Test Report

WARRES No. 132058

Ad-hoc ignitability tests conducted on confetti materials

Sponsored by

MTFX
Velt House
Velt House Lane
Elmore
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Warrington FIRE research

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1 Introduction

The sponsor requested that Warrington Fire Research Centre conduct a series of tests on two samples of confetti, to determine their ability to withstand the type of accidental ignition sources to which they could be exposed in their normal use.

Although no specific standard exists for this type of product, it was considered that an ad-hoc investigation using some of the ignition sources described in BS 476: Part 12, 'Ignitability of Products by Direct Flame Impingement' and BS ISO 11925-3: 1997, would be the most applicable test method to assess the ignitability and burning behaviour of the confetti.

BS 476: Part 12: 1991 was developed following a survey of 'real' ignition sources which are currently the main cause of fires in the United Kingdom. As a result, each of the ignition sources detailed in the Standard was designed to represent a 'real' source:-

Source A	-	First flame after electrical failure.
Source B	-	Match flame.
Source C	-	Cigarette lighter.
Source D	-	Rolled-up newspaper.
Source E	-	Chip pan fire (early stages)
Source F	-	D.I.Y. or plumbers butane burner.
Source G	-	Roofers butane burner.

For the purposes of this investigation, sources B, C and F were chosen as being the most applicable to represent the likely accidental ignition sources.

Sources B and C are approximately equivalent to Ignition Sources 1 and 2 respectively in BS 5852: 1990 'Methods of test for the assessment of upholstered seating by smouldering and flaming ignition sources'.

An additional test was conducted on each material using a smouldering cigarette (Source 0 in BS5852: 1990).

2 Test Specimens

The description of the specimens given below has been prepared from information provided by the sponsor of the test. All values quoted are nominal, unless tolerances are given.

Specimen 1 – Metallised PVC film confetti

The material supplied for testing consisted of pieces of multi-coloured metallised fire retardant PVC film, measuring approximately 18mm x 50mm.

Specimen 2 – Tissue paper confetti

The material supplied for testing consisted of pieces of multi-coloured fire retardant tissue paper, measuring approximately 18mm x 50mm.

The samples were supplied by the sponsor. Warrington Fire Research Centre was not involved in any selection or sampling procedure.

3 Date of Test

The tests were conducted on 13 May 2003.

4 Test Method

The confetti products were laid loosely in a steel tray to a depth of approximately 15–20mm and the edges of the flakes were exposed to the ignition sources for varying durations, shown in the table below. Observations are made of the ignition behaviour, ignition being recorded if flaming persisted for more than 10 seconds after removal of the ignition source.

Ignition Source	Flame application times (seconds)
B	1, 5, 20, 40
C	1, 5, 20, 40
F	1, 5, 20, 40

The ignition sources are defined in BS 476: Part 12: 1991 as follows :-

Ignition Source B
A burner tube consisting of a length of stainless steel tube, 8.0 ± 0.1mm outside diameter, 6.5 ± 0.1mm internal diameter and 200 ± 5mm length. The flowmeter shall be calibrated to supply a propane gas flow rate at 25°C of 45 ± 2 ml/min (Under these conditions the flame height is approximately 35mm. This ignition source approximately corresponds to that specified as Ignition Source 1 in BS 5852).

Ignition Source C
A burner tube as described in Ignition Source B. The flowmeter shall be calibrated to supply a propane gas flow rate at 25°C of 160 ± 5ml/min (Under these conditions the flame height is approximately 120mm This ignition source approximately corresponds to that specified as Ignition Source 2 in BS 5852).

Ignition Source F
A mild steel nickel plated burner, nominally 15.75mm outside diameter, 13.5mm internal diameter and 66.5mm in length. Four pre-mixing air holes, each nominally 20mm x 3mm and 40mm from the burner end are spaced equidistant from each other. (No flowmeter is required and the flame height will be approximately 110mm).

The smouldering cigarette ignition source is defined in BS 5852: 1990 as follows :-

Ignition Source 0
An untipped cigarette, approx. 68mm long, approx, 8mm diameter, 1g nominal mass and having a smouldering rate of 12 ± 3 min over a 50mm distance.

5 Test Results

The test results relate only to the behaviour of the test specimens of the product under the particular conditions of the test; they are not intended to be the sole criterion for assessing the potential fire hazard of the product in use.

Specimen 1 – Metallised PVC film confetti

No sustained ignition of the PVC film, either flaming or progressive smouldering, occurred following any of the ignition source applications.

Specimen 2 – Tissue paper confetti

No sustained ignition of the tissue paper, either flaming or progressive smouldering, occurred following any of the ignition source applications.

6 Observations & Conclusions

- For both of the confetti materials, no sustained flaming or smouldering was observed after each of the ignition sources were removed.
- The sponsor has stated that both of the confetti materials are available in different shapes. It is our opinion that variations in the shape of the flakes would not have any adverse effect on their ignitability.

7. Validity

This report covers a test which was conducted to a procedure which is not the subject of any British Standard Specification. Since fire tests are the subject of a continuing standardisation process and because existing Standards are the subject of review and possible amendment and new interpretations, it is recommended that the report be referred back to us after a period of five years to ensure that the methodology adopted and the results obtained remain valid in the light of the situation prevailing at that time.

Responsible Officer

P. Webb

P WEBB
Technical Co-ordinator
Testing Department

Approved

P.E. Lythgoe

P E LYTHGOE
Laboratory Manager
Testing Department
For and on behalf of
WARRINGTON FIRE RESEARCH CENTRE

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Warrington FIRE research