BS EN 12881-1:2014

BSI Standards Publication

Conveyor belts — Fire simulation flammability testing

Part 1: Propane burner tests

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This British Standard is the UK implementation of EN 12881-1:2014. It supersedes BS EN 12881-1:2005+A1:2008 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee PRI/67, Conveyor belts.

A list of organizations represented on this committee can be obtained on request to its secretary.

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Foreword

This document (EN 12881-1:2014) has been prepared by Technical Committee CEN/TC 188 “Conveyor belts”, the secretariat of which is held by SNV.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by November 2014 and conflicting national standards shall be withdrawn at the latest by November 2014.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 12881-1:2005+A1:2008.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document.

The main changes with respect to the previous edition are listed below:

— ‘Laboratory scale fire propagation test' was added (Method D);

— 'Mid-scale fire propagation test' (Method C, 6.1.1 Test gallery) thermal conductivity of the refractory material was included;

— 'Mid-scale fire propagation test' (Method C, 6.1.4 Gas burner) the diameter of the bore jets used was added.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

This European Standard is a type B1 standard as stated in EN ISO 12100.

The provisions of this European Standard may be supplemented or modified by a type C standard.

The machinery concerned and the extent to which hazards, hazardous situations and events are covered are indicated in the scope of this European Standard.

NOTE For machines which are covered by the scope of a type C standard and which have been designed and built according to the provisions of that standard, the provisions of that type C standard take precedence over the provisions of this type B1 standard.

The methods of test described in EN 12881-1 are intended to provide an indication of the reaction of a conveyor belt to a fire situation. However, in doing so attention is drawn to the fact that in assessing the overall flammability characteristics of conveyor belting for specific installations, it is not sufficient to rely solely on any single method of test but consideration has also to be given to the individual site location.

WARNING — The tests described in EN 12881-1 **can generate large amounts of smoke and heat. It is therefore essential to conduct the tests with caution, having due regard to health and safety considerations and to terminate any test immediately if at any time it is considered advisable to do so. In this regard it is recommended that no test should be supervised by only one person.**

1 Scope

EN 12881-1 describes four methods for measuring the propagation of a flame along a conveyor belt which has been exposed to a relatively high localized heat source such as a fire. The damage suffered by the conveyor belt, as well as its tendency to support combustion, is measured by observing the extent to which the fire spreads along the test piece.

Method A uses a test piece 2 m in length and consumes propane gas through the burner at the rate of (1,30 ± 0,05) kg per 10 min.

Method B uses a test piece 2,5 m in length and consumes propane gas through two burners mounted above and below the test piece trestle at the rate of (1,30 ± 0,05) kg per 10 min for each burner.

Method C uses a test piece 1,5 m in length and consumes propane gas through the burner at the rate of (565 ± 10) g per 50 min.

Method D uses a test piece 1,2 m in length and consumes propane gas through the burner at the rate of 150 l/hr (D1) or 190 l/hr (D2).

2 Normative references

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

EN 10088-3, *Stainless steels — Part 3: Technical delivery conditions for semi-finished products, bars, rods, wire, sections and bright products of corrosion resisting steels for general purposes*

EN 22768-1, *General tolerances — Part 1: Tolerances for linear and angular dimensions without individual tolerance indications (ISO 2768-1)*

ISO 65, *Carbon steel tubes suitable for screwing in accordance with ISO 7-1*

ISO 9162, *Petroleum products — Fuels (class F) — Liquefied petroleum gases — Specifications*

3 Propane gas supply

The burners used in each method shall be supplied from bottled propane gas complying with ISO 9162 which shall be fed to each burner, using high pressure propane hose having a minimum internal diameter of 6,3 mm, either:

a) through a pressure reducing valve, a non-return valve and an orifice plate 1,7 mm thick with a 2,5 mm diameter hole; or

b) through a pressure reducing valve and a non-return valve followed by a flow meter calibrated to ensure that the correct mass of gas is consumed.

Before and during the test, immerse each gas cylinder to approximately two-thirds of its height in a bath of water at a temperature of (25 ± 3) °C. Ensure that each gas cylinder is not emptied at the end of a test by more than 90 % of its gas mass capacity.