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IEC/TS 60695-5-2, Ed 2.0 (2002)

AS 60695.5.2—2006

Australian Standard™

Fire hazard testing

Part 5.2: Corrosion damage effects of fire effluent—Summary and relevance of test methods

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 on 23 May 2006.
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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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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 60695-5-2, Ed 2.0 (2002), *Fire hazard testing - Part 5.2: Corrosion damage effects of fire effluent - Summary and relevance of test methods.*

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

(a) Its number does not appear on each page of text and its identity is shown only on the cover and title page.

(b) In the source text ‘IEC/TS 60695-5-2’ should read ‘AS 60695.5.2’.

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The terms ‘normative’ and ‘informative’ are used to define the application of the annex to which they apply. A normative annex is an integral part of a standard, whereas an informative annex is only for information and guidance.

Any International Standard referenced should be replaced by an equivalent Australian Standard where one is available. The availability of equivalent Australian Standards can be determined either from the Standards Web Shop at www.standards.com.au or from the annual printed catalogue of Australian Standards.

CONTENTS

INTRODUCTION

The risk of fire should be considered in any electrical circuit. With regard to this risk, the circuit and equipment design, the selection of components and the choice of materials should contribute towards reducing the likelihood of fire even in the event of foreseeable abnormal use, malfunction or failure. The practical aim should be to prevent ignition caused by electrical malfunction but, if ignition and fire occur, to control the fire preferably within the bounds of the enclosure of the electrotechnical product.

All fire effluent is corrosive to some degree and the level of potential to corrode depends on the nature of the fire, the combination of combustible materials involved in the fire, the nature of the substrate under attack, and the temperature and relative humidity of the environment in which the corrosion is taking place. There is no evidence that fire effluent from electrotechnical products offers greater risk of corrosion damage than the fire effluent from other products such as furnishings, building materials, etc.

The performance of electrical and electronic components can be adversely affected by corrosion damage when subjected to fire effluent. A wide variety of combinations of small quantities of effluent gases, smoke particles, moisture and temperature may provide conditions for electrical component or system failures from breakage, overheating or shorting.

Evaluation of potential corrosion damage is particularly important for high value and safety-related electrotechnical products and installations.

Technical committees responsible for the products will choose the test(s) and specify the level of severity.

The study of corrosion damage requires an interdisciplinary approach involving chemistry, electricity, physics, mechanical engineering, metallurgy and electrochemistry. In the preparation of this part of IEC 60695, all of the above have been considered.

IEC 60695-5-2 provides a summary of test methods including relevance and usefulness.

IEC 60695-5-1 defines the scope of the guidance and indicates the field of application.

IEC 60695-5-3 gives details of a small-scale test method for the measurement of leakage current and metal loss caused by fire effluent.

STANDARDS AUSTRALIA

Australian Standard

Fire hazard testing
Part 5.2: Corrosion damage effects of fire effluent—Summary and relevance of test methods

1 Scope

This part of IEC 60695 gives a summary of the test methods that are used in the assessment of the corrosivity of fire effluent. It presents a brief summary of test methods in common use, either as international standards or national or industry standards. It includes special observations on their relevance, for electrotechnical products and their materials, to real fire scenarios and gives recommendations on their use.

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 60695-4:1993, *Fire hazard testing – Part 4: Terminology concerning fire tests*

IEC 60695-5-1:2002, *Fire hazard testing – Part 5-1: Corrosion damage effects of fire effluent – General guidance*

IEC/TS 60695-5-3, *Fire hazard testing – Part 5-3: Corrosion damage effects of fire effluent – Leakage current and metal loss test method*[1]

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/TR 9122-1:1989, *Toxicity testing of fire effluents – Part 1: General*

3 Terms and definitions

For the purposes of this part of IEC 60695, the definitions given in ISO/IEC 13943 and IEC 60695-4, as well as the following definitions, apply.

3.1
corrosion damage
physical and/or chemical damage or impaired function caused by chemical action

[ISO/IEC 13943, definition 25]

[1] To be published.