



**SLOVENSKI STANDARD**  
**SIST EN 13428:2001**  
**01-februar-2001**

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**Embalaža - Posebne zahteve za proizvodnjo in sestavo - Preventiva z zmanjševanjem pri izvoru**

Packaging - Requirements specific to manufacturing and composition - Prevention by source reduction

Verpackung - Spezifische Anforderungen an die Herstellung und Zusammensetzung - Vermeidung von Verpackungsabfall durch Ressourcenschonung

Emballage - Exigences spécifiques à la fabrication et à la composition - Prévention par la réduction à la source

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**Ta slovenski standard je istoveten z: EN 13428:2000**

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**ICS:**

13.030.99	Drugi standardi v zvezi z odpadki	Other standards related to wastes
55.020	Pakiranje in distribucija blaga na splošno	Packaging and distribution of goods in general

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**en**

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ICS 13.030.99; 55.020

English version

## Packaging - Requirements specific to manufacturing and composition - Prevention by source reduction

Emballage - Exigences spécifiques à la fabrication et à la composition - Prévention par la réduction à la source

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This European Standard was approved by CEN on 4 June 2000.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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

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## Foreword

This European Standard has been prepared by Technical Committee CEN/TC 261 "Packaging", the secretariat of which is held by AFNOR.

This European Standard 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 Z, which is an integral part of this standard.

This standard forms one of a series of standards and reports prepared under Mandate M 200 rev.3 given to CEN by the European Commission and the European Free Trade Association to support the European Council and Parliament Directive on Packaging and Packaging Waste [94/62/EC]. The procedure for applying this standard in conjunction with the other mandated standards and reports is specified in EN 13427.

This standard contains Annexes A, B and Z which are informative and Annex C which is normative.

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 March 2001, and conflicting national standards shall be withdrawn at the latest by March 2001.

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

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## Introduction

The Directive on Packaging and Packaging Waste (94/62/EC) defines requirements for the manufacturing and composition of packaging. This standard amplifies these requirements with respect to reduction of packaging at source and the minimisation of dangerous substances as they may arise from waste management operations. The European Standard EN 13427:2000 provides a framework within which this and four other standards may be used together to support a claim that a packaging is in compliance with the essential requirements for packaging to be placed on the market as required by the Directive.

The purpose of packaging is the containment, protection, handling, delivery and presentation of products. A major role is prevention of product damage and/or product waste. Reduction of packaging at source is one of several options for reducing the amount of used packaging for final disposal. In order to save resources and minimise waste, the whole system in which the packaging takes part should be optimised. This will include particular reference to packaging reuse and recovery, and with respect to social and economic factors.

This European Standard presents a framework for self-assessment to determine whether the requirements of this standard have been met. Its approach is similar to that of systems standards such as the EN ISO 9000 and EN ISO 14000 series.

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## 1 Scope

This European Standard specifies a procedure for assessment of packaging to ensure that the weight and/or volume of its material content is at the minimum commensurate with the maintenance of :

- functionality throughout the supply and user chain ;
- safety and hygiene for both product and user/consumer ;
- acceptability of the packed product to the user/consumer.

The substitution of one material by another is not a basis for source reduction.

This European Standard also specifies the methodology and procedure for the minimisation of any dangerous substances if they are present in packaging and are released into the environment as a result of waste management operations.

The procedure for applying this standard is contained in EN 13427:2000.

## 2 Normative references

This European Standard 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 reference, subsequent amendments to or revisions of any of these publications apply to this draft European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 13193 : 2000, *Packaging – Packaging and the Environment – Terminology*.

EN 13427 : 2000, *Packaging – Requirements for the use of European Standards in the field of packaging and packaging waste*.

## 3 Terms and definitions

For the purpose of this standard the definitions contained in EN 13193:2000 together with the following apply.

### 3.1

#### **prevention by source reduction**

process for the achievement of a minimum adequate weight and/or volume, for identical requirements, of primary and/or secondary and/or tertiary packaging, when performance and user acceptability remain unchanged and/or adequate, thereby minimising the impact on the environment

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### 3.2

#### **critical area for source reduction**

specific performance criterion which prevents further reduction of weight and/or volume of the packaging without endangering functional performance, safety and user/consumer acceptability

### 3.3

#### **supplier**

entity responsible for placing packaging or packed product on the market [EN 13427:2000]

## 4 Requirements

### 4.1 Application

The application of this standard to any particular packaging shall be as specified in EN 13427:2000

### 4.2 Packaging assessment

The supplier shall be able to demonstrate that the minimum adequate amount of weight and/or volume of the finished packaging have been reached taking into account all the "performance criteria" included in clause 5.

The supplier shall be able to demonstrate that substances identified as dangerous through the application of the procedure in annex C have been minimised.

### 4.3 Determination of critical area

The supplier shall evaluate the complete list of relevant criteria developed as a result of 4.2 to determine the "critical area" which will govern the achievable limit for source reduction. See Annex A.2 for guidance.

The identification of the critical area shall be the basis of complying with this standard for minimisation. If no critical area has been identified the packaging is not in compliance with the requirements of this standard and the potential for (further) source reduction is to be investigated.

### 4.4 Demonstration of source reduction

The supplier shall :

- prepare on request a statement of conformity to 4.2 and 4.3 ;
- document the relevant data or other information used to develop the list of relevant performance criteria and in particular to establish the nature and effects of the critical elements ;
- use a checklist as the basis for the statement of conformity (such as examples in Annex B) or its own documentation providing that all performance criteria listed in clause 5 are covered.

## 5 List of performance criteria

- Product protection
- Packaging manufacturing process
- Packing/filling process
- Logistics (including transport, warehousing and handling)
- Product presentation and marketing
- User/Consumer acceptance
- Information
- Safety
- Legislation
- Other issues

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## Annex A (informative)

### Guidelines on the use of this standard for the assessment of adequate minimum weight/volume of packaging

#### A.1 Introduction

More detailed information is given in this Annex A in order to guide the person or persons using this standard. It can be used in the assessment of existing packaging or as an aid in the normal dialogue between supplier and customer in agreeing a specification for new packaging.

**Clause A.2** is about methodology, it describes the different phases of the assessment process.

**Clause A.3** reviews the 10 specific performance criteria and gives a few examples of important requirements which may be relevant to a given package.

**Clause A.4** provides an example of a checklist layout to assist the assessment process and recording

**Annex B** gives two examples of fully completed assessment checklists and their supporting reports together with explanatory documents which support the completion of the checklists.

The "prevention by source reduction" process will aim at achieving a minimum adequate weight and/or volume of a given packaging, and hence packaging waste, without increasing product damage and product waste. The assessment checklist may be used to record the major decisive findings of this "prevention by source reduction" process.

The prevention by source reduction is an ongoing process involving design and operational experience which will provide useful information to determine critical areas.

#### A.2 Assessment methodology

The purpose of the assessment process for "prevention by source reduction", which may be documented by completion of a checklist (such as in A.4), is to assure that :

- All opportunities for "prevention by source reduction" towards achieving a minimum adequate packaging weight and/or volume have been identified and considered.
- "Prevention by source reduction" has been achieved while still meeting the necessary requirements of the packaging functions.
- Important decisive references supporting the above statement are recorded.

The detailed requirements of packaging can vary from one application to another. In the packaging design process, during which prevention by source reduction is considered, the analysis of each of the requirements will impact on the overall specification of the packaging. The requirements may be classified in a checklist. As a first step of the assessment, the most important requirement(s), within each of the performance criteria, may be listed in the second column of this checklist.

It is commonly accepted that, during the design process for packaging for a given application or group of similar applications, some of the requirements will determine the practical limitations for further reduction of the weight and/or volume of the packaging without endangering the necessary levels of safety, hygiene and user/consumer acceptability.

As a second step of the assessment process, the performance criterion limiting the ability to reduce weight and/or volume of the packaging will be identified. This is known as the "critical area". This identification should rely on tests

or studies which are usually performed to check validity of opportunities to achieve further prevention by source reduction.

Documented practical experience from the market is also valid as a source of data regarding acceptable limits. The identified limiting performance criterion, after being investigated and tested with other operators of the packaging chain, will be recorded as critical.

### A.3 Performance criteria

The 10 specific performance criteria are reviewed in this clause. For each of them, a non exhaustive list of typical requirements is provided. This list is intended to help any user of the standard to identify the important and decisive requirements.

#### A.3.1 Product protection

The product should be protected against damage and deterioration from the point of packaging until finally used.

Requirements may consist of: protection against vibration, compression, humidity, light, oxygen, microbiological infection, pest, off-taste etc. "Active packaging" may also contribute to the product protection, examples of such packaging include, but not exclusively, those having a formulation with anti-oxidants and those with temperature change indicators.

Examples of requirements which are often important :

- For fragile products having to be stacked high : vertical load resistance
- For fruit juice : UV and oxygen barrier

#### A.3.2 Packaging manufacturing process

The manufacturing processes operated by the packaging manufacturers will determine the range of characteristics of the packaging available to the designer.

Requirements may consist of shape of a container, thickness tolerances, size, feasibility of tooling, specifications minimising waste in manufacturing, etc.

Examples of requirements which are often important :

- For a bottle : wall thickness distribution
- For a corrugated box : flute orientation

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#### A.3.3 Packing/filling process

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The processes operated by the packer/filler will determine the range of characteristics available to the designer in order to minimise product and packaging waste. Requirements may consist of : impact and stress resistance, mechanical strength, packing line speed and efficiency, stability in conveying, heat resistance, effective closing, minimum headspace, hygiene, etc.

Examples of requirements which are often important :

- For a metal can : stability during conveying, filling and retorting
- For industrial fine powder (e.g. pigment) filled into a rigid drum : adequate headspace to avoid spillage before settlement

### A.3.4 Logistics (including transport, warehousing and handling)

The packaging (any combination of primary, secondary and tertiary packaging), shall be suitable for the expected logistics, transport and handling systems and maintain adequate protection of the product and safety for those exposed to the handling and use of the packaged goods.

Requirements may consist of : dimensional co-ordination for optimum space utilisation, compatibility with palletizing and depalletizing systems, handling and warehousing system, packaging system integrity during transport and handling, etc.

Examples of requirements which are often important :

- For a packaging : dimensional compatibility with standard pallets and/or crate systems
- For high value products (e.g. computer components) : packaging shall be free from any visible damage

### A.3.5 Product presentation and marketing

The packaging needs to provide product identification by the user/consumer as well as stimulating purchase, these requirements are linked to brand image, labelling, presentation, etc.

Requirements may consist of : product identity and brand recognition, labelling, compatibility with retail display systems, compatibility with refill systems, pilfer resistance, etc.

Examples of requirements which are often important :

- For a branded fresh fruit juice : container with a specific shape
- For high value small products in self service retail outlets : pilfer resistance

### A.3.6 User / Consumer acceptance

The packaging should satisfy user/consumer needs and expectations in terms of unit size and convenience as well as ergonomics associated with handling, opening, reclosing, storing, etc.

Requirements may consist of : unit size, collation/multi-pack, handling ergonomics, tamper evidence, storage/shelf-life, ease of opening, dispensing and ability to empty, attractive presentation, etc.

Examples of requirements which are often important :

- For a large container with handle and large closure : ease of carrying and opening
- For diet yoghurt for single person household : portion pack small enough to be consumed before deterioration

### A.3.7 Information

The packaging should be capable of providing any necessary information regarding product use and care as well as other useful instructions.

Requirements may consist of : providing product information, instructions for storage, application and use, bar codes, best before date, etc.

Examples of requirements which are often important :

- For a semi prepared meal : easy to read detailed instructions for cooking and serving on packaging separate from that used for cooking
- For products which are marked as dangerous : minimum size of label