

Australian Standard™

**Fire hazard testing**

**Part 11.21: Test flames—500 W vertical  
flame test method for tubular polymeric  
materials**



This Australian Standard® was prepared by Committee EL-053, Fire hazard testing—  
Electrotechnical equipment. It was approved on behalf of the Council of Standards Australia  
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The following are represented on Committee EL-053:

- Australian Electrical and Electronic Manufacturers Association
  - Australian Information Industry Association
  - Electrical Compliance Testing Association
  - Electrical Regulatory Authorities Council
  - Energy Networks Association
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contributed to the development of this Standard through their representation on the  
Committee and through public comment period.

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## PREFACE

This Standard was prepared by the Standards Australia Committee EL-053, Fire hazard testing—Electrotechnical equipment.

The objective of this series of standards is to provide the electrotechnology industry and standards writing committees with a series of standards which give guidance on assessing the fire hazard of electrotechnical products.

This Standard is identical with, and has been reproduced from IEC/TS 60695-11-21, Ed 1.0 (2005), *Fire hazard testing - Part 11-21: Test flames - 500 W vertical flame test method for tubular polymeric materials*.

As this Standard is reproduced from an International Standard, the following applies:

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## INTRODUCTION

The best method for testing electrotechnical products with regard to fire hazard is to duplicate exactly the conditions occurring in practice. In most instances this is not possible. Accordingly, for practical reasons, the testing of electrotechnical products with regard to fire hazard is best conducted by simulating as closely as possible the actual effects occurring in practice.

Parts of electrotechnical equipment which might be exposed to excessive thermal stress due to electric effects, the deterioration of which might impair the safety of the equipment, should not be unduly affected by heat and by fire generated within the equipment.

Parts of insulating material or of other combustible material which are liable to propagate flames inside the equipment may be ignited by flames produced by a failing component. Under certain conditions, for example a fault current flowing over a tracking path, overloading of components or parts and bad connections, flames may also occur; such flames may impinge upon combustible parts in the vicinity.

This technical specification should be used to measure and describe the properties of materials, products, or assemblies in response to heat and flame under controlled laboratory conditions and should not be used to describe or appraise the fire hazard or fire risk of materials, products, or assemblies under actual fire conditions. However, results of this test may be used as elements of a fire risk assessment which takes into account all of the factors which are pertinent to an assessment of the fire hazard of a particular end use.

This technical specification may involve hazardous materials, operations, and equipment. This technical specification does not purport to address all of the safety problems associated with its use. It is the responsibility of the user of this technical specification to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

## STANDARDS AUSTRALIA

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**Australian Standard****Fire hazard testing****Part 11.21: Test flames—500 W vertical flame test method for tubular polymeric materials**

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**1 Scope**

This technical specification describes a small-scale laboratory procedure for determining the comparative burning characteristics of tubular polymeric materials. A flame is applied to test specimens held in a vertical position, supported by a wire or mandrel. Upon removal of the test flame, the extinguishing times and the burning characteristics are determined.

This test method can be used to compare the burning characteristics of tubular polymeric materials. This test method shall not be used to compare the burning characteristics of any wire or cable products or any cable management systems.

This test method can be used to compare the relative performance of materials, to aid in material selection, for quality control purposes and for quality assurance.

One of the responsibilities of a technical committee is, wherever applicable, to make use of basic safety publications in the preparation of its publications.

**2 Normative references**

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60695-11-3:2004, *Fire hazard testing – Part 11-3: Test flames – 500 W flames – Apparatus and confirmational test methods*

IEC Guide 104:1997, *The preparation of safety publications and the use of basic safety publications and group safety publications*

ISO/IEC 13943:2000, *Fire safety – Vocabulary*

ISO/IEC Guide 51:1999, *Safety aspects – Guidelines for inclusion in standards*

ISO 291:1997, *Plastics – Standard atmospheres for conditioning and testing*

ISO 4046-4:2002, *Paper, board, pulps and related terms – Vocabulary – Part 4: Paper and board grades and converted products*