

December 1, 2010

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SUBJECT 2358

OUTLINE OF INVESTIGATION

FOR

FIRE TESTS OF PRE-LIT ARTIFICIAL SEASONAL USE TREES AND OTHER
SEASONAL DECORATIVE ITEMS

Issue Number: 1

DECEMBER 1, 2010

Summary of Topics

This is the first issue of the Outline of Investigation for Fire Tests of Pre-lit Artificial Seasonal Use Trees and Other Seasonal Decorative Items, Subject 2358. The fire tests determine the ability of pre-lit artificial seasonal use trees (such as Christmas Trees) greater than 30 inches (762 mm) in height and less than 12 ft (3.7 m), pre-lit wreaths greater than 48 inches (122 mm) in height and less than 12 ft (3.7 m), electrically operated or pre-lit statues, and other seasonal decorative products to resist developing rapid heat release when subjected to a flaming ignition source.

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INTRODUCTION

1 Scope

1.1 The purpose of this test method is to determine the ability of pre-lit artificial seasonal use trees (such as Christmas Trees) greater than 30 inches (762 mm) in height and less than 12 ft (3.7 m), pre-lit wreaths greater than 48 inches (122 mm) in height and less than 12 ft (3.7 m), electrically operated or pre-lit statues, and other seasonal decorative products to resist developing rapid heat release when subjected to a flaming ignition source.

1.2 This test method provides information concerning the contribution of seasonal decorative products to a developing fire condition for a scenario representing a single item ignition. Contributions from additional fuel packages are not developed. Also, the density of smoke produced and the toxicity of the products of combustion are not measured.

1.3 The test arrangement described may not be applicable to artificial seasonal use trees or other items in all cases and alternate set ups may be required depending upon the end use.

2 General

2.1 Values stated without parentheses are the requirement. Values in parentheses are explanatory or approximate information.

2.2 Any undated reference to a code or standard appearing in the requirements of this standard shall be interpreted as referring to the latest edition of that code or standard.

PERFORMANCE

3 General

3.1 The rate of heat release and total heat released of each of five test specimens shall be less than or equal to that specified in Table 3.1. In addition to the heat release requirements, the sample shall not lose structural integrity such as tipping, falling, or loss of branches during the test.

Table 3.1
Acceptance Criteria

Maximum peak rate of heat release, kW	Maximum total heat released (First 10 minutes of test), MJ
≤ 100	≤ 15

3.2 A report of the test results is to be prepared as specified in Report, Section 9.

4 Test Equipment and Instrumentation

4.1 General

4.1.1 The test equipment and instrumentation shall consist of:

- a) A 20 kW ignition source from a sand burner,
- b) A collection hood and exhaust duct,
- c) Velocity and temperature measuring instruments,
- d) Gas sampling and oxygen analysis equipment,
- e) A data acquisition system, and
- f) Photographic and video equipment.

Note: Standard Practice for Full-Scale Oxygen Consumption Calorimetry Fire Tests, ASTM E2067, provides guidance for acceptable test equipment and instrumentation.

4.2 Ignition source

4.2.1 The propane gas burner used as the ignition source is to have nominal inside dimensions of 12 by 12 by 4 inches $\pm 1/4$ inch (305 by 305 by 102 mm ± 76 mm). The burner is to be constructed of nominal $1/4$ inch (6.4 mm) steel with a nominal $1/2$ -inch (12.7 mm) diameter steel gas inlet pipe. The pipe is to extend into the burner 5 inches (127 mm) nominal and a 6-inch (152 mm) nominal metal diffuser plate is to be positioned over the outlet of the gas pipe. A fine mesh metal screen is to be placed on top of the diffuser plate. The burner field is to be filled with silica sand. The ignition source is illustrated in Figure 4.1.