SLOVENSKI STANDARD
oSIST prEN ISO 340:2021

01-februar-2021

Naprave za kontinuirni transport - Trakovi tračnih transporterjev - Laboratorijska lestvica lastnosti gorljivosti (vnetljivosti) - Zahteve in preskusna metoda (ISO/DIS 340:2020)

Conveyor belts - Laboratory scale flammability characteristics - Requirements and test method (ISO/DIS 340:2020)

Fördergurte - Brandverhalten unter Laborbedingungen - Anforderungen und Prüfverfahren (ISO/DIS 340:2020)

Courroies transporteuses - Caractéristiques d'inflammabilité d'échelle de laboratoire - Exigences et méthode d'essai (ISO/DIS 340:2020)

Ta slovenski standard je istoveten z: **prEN ISO 340**

ICS:

13.220.40	Sposobnost vžiga in obnašanje materialov in proizvodov pri gorenju	Ignitability and burning behaviour of materials and products
53.040.20	Deli za transporterje	Components for conveyors

oSIST prEN ISO 340:2021 **en,fr,de**

DRAFT INTERNATIONAL STANDARD

ISO/DIS 340

ISO/TC **41**/SC **3**

Secretariat: **SAC**

Voting begins on:
2020-11-30

Voting terminates on:
2021-02-22

Conveyor belts — Laboratory scale flammability characteristics — Requirements and test method

Courroies transporteuses — Caractéristiques d'inflammabilité d'échelle de laboratoire — Exigences et méthode d'essai

ICS: 13.220.40; 53.040.20

This document is circulated as received from the committee secretariat.

ISO/CEN PARALLEL PROCESSING

Reference number
ISO/DIS 340:2020(E)

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Published in Switzerland

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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 41, *Pulleys and belts (including veebelts)*, Subcommittee SC 3, *Conveyor belts*.

This fifth edition cancels and replaces the fourth edition (ISO 340:2013), which has been technically revised.

The main changes compared to the previous edition are as follows:

— Normative references updated

— Definition of “afterglow” added

— Regional Requirements added in Clause 4

— Clause 5 revised by addition of illustrations, clarifications and tolerances

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.

Conveyor belts — Laboratory scale flammability characteristics — Requirements and test method

CAUTION — This method of test is not designed to assess the fire hazard of any given product. The results may help in the assessment of ignition hazard but should not be used in isolation as evidence that a product or material is safe.

1 Scope

This International Standard specifies a method for assessing, on a small scale, the reaction of a conveyor belt to an ignition flame source. It is applicable to conveyor belts having a textile carcass as well as steel cord conveyor belts.

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.

ISO 8056-1, *Aircraft — Nickel-chromium and nickel-aluminium thermocouple extension cables — Part 1: Conductors — General requirements and tests*

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

EN 12882, *Conveyor belts for general purpose use - Electrical and flammability safety requirements*

EN 14973, *Conveyor belts for use in underground installations - Electrical and flammability safety requirements*

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 http://www.electropedia.org/

3.1
afterflame
flame which persists after the ignition source has been removed

[SOURCE: ISO 13943:2017, 3.11]

3.2
afterflame time
length of time for which an afterflame (3.1) persists under specified condtions

[SOURCE: ISO 13943:2018, 3.12]

3.3
flame
zone of combustion in the gaseous phase, usually with emission of light

[SOURCE: ISO 13943:2017, 3.159]

3.4
flame
to undergo combustion in the gaseous phase with emission of light

[SOURCE: ISO 13943:2017, 3.160]

3.5
afterglow
persistence of glowing combustion after both removal of the ignition source and the cessation of any flaming combustion

[SOURCE: ISO 13943:2017, 3.13]

3.6
afterglow time
length of time for which an afterglow (3.5) persists under specified conditions

[SOURCE: ISO 13943:2017, 3.14]

4 Requirements

4.1 Periods of afterflame (after removal of the burner)

The sum of the periods of flame for each of the series of six tests (see 5.3) shall be less than 45 s and no individual value shall be greater than 15 s (see 5.7.5).

4.2 Non-reappearance of flame (after applying a current of air)

The flame shall not re-appear (see 5.7.6).

4.3 Regional requirements

In countries of the Single European Market, the requirements specified in 4.1 and 4.2 are replaced by the requirements for the applicable class specified in EN 12882 for conveyor belts for general purpose use and EN 14973 for conveyor belts for use in underground installations

5 Test method

5.1 Health and safety

5.1.1 Smoke and fumes

The ignition and burning of polymeric materials can cause smoke and toxic gases to be released, which can affect the health of operators. It is therefore of great importance that suitable means be provided to clear the test area of smoke and fumes.

5.1.2 Handling, storage and disposal of liquefied petroleum gas containers

All the relevant local safety regulations shall be taken into account for the handling and storage of liquefied petroleum gas (LPG) and for the disposal of used LPG containers.

If local safety regulations require the LPG cylinders to be stored in an environment that is cooler than the test area or some distance from the test rig, a sufficient length of tubing is needed inside the controlled environment to ensure that the gas equilibrates to the required temperature before flow measurement. One way to facilitate this is to pass the gas (before flow measurement) through a metal tube immersed in water maintained at 25 °C.

5.2 Principle

A test piece cut from a conveyor belt is suspended vertically above a gas flame for a specified time, after which the gas flame is removed. The afterflame time is measured. Any re-flame is noted when the test piece is later subjected to a current of air.

5.3 Test pieces

5.3.1 General

The test pieces described in 5.3.2 and 5.3.3 shall be taken at a minimum distance of 50 mm from the edges of the belt.

5.3.2 Conveyor belting with a textile carcass

5.3.2.1 For tests on conveyor belts with and without covers

5.3.2.1.1 Prepare 12 test pieces, each (200 mm ± 5 mm) × (25 mm ± 1 mm) as follows:

a) three test pieces, with covers intact, in the longitudinal direction of the conveyor belt;

b) three test pieces, with covers intact, in the transverse direction of the conveyor belt;

c) three test pieces, with covers removed (see 5.3.2.1.2), in the longitudinal direction of the conveyor belt;

d) three test pieces, with covers removed (see 5.3.2.1.2), in the transverse direction of the conveyor belt.

5.3.2.1.2 Covers may be removed [see 5.3.2.1.1 c) and d)] by stripping, cutting or buffing. If covers are removed by buffing, care should be exercised to ensure that the test piece is not overheated or that any threads of a textile carcass are not damaged.

5.3.2.2 For tests on conveyor belts with covers intact

If the product specification requires the test to be conducted on conveyor belts with the covers intact, conduct only six tests on test pieces as described in 5.3.2.1.1 a) and b).

5.3.2.3 For tests on conveyor belts designed for use without covers

If the product specification requires the test to be conducted on conveyor belts which are by design intended to be used without covers, conduct only six tests on test pieces as described in 5.3.2.1.1 c) and d).

5.3.3 Steel cord conveyor belts

5.3.3.1 For tests on conveyor belts with covers intact

If the product specification requires the test to be conducted on conveyor belts with the covers intact, cut six test pieces in the longitudinal direction of the belt, each 200 mm ± 5 mm long, as close as possible to 25 mm wide depending on the cord diameter and pitch. Each test piece shall be at least 20 mm wide and contain at least two cords, with the cut edges representing the centreline between adjacent cords.

5.3.3.2 For tests on conveyor belts with covers removed

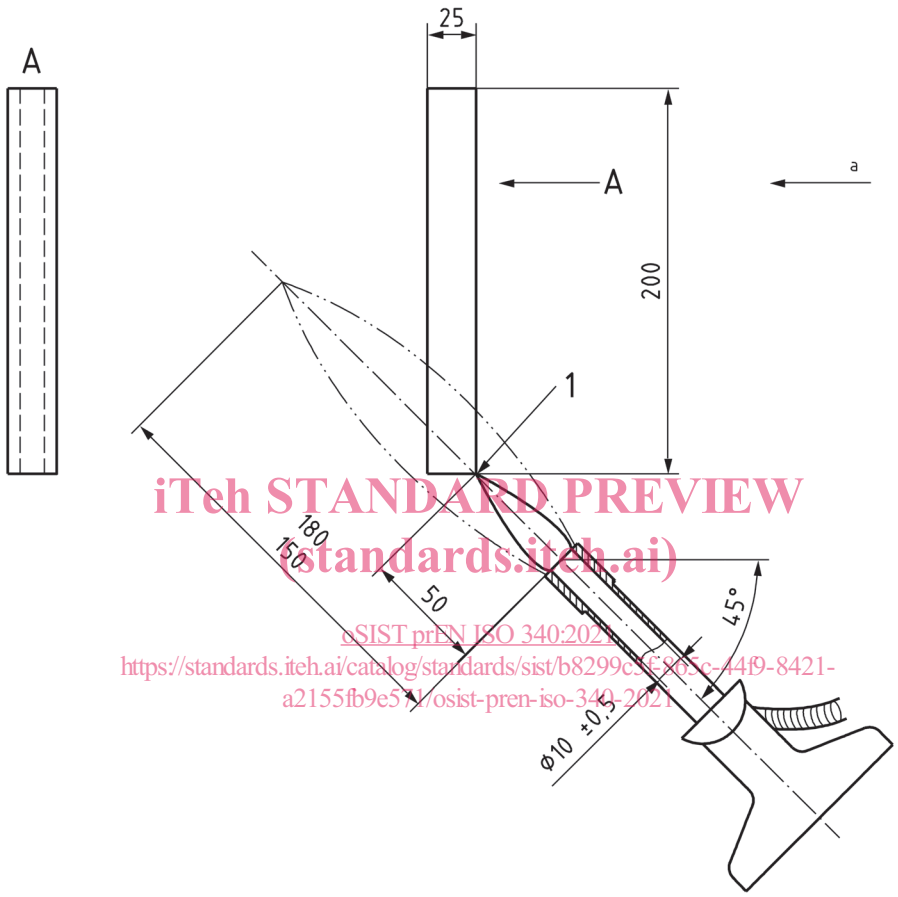
If the product specification requires the test to be conducted on conveyor belts without covers, cut six test pieces as described in 5.3.3.1 and remove the covers, e.g. by stripping, cutting or buffing.

5.4 Apparatus

5.4.1 Gas burner (Bunsen type), having a burner tube with an inside diameter of 10 ± 0,5 mm, as illustrated in Figure 1.

5.4.2 Commercial propane gas, as specified in ISO 9162.

Dimensions in millimetres



Key

1 thermocouple (see 5.4.6)

a Direction of air current to be applied after removal of burner.

Figure 1 — Illustration of gas burner and test piece configuration during test

5.4.3 Timing devices, capable of being read to 0,2 s or less.

5.4.4 Measuring devices, graduated in millimetres or submultiples of millimetres and calibrated to an appropriate accuracy.

5.4.5 Test piece holder and location clips, consisting of a rectangular frame not less than 520 mm high, having two sides spaced at least 75 mm apart on which are installed suitable devices for holding the test piece in a vertical plane at least 20 mm from the frame, e.g. clips or wing screws. The frame is fitted

