ISO 458-2 (Dual numbered)
230A	<i>Part 2: Electrical properties – Determination of volume resistivity</i>	1982	BS 903 C2 (Dual numbered)
231A	<i>Part 2: Electrical properties – Determination of surface resistivity</i>	1991	BS 903 C1 (Dual numbered)
232	<i>Part 2: Electrical properties – Determination of insulation resistance</i>	1992	BS 903 C5 IEC 60167 (Triple numbered)