

Best Practice Specification

PHOTOLUMINESCENT FIRE PROTECTION SIGNS

Part 1 DESCRIPTION

1.01 System Description

Approved photoluminescent fire protection signs shall communicate fire protection information and shall be readily visible in all conditions of foreseeable use, including emergency conditions and darkness, and shall be provided as required in buildings by relevant building code.

1.02 Photoluminescent Fire Protection Signs

Photoluminescent fire protection signs shall be provided to provide information relating to hazards, fire equipment, warnings and general direction of travel.

1.03 Approved Photoluminescent Fire Protection Signs

Approved photoluminescent fire protection signs shall:

- a) Exceed PSPA class D classification and have independent luminance testing to support the minimum luminance levels detailed in following clause 2.04(h); **and**
- b) Be produced using a High Temperature Curing (HTC) manufacturing process and independently tested to support the criteria detailed in following clause 2.04j.; **and**
- c) Be produced by a manufacturer with ISO 9001 Quality Assurance certification; **and**
- d) Be warranted to last a minimum of 30 years indoors.

1.04 Submittals

Documentation as detailed in 1.04a. through 1.04c. must be submitted.

a. Manufacturer's Product Data Sheets

Submit Product Data Sheets for product number verification.

b. Manufacturer's Installation Instructions

Submit installation instructions.

c. Test Reports

Submit independent test reports to verify compliance with relevant standards as detailed in Section 2.04 Performance Criteria.

1.05 Quality Assurance

Submit copy of Manufacturer's ISO 9001 Quality Assurance documentation.

1.06 Warranty

Submit warranty for luminance characteristics for a minimum 30 years of indoor use.

Part 2 MATERIALS REQUIREMENTS

2.01 Photoluminescent fire protection signs

a. Acceptable Manufacturer

The manufacturer of the products shall have at least 20 years experience manufacturing photoluminescent materials.

b. Authorised Representative

The manufacturer shall have a suitably trained and accredited regional representative.

2.02 Materials Composition

a. Photoluminescent Fire Protection Signs

Photoluminescent pigment embedded in thermoset polyester manufactured using a High Temperature Curing (HTC) process at a temperature exceeding 160°C to integrally bond the active ingredients to 5005 0.9mm aluminium sheet.

2.03 Approved Fire Protection Signs

Fire protection signs for communicating fire protection information shall consist of materials and be manufactured using processes as defined in section 2.02.

2.04 Performance Criteria

All HTC products to meet or exceed the performance criteria specified in the following tests or standards. PC = Performance Criteria.

a. UV Resistance

ASTM G155-04 Cycle 1 1000hrs, Standard Practice for Operating Xenon Arc Light Apparatus for Exposure of Non-metallic Materials.

PC – Loss in luminance after exposure < 10%

b. Salt Spray Resistance

ASTM B117-97 1000hrs, Standard Practice for Operating Salt Spray (Fog) Apparatus.

PC – Slight corrosion build up along scribes, no blistering or filiform growth along scribes.

c. Washability

ASTM D4828-94(2003), Standard Test Methods for Practical Washability of Organic Coatings.

PC – crayon, pen, 3M soil: all rating 10, being complete removal of soilant.

d. Rate of Burning

ASTM D635-03, Standard Test Method for Rate of Burning and/or Extent and Time of Burning of Plastics in a Horizontal Position.

PC – Time of burn 0 seconds, does not burn.

e. Surface Flammability

ASTM E162-02, Standard Test Method for Surface Flammability of Materials Using a Radiant Heat Energy Source.

PC – Flame spread index 7.6, ignites with difficulty.

f. Toxicity

Bombardier Toxic Gas Generation Test SMP800-C.

PC - Pass

g. Radioactivity

ASTM D3648-2004, Standard Practices for the Measurement of Radioactivity.
PC – Pass

h. Luminance

Independent luminance testing shall be undertaken as follows:

Excitation Condition (charging) – 150W Xenon lamp, 1000 lux for 5 minutes.

PC – Minimum luminance of:

2,000 mcd/m² after 2 minutes; **and**

400 mcd/m² after 10 minutes; **and**

100 mcd/m² after 30 minutes; **and**

50 mcd/m² after 60 minutes; **and**

20 mcd/m² after 120 minutes.

i. High Temperature Curing

Independently tested by placing 3 samples in an oven at 180°C for 20 minutes and then examining the samples after removing from the oven..

PC – the samples shall have no shrinkage, delamination, distortion, or yellowing.

Part 3 CONSTRUCTION REQUIREMENTS

3.01 Manufacturer's Instructions

Comply with manufacturer's product data, installation instructions and maintenance and cleaning instructions.

3.02 Examination

Site verification of conditions is required to verify installation surface and appropriate installation method.

3.03 Installation

Installation must be as per manufacturer's installation instructions.

3.05 Cleaning

Maintenance and cleaning should be carried out as per manufacturer's maintenance and cleaning instructions.

Part 4 METHOD OF MEASUREMENT

4.01 Accepted Quantity of Signs

Photoluminescent fire protection signs shall be measured by the unit to determine the accepted quantity.

4.02 Accepted Quantity of Brackets

Brackets shall be measured by the unit to determine the accepted quantity.

Part 5 BASIS OF PAYMENT

5.01 Contract Unit Price

The accepted quantities, as determined in Part 4 Method of Measurement, shall be paid at the contract unit prices.