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Determination of the resistance to jet fires of passive fire protection materials —

Part 1: General requirements

Détermination de la résistance aux feux propulsés des matériaux de protection passive contre l'incendie —

Partie 1: Exigences générales

Reference number
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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 92 *Fire safety*, Subcommittee SC 2, *Fire containment*.

This second edition cancels and replaces the first edition (ISO 22899-1:2007), which has been technically revised. The main changes compared to the previous edition are as follows:

— Corrections to figures;

— Revision of the method of test for penetration seals.

A list of all parts in the ISO 22899 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

The test procedure described in this document enables the determination of properties of passive fire protection materials. This test is designed to give an indication of how passive fire protection materials are likely to perform in a jet fire. The dimensions of the test specimen can be smaller than typical structure or plant items and the release of gas can be substantially less than that which can occur in a credible event. However, individual thermal and mechanical loads imparted to the passive fire protection material from the jet fire defined in this document have been shown to be similar to those imparted from large-scale jet fires resulting from high-pressure releases of natural gas.

NOTE Guidance on the applicability of the test is intended to be covered in a future part of the ISO 22899 series.

Although the method specified in this document has been designed to simulate certain conditions that occur in an actual jet fire, it cannot reproduce them all exactly and the thermal and mechanical loads do not necessarily coincide. The results of this test do not guarantee safety but may be used as elements of a fire risk assessment for structures or plants. This should also take into account all the other factors that are pertinent to an assessment of the fire hazard for a particular end use. The test is not intended to replace the hydrocarbon fire resistance test (ISO/TR 834-3/EN 1363-2[3]) but is seen as a complementary test.

Users of this document are advised to consider the desirability of third-party certification/inspection/testing of product conformity with this document.

Determination of the resistance to jet fires of passive fire protection materials —

Part 1: General requirements

1 Scope

This document describes a method of determining the resistance to jet fires of passive fire protection materials and systems. It gives an indication of how passive fire protection materials behave in a jet fire and provides performance data under the specified conditions.

It does not include an assessment of other properties of the passive fire protection material such as weathering, ageing, shock resistance, impact or explosion resistance, or smoke production.

Complete I-beams and columns cannot be tested to this document due to disruption of the characteristics of the jet.

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 834-1:1999, *Fire-resistance tests — Elements of building construction — Part 1: General requirements*

ISO 13702, *Petroleum and natural gas industries — Control and mitigation of fires and explosions on offshore production installations — Requirements and guidelines*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
assembly
unit or structure composed of a combination of materials or products, or both

3.2
critical temperature
maximum temperature that the equipment, *assembly* (3.1) or structure to be protected may be allowed to reach

3.3
Delta Tmax
maximum *temperature rise* (3.18) recorded by any of the installed thermocouples