

### **SLOVENSKI STANDARD** SIST-TS CEN/TS 14482:2005

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#### Poštne storitve – Pismarnice za mednarodne pisemske pošiljke – Preskusne metode in zahtevane lastnosti

Postal services - Trays for international letter mail - Test methods and performance requirements

Postalische Dienstleistungen - Behälter für internationale Briefsendungen - Prüfverfahren und Leistungsanforderungen STANDARD PREVIEW

Services postaux - Caissettes pour le courrier international - Méthodes d'essai et exigences de performances SIST-TS CEN/TS 14482:2005

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# Postal services – Trays for international letter mail – Test methods and performance requirements

This Technical Specification (CEN/TS) was approved by CEN on 16 October 2002 for provisional application.

The period of validity of this CEN/TS is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the CEN/TS can be converted into a European Standard.

CEN members are required to announce the existence of this CEN/TS in the same way as for an EN and to make the CEN/TS available. It is permissible to keep conflicting national standards in force (in parallel to the CEN/TS) until the final decision about the possible conversion of the CEN/TS into an EN is reached.

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EUROPEAN COMMITTEE FOR STANDARDIZATION COMITÉ EUROPÉEN DE NORMALISATION EUROPÄISCHES KOMITEE FÜR NORMUNG

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#### Foreword

This document (CEN/TS 14482:2003) has been prepared by Technical Committee CEN/TC 331 "Postal services", the secretariat of which is held by NEN.

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).

At the request of CEN, the project (in CEN/TC 331/WG 4) was chaired by a representative from IPC (International Post Corporation), a firm based in Brussels, owned by a number of European and North American postal operators.

IPC has set up an independent group of experts to study the requirements for a small postal container which can replace the traditional mail bag in certain types of international mail handling. This type of container is known in the postal industry as a tray. The Tray subgroup – an advisory body to the IPC – has agreed on the relevant requirements for a postal tray.

Experts from the IPC Tray subgroup have joined the CEN/TC 331/WG 4 whose members are postal and materials handling experts and include experts from manufacturing companies. The findings of the IPC Tray Subgroup have been adopted by CEN/TC 331/WG 4.

Annex A is informative.

This document includes a Bibliography STANDARD PREVIEW

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to anounce this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdoms2:2005

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#### Introduction

The European Union Commission stressed already in its Green paper on postal services in 1992 the need to establish common rules for the development of community postal services and the improvement of quality of service.

Furthermore the Commission has acknowledged the need for technical harmonisation to increase the interoperability of postal networks in the member states and has given CEN a mandate to define fields where such harmonisation could be useful and suggest priorities and timescales.

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#### 1 Scope

This Technical Specification specifies the performance requirements and testing methods for standard letter mail trays, as specified in classification 1.1. The trays should be used to facilitate the exchange of international mail. The technical specification of the trays shall be such that the performance requirements specified herein shall be met and tests specified herein successfully completed. The technical specifications of trays as such however, are beyond the scope of this Technical Specification.

#### 1.1. Classification

This Technical Specification covers a one-size universal letter mail tray suitable for carrying C4, C5 and C6 mail:

Letters (maximum accepted sizes)

	Height	Width
C4	353 mm	250 mm
C5	173 mm	250 mm
C6	120 mm	250 mm

The trays are suitable for containing C4 mail stacked in a horizontal plane and for stacking C5 and C6 mail vertically.

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#### 2 Normative references

This Technical Specification incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text, and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this Technical Specification only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

prEN 1005-2	Safety of machinery - Human physical performance - Part 2: Manual handling of machinery and component parts of machinery.
EN 13430	Packaging - Requirements for packaging recoverable by material recycling.
EN 22206	Packaging - Complete, filled transport packages - Identification of parts when testing (ISO 2206:1987).
EN 22875	Packaging - Complete, filled transport packages - Water spray test (ISO 2875:1985).
EN 60695-11-20	Fire hazard testing - Part 11-20: Test flames - 500 W flame test methods (IEC 60695-11- 20:1999).
ISO 2233	Packaging - Complete, filled transport packages and unit loads - Conditioning for testing.
ISO 2247	Packaging - Complete, filled transport packages and unit loads – Vibration tests at fixed low frequency.
ISO 2248	Packaging - Complete, filled transport packages – Vertical impact test by dropping.
ISO 4180-1	Complete, filled transport packages - General rules for the compilation of performance test schedules – Part 1: General principles.
ISO 4180-2	Complete, filled transport packages - General rules for the compilation of performance test schedules - Part 2: Quantitative data DPREVIEW
ISO 12048	Packaging - Complete, filled transport packages – Compression and stacking tests using a compression testerstandards.iteh.ai

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### 3 Terms and definitions://standards.iteh.ai/catalog/standards/sist/04df4edb-085f-4dce-99aa-

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

#### 3.1

#### compatibility

ability for trays and closures to fit well onto each other and ability of easy nesting into each other as well as separating of trays and closures from each other

#### 3.2

#### durability

ability of a tray and closure to withstand conditions to which it is subjected (when tested)

#### 3.3

#### friction

capacity to prevent sliding on an inclined low friction conveying surface specified as the coefficient of friction

#### 3.4

#### letter mail

category of postal items classified according to its physical characteristics such as weight and dimensions

#### 3.5

#### nestability

ability of trays and closures to fit together one partially inside the other (measured as the ratio of the number of trays and closures which can be nested in a stack for one tray (tray and closure) height)

#### 3.6

#### recyclability

ability to recover the material of a discarded tray (measured as the content of recycled material in a tray)

#### 3.7

#### stackability

ability to be stacked and fully palletisable when filled with letter mail

#### 3.8

#### temperature resistance

ability to maintain shape (when conditioned) within a pre-defined temperature range

#### 3.9

#### tray

primary container with closure for the carriage of letter mail

#### 3.10

#### weather resistance

ability to remain serviceable (when conditioned) under specific weather conditions

#### **4** Requirements

The mail tray shall meet the following requirements:

#### 4.1. Tray size requirements

Minimum internal tray dimensions shall accommodate mail of the following sizes with ease of handling:

	Height	Width
C4	353 mm	iTeh STANDARD PREVIEW
C5	173 mm	250 mm
C6	120 mm	250 mm <sup>SIST-TS CEN/TS 14482:2005</sup> https://standards.iteh.ai/catalog/standards/sist/04df4edb-085f-4dce-99aa- 066a5ef3d980/sist-ts-cen-ts-14482-2005

#### 4.2. Tray performance requirement

#### 4.2.1 Compatibility

Trays and closures shall fit well onto each other, nest easily into each other and separate well from each other without the use of undue force.

#### 4.2.2 Compression

The trays shall meet a minimum compression strength requirement of 180 kg at a deflection of less than 10 mm before failure.

NOTE: This represents a five high stack of trays each weighing 10 kg and a safety factor of 4,5, as specified in ISO 12048.

#### 4.2.3 Durability

Trays shall withstand drop, vibration and crushing simulations as per the following:

Each tray shall withstand a minimum average of 70 cycles with a standard deviation of maximum 20%, as specified in ISO 2247, ISO 2248, ISO 4180-1, ISO 4180-2.

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#### 4.2.4 Closure

The closure of the tray is to provide security during transit and handling. The closures shall fit well on the tray to prevent tampering with the content. The closures shall be enclosed tightly to the tray by means of strapping in both directions, once over the width and once over the length of the tray.

#### 4.2.5 Flammability

Trays manufactured from plastic material shall meet requirements as specified in EN 60695-11-20. Trays made from alternative materials shall meet similar requirements when tested with appropriate flammability tests.

#### 4.2.6 Friction

The friction coefficient between tray and conveyor surface as specified in 5.2.5 shall not be lower than 0,31.

#### 4.2.7 Handles/handholds

Handles/handholds shall be designed for ergonomically comfortable handling, with no sharp edges and as referenced in prEN 1005-2.

#### 4.2.8 Nestability

Nesting ratio of trays and closures to the one "tray and closure height" shall be a minimum of 1:5. The better the nesting ratio the lower the transport cost for moving empty trays and closures.

#### 4.2.9 Recyclability

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Trays should be manufactured from a material which is recyclable as specified in EN 13430.

#### 4.2.10 Stackability

Trays shall be stackable and inter-stackable. Trays that are stacked shall be placed on a flat, horizontal and level surface and remain stable at up to 1,8 m stacking height.

#### 4.2.11 Tare weight

The tray and closure shall meet the tray dimensions and durability requirements specified with a tare weight remaining as light as possible. Because of the impact of tare weight on transport cost, the tare weight shall not be higher than 10% of the maximum filled weight of the tray. The mail load capacity of the tray is determined by the minimum tray dimensions specified in 4.1. The average tare weight shall not exceed 1050 g and the standard deviation shall not be higher than 1% of the average weight.

#### 4.2.12 Temperature resistance

Trays shall be capable of being handled at extreme temperatures, as specified in ISO 2233:

- from -35° C to 70° C there shall be materials stability such that the material shall maintain its essential shape for up to 8 h
- at -35° C the trays shall be resistant to the drop test (perform the drop test on the edge of the loaded tray with 10 kg gross weight from 1 m high).

#### 4.2.13 Weather resistance - Water spray exposure

The tray and closure shall be weather resistant with no more than 3% ingress of water as specified in EN 22875.

#### 5 Test method

The following testing methods were designed to represent simulation of real life usage and handling in an international mail exchange environment. The test methods intend to characterize the functionality, strength and life span of trays used in the exchange of international mail. The tests are laboratory tests.

Life span is expressed as number of cycles successfully completed in the durability test (5.2.9), which is meant to reflect the minimum number of trips the tray can make in real life before failure. The life span expressed as number of cycles is not meant to be an indicator for the economic life span, although in general the higher the number of cycles the higher the economic life span. Economic life span on the one hand is a function of materials / design / manufacture and is defined by the technical specification of the tray, and on the other hand it is a function of the equipment management determining circulation time and number of trays in circulation. These factors are outside the scope of this Technical Specification.

The tests can be used as pre-production tests as well as postproduction tests. The test method allows for testing of trays and closures manufactured using different tools and by different manufacturers.

#### 5.1 Test sampling and tray preparation

A minimum of 50 samples, trays and closures, shall be made available to perform the tests. In case of a postproduction test, the 50 samples shall be taken at random but in sequence, one from each production tool. The 50 samples shall be picked equally spread over the full production period. The samples supplied shall be marked with an indicator of the production date, the tool number and the name of the manufacturer. In case trays from more than one manufacturer are to be tested, each manufacturer shall provide 50 tray samples.

At arrival on the test site all trays shall be numbered and 10 samples shall be separated for the compatibility, nestability and stackability test, 5 samples shall be separated for the friction test and another 5 samples for the compression test, 2 samples shall be separated for the weather resistance test and another 2 samples for the temperature resistance test. The remaining 26 samples shall be made available for the durability test.

Trays that require to be loaded and packaged, according to the test procedures specification in 5.2, shall be filled with test letter mail. The C4 mail shall be loaded horizontally in the tray. The C5 and C6 test letter mail shall be loaded vertically, parallel with the width of the tray. The tray shall contain sufficient mail to achieve the required gross weight as specified in the test procedures. In case no weight is specified the trays shall be filled to a gross weight of up to but not exceeding 10 kg. The trays filled and packaged before testing shall be in similar condition to trays used in actual shipments and shall be strapped twice, once over the width and once over the length of the trays. The strapping shall be tight, there shall be no stacks in the straps and the strapping force shall not exceed 4,5 kg.

#### 5.2 Test procedures

The tests deal with different types of performance requirements; the functional requirements and the strength and life span requirements. The trays shall meet all performance requirements and pass all tests successfully. The recommended sequence of testing is as follows:

First tests 5.2.1 to 5.2.7 shall be performed to establish whether all functional requirements of the trays have been met, before continuing with tests 5.2.8 and 5.2.9 to establish whether all compression strength and life span requirements are met.

#### 5.2.1 Tare weight

The purpose of this test is to verify that the average tare weight of a tray plus a closure does not exceed the maximum as specified in 4.2.11. All 50 samples, trays and closures, shall be weiged. The average weight of trays shall be established and the average weight of the closures shall be established. Both averages shall be specified in the final report.

#### 5.2.2 Compatibility test

The purpose of this test is to establish that trays and closures are compatible independent from the tool and manufacturer that produced the samples. The 10 samples for the test shall be selected from the 50 samples