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BS 5499 : Part 2 : 19

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British Standard
**Fire safety signs, notices
and graphic symbols**

Part 2. Specification for self-luminous fire safety signs

Sécurité incendie – Signalisation de sécurité, tableaux de signalisation et symboles graphiques
Partie 2. Signaux luminescents – Spécifications

Brandschutz; Bildzeichen, Hinweise und graphische Symbole
Teil 2. Selbstleuchtende Bildzeichen



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BS 5499 : Part 2 : 1986

Specification

1 Scope

This Part of BS 5499 specifies requirements for the construction and performance of a type of safety sign which is self-energized in respect of luminosity, and which requires no external source of power, and is rigidly fixed in position.

It is not intended to apply to smaller signs that may be used in aircraft.

NOTE. The titles of the publications referred to in this standard are listed on the inside back cover.

2 Definitions

For the purposes of this Part of BS 5499, the following definitions apply.

2.1 gaseous tritium light source (GTLS). A sealed glass container filled with gaseous tritium and coated internally with a phosphor.

2.2 gaseous tritium light device (GTLD). An instrument, piece of equipment, article or subassembly containing one or more GTLS(s).

2.3 sign. Equipment including graphics (see 2.4) which are luminously self-energized either by GTLD(s) protected within an outer assembly, or by a GTLD alone.

2.4 graphics. Pictures, symbols, letters, figures or a combination of any of these.

NOTE. The requirements for graphics will be given in an amendment to BS 5499 : Part 1.

3 General design and construction

3.1 Construction of a GTLD

3.1.1 A GTLD shall be so constructed that it cannot be dismantled without the destruction of its enclosure.

3.1.2 The GTLD shall be vented to the atmosphere through two holes of between 2 mm and 3 mm diameter. These holes shall be on the sides which are closest to the vertical, and placed such that no GTLS is touched by the rod when tested in accordance with A.2(a).

3.1.3 No individual GTLS shall contain more than 80 GBq (2.16 Ci) of tritium.

3.2 Construction of a sign

3.2.1 Where the GTLD is protected by an outer assembly, the GTLD(s) shall not be accessible or removable from the sign after mounting without the use of special tools and procedures. These tools and procedures shall be declared by the manufacturer.

3.2.2 The sign shall be vented to the atmosphere through holes of between 2 mm and 3 mm diameter, placed such that no GTLS is touched by the rod when tested in accordance with A.2(a).

3.2.3 The front surface of the sign facing the observer shall have a matt or semi-matt surface.

3.2.4 The total activity of tritium in the sign shall not exceed 1 TBq (27 Ci).

4 Performance

4.1 Physical characteristics

When tested in accordance with A.1 and A.2, the sign shall show no visual structural failure affecting the mechanical strength or integrity of the sign, or visually apparent loss of light output.

4.2 Luminance

When tested in accordance with A.1 and A.3, within 1 month of manufacture, the full stencil outline of each graphic shall be illuminated, and the luminance at the surface of a sign at any local area of illumination shall be not less than 0.51 cd/m². For lettered graphics, the variation in luminance between one local area and another shall not exceed a ratio of three to two. For all other graphics, the variation in luminance between local areas shall not exceed a ratio of five to two. The legibility requirements of the sign, over the lifetime indicated in 6.3, shall be in accordance with BS 5499 : Part 1.

4.3 Dose rate

The radiation dose rate at the surface of the assembled sign shall not exceed 2.5 µGy/h (0.25 mrad/h) in air, when measured in accordance with A.1 and A.4.

4.4 Tritium leakage

The tritium activity of the water shall not exceed 10 kBq (270 nCi), when measured in accordance with A.1 and A.5.

4.5 Water-soluble tritium content

The manufacturer shall declare the total tritium content of each GTLS. The amount of water-soluble tritium measured for each GTLS in A.6 shall not exceed 2 % of the total activity of that source.

4.6 Flammability

When tested in accordance with appendix B, the external enclosure of the sign shall not exhibit any after-flame for a period in excess of 30 s after removal of the glow-wire.

5 Mounting

The sign shall incorporate means for secure and rigid fixing of such a type that a special tool(s) and procedure is required for the removal of the sign. The special tool(s) and procedure shall be declared by the manufacturer.

6 Identification and labelling

6.1 Manufacturer's declaration

The manufacturer shall provide written authenticated declarations of the following:

- (a) that the energizing source is tritium gas;

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- (b) that no individual GTLS contains more than the amount of tritium specified in 3.1.3, at the date of supply;
- (c) that the total activity of the tritium in the sign does not exceed the amount specified in 3.2.4 at the date of supply.

6.2 Marking

Each sign shall be indelibly marked, so that the marking can be seen from the front, with the basic radiation symbol given in BS 3510, and adjacent to this symbol in letters and figures not less than 3 mm high, the following:

'Replace by: (month and year)'

The marks shall be in such a position that no part of them is obscured.

NOTE. The presence of the radiation symbol does not imply that the sign constitutes a radiation hazard under normal conditions of use. Its purpose is to call attention to the fact that the sign contains radioactive material.

6.3 Labelling

The back of each sign shall bear a label on which is given in permanent lettering the following.

- (a) The word 'RADIOACTIVE'.
- (b) The basic radiation symbol (see 6.2).

(c) The word 'TRITIUM' and activity in giga at date of supply.

(d) A serial number.

(e) The date of supply.

(f) The number and date of this British Standard, i.e. BS 5499 : Part 2 : 1986*.

(g) The following wording:

'Do not open.

When this sign is to be discarded, it has to be despatched to or removed by a manufacturer, signs, or a person who is authorized under 6(3) of the Radioactive Substances Act (1960) to dispose of such radioactive waste'.

(h) The manufacturer's name and address.

The difference between the dates referred to in 6.2 and 6.3 shall be 15 years.

* Marking BS 5499 : Part 2 : 1986 on or in relation to a product is a claim by the manufacturer that the product has been manufactured to the requirements of the standard. The accuracy of such a claim is therefore solely the manufacturer's responsibility. Enquiries about the availability of third party certification should be addressed to the appropriate certification body.