



SLOVENSKI STANDARD SIST EN ISO 4180:2020

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Nadomešča:
SIST EN ISO 4180:2011

Embalaža - Celovita, napolnjena transportna embalaža - Splošna pravila za pripravo programov preskušanja primernosti za uporabo (ISO 4180:2019)

Packaging - Complete, filled transport packages - General rules for the compilation of performance test schedules (ISO 4180:2019)

Verpackung - Versandfertige Packstücke - Allgemeine Regeln für die Erstellung von Prüfplänen (ISO 4180:2019)

Emballages - Emballages d'expédition complets et pleins - Règles générales pour l'établissement de programmes d'essais de performance (ISO 4180:2019)

Ta slovenski standard je istoveten z: EN ISO 4180:2019

ICS:

55.180.40	Celovita, napolnjena transportna embalaža	Complete, filled transport packages
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SIST EN ISO 4180:2020

en,fr,de

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EUROPEAN STANDARD

EN ISO 4180

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Supersedes EN ISO 4180:2010

English Version

Packaging - Complete, filled transport packages - General rules for the compilation of performance test schedules (ISO 4180:2019)

Emballages - Emballages d'expédition complets et pleins - Règles générales pour l'établissement de programmes d'essais de performance (ISO 4180:2019)

Verpackung - Versandfertige Packstücke - Allgemeine Regeln für die Erstellung von Prüfplänen (ISO 4180:2019)

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CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Contents	Page
European foreword.....	3

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European foreword

This document (EN ISO 4180:2019) has been prepared by Technical Committee ISO/TC 122 "Packaging" in collaboration with Technical Committee CEN/TC 261 "Packaging" the secretariat of which is held by AFNOR.

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of an identical text or by endorsement, at the latest by May 2020, and conflicting national standards shall be withdrawn at the latest by May 2020.

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

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INTERNATIONAL STANDARD

ISO 4180

Second edition
2019-11

Packaging — Complete, filled transport packages — General rules for the compilation of performance test schedules

*Emballages — Emballages d'expédition complets et pleins —
Règles générales pour l'établissement de programmes d'essais de
performance*

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Contents

	Page
Foreword	iv
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Hazard	2
5 Preparation of the test schedule	3
6 Test method	7
6.1 The laboratory atmosphere.....	7
6.2 Specimens.....	7
6.2.1 Content of specimens.....	7
6.2.2 Number of specimens.....	7
6.2.3 Degradation of specimen.....	7
6.2.4 Identification of specimen.....	7
6.3 Conditioning.....	7
6.4 Vibration test.....	8
6.4.1 General.....	8
6.4.2 Vertical random vibration test in general transportation.....	8
6.4.3 Sinusoidal vibration test in general transportation.....	10
6.4.4 Random vibration test in rough road transportation.....	11
6.4.5 Sinusoidal vibration test in rough road transportation.....	12
6.4.6 Stacked vibration test.....	13
6.5 Drop test.....	13
6.5.1 Testing classification (common for free-fall test and rotational edge drop test).....	13
6.5.2 Free-fall test (applies to manual handling).....	13
6.5.3 Rotational drop test (applies to mechanical handling).....	14
6.5.4 Horizontal impact test.....	15
6.6 Compression test.....	16
6.6.1 Test apparatus and test method.....	16
6.6.2 Compression test using a compression tester.....	16
6.6.3 Stacking load tests using a static load.....	19
6.7 Temperature and humidity environmental test.....	21
6.8 Low-pressure test.....	22
7 Test report	22
Bibliography	24

ISO 4180:2019(E)

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 122, *Packaging*, Subcommittee SC 3, *Performance requirements and tests for means of packaging, packages and unit loads (as required by ISO/TC 122)*.

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.

This second edition cancels and replaces the first edition (ISO 4180:2009) which has been technically revised. The main changes compared to the previous edition are as follows:

- the test item in the test schedule can now be selected by agreement of the stakeholders depending on the expected or existing transportation process and hazards;
- in [6.4](#), the test conditions have been reviewed and revised by the distance and condition of transportation;
- in [6.5](#), a new Level-4 has been added for well controlled handling;
- in [6.6](#), the test conditions have been reviewed and revised; they can be changed or selected depending on the storage conditions by the agreement of stakeholders.

Packaging — Complete, filled transport packages — General rules for the compilation of performance test schedules

1 Scope

This document establishes general rules for the compilation of performance test schedules for complete, filled transport packages intended for use within any distribution system except for the packages used for dangerous goods.

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 2206, *Packaging — Complete, filled transport packages — Identification of parts when testing*

ISO 2233, *Packaging — Complete, filled transport packages and unit loads — Conditioning for testing*

ISO 2244, *Packaging — Complete, filled transport packages and unit loads — Horizontal impact tests*

ISO 2873, *Packaging — Complete, filled transport packages and unit loads — Low pressure test*

ISO 8318, *Packaging — Complete, filled transport packages and unit loads — Sinusoidal vibration tests using a variable frequency*

ISO 13355:2016, *Packaging — Complete, filled transport packages and unit loads — Vertical random vibration test*

ISO 21067-1, *Packaging — Vocabulary — Part 1: General terms*

IEC 60068-1:2013, *Environmental testing — Part 1: General and guidance*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 21067-1 and the following 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

performance test schedule

single laboratory test, or series of tests, intended to ascertain the performance, under working conditions, of the subject under test

3.2

hazard

factor which brings a possibility of damage or deterioration of the value to the packaged freight or product

ISO 4180:2019(E)

3.3

power spectral density
acceleration power spectral density
PSD

degree of variation in energy for each frequency to the acceleration signal in a specific frequency range as a function of frequency

3.4

sweep cycle

scanning through the specified frequency band once in each direction, e.g. 10 Hz to 150 Hz to 10 Hz

[SOURCE: IEC 60068-2-6:2008, 3.4, modified — The Note has been deleted.]

4 Hazard

Typical hazards in the logistics process, and the related international standards, are shown in [Table 1](#).

Table 1 — Expected hazard during logistics process, and related international standards

Basic factor in logistics	Hazard	Related international standards	
Transport	— Vibration during transportation — Repetitive impact by bouncing	Vertical random vibration test	ISO 13355
		Sinusoidal vibration tests using a variable frequency	ISO 8318
		Vibration tests at fixed low frequency	ISO 2247
	Horizontal impact by sudden stop or start	Horizontal impact test	ISO 2244
	Horizontal impact by linking work of rail way freight car		
	Stacking stress during transportation	Random vibration test	ISO 13355
		Sinusoidal vibration tests using a variable frequency	ISO 8318
Low pressure by high altitude	Low pressure test	ISO 2873	
Handling	Drop impact by manual handling	Vertical impact test by dropping	ISO 2248
	Drop impact by mechanical handling		EN 14149
	Horizontal impact during handling by forklift or crane as such	Horizontal impact test	ISO 2244
	Rough handling by rolling	Rolling test	ISO 2876
	Topple	Toppling test	ISO 8768
	Handling of unit load	Stability testing of unit loads	ISO 10531
Storage	Compression load in stacking storage in warehouse	Stacking tests using a static load	ISO 2234
		Compression and stacking tests using a compression tester	ISO 12048
Climate	Temperature and humidity	High temperature test	ISO 2233 IEC 60068-1
		High temperature/High humidity test	
		Low temperature test	
	Wet, dewing	Water-spray test	ISO 2875