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Plastics — Development and use of intermediate-scale fire tests for plastics products —

Part 2: Use of intermediate-scale tests for semi-finished and finished products

Sample Document

Plastiques — Développement et utilisation des essais au feu à une échelle intermédiaire pour les produits plastiques —

Partie 2: Utilisation des essais à une échelle intermédiaire pour les produits semi-finis et les produits finis

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Foreword

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This document was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 4, *Burning behaviour*.

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Introduction

The major benefit in intermediate-scale testing is the ability to reflect more accurately the fire conditions of real fires than small-scale tests. For example:

— *Specimen mounting*. Specimens can incorporate end-use fixings, joints and air-gaps (see Annex A) in the larger test apparatus. In addition, thick and/or profiled products may be accommodated. This capability is valuable for testing thick multilayer composites (such as sandwich structures). It is also useful for testing profiled product such as pipes, pipe insulations, cable trays, GRP frames and similar products.

— *Test specimen size and orientation*. Intermediate-scale tests allow to evaluate fire growth. The ability to measure flame spread beyond the impingement zone of the ignition source is a desirable feature.

— *Observation of actual phenomena of products (especially thermoplastics) exposed to ignition sources*. Representative behaviour may be observed with intermediate-scale test specimens.

The test results may be useful to the manufacturers of the products and regulation authorities[9].

However, intermediate-scale tests may have the following disadvantages because of their large scale.

— Intermediate-scale tests may develop an increased amount of fire effluent.

— Intermediate-scale tests may require higher cost.

— An intermediate-scale test may limit the fire scenario and cannot realize a wide range of fire behaviours.

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An intermediate-scale test can be used as a screening test for large-scale tests for the purpose of research and product development.

In addition to the usage mentioned above, this document has been prepared for manufacturers of semi-finished plastics products. These semi-finished products may be tested for production control or developmental reasons. They cannot always be tested in the end-use conditions (such as mounting and fixing) that are appropriate for finished products.

This document is intended to support the information that product manufacturers may require as part of a quality assurance scheme. In addition, it should be recognized that this document is not intended to replace finished product technical specifications for products containing a semi-finished plastics component.

The information given in this document is in accordance with the principles recommended in ISO 10840 that was established to develop a general policy and philosophy for the development and use of fire tests for plastics.

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Plastics — Development and use of intermediate-scale fire tests for plastics products —

Part 2: Use of intermediate-scale tests for semi-finished and finished products

1 Scope

This document provides guidelines and specifies requirements for the development and use of intermediate-scale fire tests applicable to semi-finished and finished products made of, or containing, plastics.

This document covers typical applications of such tests, as well as methods of preparation and mounting of test specimens.

This document applies to planar, linear or profiled plastics products. These products can be tested in horizontal or vertical orientation.

This document defines the parameters to be measured, the way that test results are expected to be reported and explains how they can be used for direct product assessment or as input data for scaling studies.

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2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

ISO 834-12, *Fire resistance tests — Elements of building construction — Part 12: Specific requirements for separating elements evaluated on less than full scale furnaces*

ISO 5658-2:2006, *Reaction to fire tests — Spread of flame — Part 2: Lateral spread on building and transport products in vertical configuration*

ISO 10840, *Plastics — Guidance for the use of standard fire tests*

ISO 13943, *Fire safety — Vocabulary*

ISO 14697, *Reaction-to-fire tests — Guidance on the choice of substrates for building and transport products*

ISO 25762, *Plastics — Guidance on the assessment of the fire characteristics and fire performance of fibre-reinforced polymer composites*

ISO 30021, *Plastics — Burning behaviour — Intermediate-scale fire-resistance testing of fibre-reinforced polymer composites*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 10840 and ISO 13943 and the following apply.

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