SLOVENSKI STANDARD
SIST CR 13504:2001

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Embalaža - Snovna izraba - Merila za najmanjšo količino recikliranega materiala

Packaging - Material recovery - Criteria for a minimum content of recycled material

Emballages - Valorisation matieres - Criteres pour une teneur minimale en matériaux recyclés

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13.030.50	Recikliranje	Recycling
55.020	Pakiranje in distribucija blaga na splošno	Packaging and distribution of goods in general

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ICS

English version

Packaging - Material recovery - Criteria for a minimum content of recycled material

Emballages - Valorisation matières - Critères pour une teneur minimale en matériaux recyclés

Verpackung - Stoffliche Verwertung - Kriterien für den Mindestgehalt an verwertetem Material

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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Foreword

This document has been prepared by CEN /TC 261, "Packaging".

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Introduction

Packaging has become an integral part of modern society, bringing with it the benefits of reduced wastage of the contents and significantly wider choice available to consumers. It is also a user of resources and the need to optimise these resources by minimising the packaging, reusing where appropriate and recovering/recycling the material from the used packaging is recognised in the Directive on Packaging and Packaging Waste. (see Bibliography)

The use of recycled material in the manufacture of new products is strongly supported and should be encouraged provided that the necessary functional requirements are maintained and that in so doing there is not an increase in the environmental load/impact through consumption of resources or by emissions generated.

In this Directive, reference is made to the issue of a minimum content of recycled material in packaging, and the objective behind this provision is seen as generating a wider market for the use of recycled materials. Also this Directive refers to the need to communicate with consumers and ensure that users obtain information about the meaning of markings on packaging.
In this Report, the primary objectives taken into account in considering the criteria for a minimum content of recycled material are :

- fitness for purpose of the packaging containing the recycled material,
- environmental benefit,
- the ability to monitor and assess the conformance of a defined minimum content.
- the constituents of recycled content.

1 Scope

This Report addresses the criteria for a minimum content of recycled material in packaging for appropriate types of packaging, and deals with the criteria that will influence the acceptable level of recycled material and the methodology by which such content can be monitored.

2 Normative references

This Report includes, 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 Report only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred applies.

Pr EN 13193 , Packaging – Packaging and the environment - Terminology

Pr EN 13437, Packaging and material recycling - Criteria for recycling methods - Description of recycling processes and flow chart

CR 12340:1996, Packaging - Recommendations for conducting life-cycle inventory analysis of packaging systems

3 Definitions

For the application of this report, the definitions contained in prEN 13193 "Packaging – Packaging and the environment - Terminology" apply. For the understanding of this report the following definitions are reproduced. :

3.1
packaging
all products made of any materials of any nature to be used for the containment, protection, handling, delivery and presentation of goods, from raw materials to processed goods, from the producer to the user or the consumer. 'Non returnable' items used for the same purpose shall also be considered to constitute packaging.

'Packaging' consists only of:

- sales packaging or primary packaging, i. e. packaging conceived so as to constitute a sales unit to the final user or consumer at the point of purchase;

- grouped packaging or secondary packaging, i. e. packaging conceived so as to constitute at the point of purchase a grouping of a certain number of sales units whether the latter is sold as such to the final user or consumer or whether it serves only as a means to replenish the shelves at the point of sale; it can be removed from the product without affecting its characteristics;

- transport packaging or tertiary packaging, i. e. packaging conceived so as to facilitate handling and transport of a number of sales units or grouped packaging in order to prevent physical handling and transport damage. Transport packaging does not include road, rail, ship, and air containers.

[Directive 94/62/EC]

3.2
Packaging Waste

any packaging or packaging material covered by the definition of waste, and excluding production residues;
[Directive 94/62/EC and 75/442/EEC]

3.3
Recycling

the reprocessing in a production process of the waste materials for the original purpose or for other purposes including organic recycling but excluding energy recovery;
[Directive 94/62/EC]

Note: Comments on recycled content

The Directive [94/62/EC] gives no definition for recycled content and the term is considered against the following -
The Directive sets clear targets for the *"Recycle rate"* of used packaging, excludes *"Production Residues"*, and adds that *"Member States shall, where appropriate encourage the use of materials obtained from recycled packaging waste for the manufacture of packaging and other products."*

A discussion note on the definition of recycled content is reported in Annex A.

To maximise the opportunity for the recycling of recovered from non packaging applications, and vice versa. as commented on in Annex B

4 Packaging

4.1 Basis of Assessment

In assessing the basis on which the incorporation of recycled materials can be effectively considered in packaging a number of issues need to be taken into account. These include:

- the range of packaging materials,
- the applications for which the packaging is intended,
- the source and availability of recycled material

4.2 Packaging Materials

The materials used for packaging are diverse in their source and their properties. The material used for a specific application is carefully selected to carry out the designed role of the packaging; that is to safely contain, protect and to minimise the damage and waste of the contents. (Reference Annex C.) The diversity of the materials used reflects the diversity of the contents and the service that the packaging has to provide. The selection of the packaging material should also be carried out bearing in mind the minimisation requirement of the Directive.

The draft CEN Standard for Packaging and Packaging Material Flows demonstrates this diversity with the Flow Diagrams prepared for the materials Steel, Aluminium, Glass, Paper, Plastic and Wood.
[see annexes A-G prEN 13437]

The incorporation of recycled material that could result in an increase in environmental impact, for example as a result of an increase in the weight of packaging to ensure the maintenance of functional performance, must be carefully considered. (see annex D).

4.3 Packaging Applications

The range of packaging applications are recognised within the Directive, and include primary, secondary and tertiary roles as detailed in the definitions.

Within these three functional roles and, within a single category of material, the detailed applications are varied, from containment of medicines to toxic liquids, from individual food portions to industrial consignments, from products to be handled at sub-zero temperatures to those requiring high temperatures before the contents are removed. The correct technical performance of the packaging must be maintained for each specific application to meet the requirements of the product, safety, hygiene, damage prevention and consumer needs. The conformance to quality and performance requirements are very diverse and examples are given in the criteria set out in Annex C

4.4 Recycled Material

To maximise the opportunity for the reutilisation of post use recycled material there needs to be maximum flexibility between packaging and non-packaging applications. This is generally referred to as "open loop" recovery and recycling. The quality of the recycled material will depend on its origin and the capability of the recycling process to bring the recycled material to the standard necessary for the reuse application. The greater the discrepancy between the quality of the used material at its source and that required for its reutilisation, the greater the resources required in the recovery process and the need to consider the environmental impact of that activity.(See Annex D)

The repeated recycling of certain materials can result in a measurable deterioration of their properties such that, for the same recycled content, the properties of the product will be inferior. Thus for a given recycled material content, the performance of the product can be variable.

To this must also be added the geographical location of the supply of the used materials and the location of the facility for the collection and reuse. Trade between member states and outside of the community often means that supply and reutilisation are not adjacent and would involve extensive transportation with its own use of resources and impact on the environment. For example, the manufacture of paper in the Nordic countries is close to the natural source of raw materials, (timber) but a long way from the user of their paper products. Availability of used paper products for recycling is therefore limited and product has a much higher primary fibre content. (Reference Annex D)

5 Environmental Impact

The prime objective in the use of recycled material is to reduce the environmental impact through conservation of resources in terms of energy and raw materials, as well as a reduction in emissions and waste. The effective recovery of used products for recycling will vary substantially depending on the application, where the product finally finishes the task for which it was supplied, and the potential for extracting the individual material types from the overall waste stream. The drive for recovery and recycling of used products and the use of recycled materials in new products must take account of the environmental impact through some form of life cycle inventory and assessment so that the process does not use more resources than it saves. (Reference CEN Report on LCA CR 12340:1996)

In any such analysis it is important that the boundary encompasses the whole cycle of raw material through manufacture, recovery and recycling including distribution and return as example in the draft CEN Standard for Packaging and Packaging Material Flows. (See Annexes A-G prEN 13437)

The environmental impact of emissions generated in recycling processes need also to be considered and compared with the environmental impact of emissions from other waste management options.

The principle of criteria for a minimum recycled content must not compromise safety, hygiene and other functional requirements of the packaging, and must ensure that the resources saved in the displacement of primary material are measurably greater than the additional resources consumed in diverting the used material from other methods of recovery and waste management.

6 Conformance Assessment of Recycled Content

Any provision to claim and mark packaging with a recycled content needs to be measurable if it is to be enforced and monitored. Also, the meaning needs to be understood by both the supplier and the consumer. There are however two key limitations.

1) There is no known technology by which the recycled material content can be measured in a finished product. The use of mass balance monitoring of the raw materials used in the manufacture of packaging against the output of finished product will provide for some products an aggregate value of the proportion of primary material used and that derived from the recycling process (see annex B).

2) There is often the view that higher levels of recycled content means that the product has environmental benefit. This is not always the case as is recognised in the Directive.

There are two further limitations in this approach to assessment of conformance with a minimum recycled material content

1) The value calculated will relate normally to an average for an extended period of time which will not ensure that

all packaging produced during that time contained the claimed recycled content. This can be further compounded in manufacturing plant producing a range of products from the same equipment (see annex B).

2) The recycling processes used for most materials will process both post use materials and production residues, often as a joint feedstock. The output will not differentiate the source of material and with efficiency losses in the recycling process the post use proportion will not be known.

The result is that assessment of recycled content normally would be limited to a certain aggregate value over an extended period of time.

7 Freedom from Barriers to Trade

The objective of the Directive is to ensure harmonised trading in the European Union. There is also the need that legislation does not conflict with the World Trade Organisation (General Agreement on Tariffs and Trade) - WTO(GATT) agreement which among other criteria states that any requirement on material content shall not create a restrictive trade barrier that could impact on both the packaging and the products contained.

Availability and use of recycled material which satisfies the requirements of achieving an environmental benefit as detailed in this Report, and in the Directive on Packaging and Packaging Waste can vary depending on the source or location of the manufacturing and conversion operations for the packaging. To penalise the supply from such sources will introduce a barrier to trade.

8 Conclusion and Proposal for Criteria For Minimum Recycled Content

The use of recycled material in the manufacture of new products is strongly supported and should be encouraged provided that the necessary functional requirements are maintained and that in so doing there is not an increase in the environmental load/impact through consumption of resources or by emissions generated.

However from the analysis developed above, and detailed in the material specific examples of technical feasibility see Annex E, the basis for a mandatory stated minimum recycled content in packaging is considered unsound because :

- the multiplicity of applications with complex performance and health and safety requirements is so diverse.

- the material chosen to meet the requirements of a minimum recycled content can well lead to a conflict with other Directive requirements such as "prevention by source reduction"

- the potential barriers to free trade, both within the Community and outside, due to the different sources of manufacture of packaging and the range of products contained in that packaging.

- the marking of a product with a 'Recycled Content' statement may often lead to a misunderstanding and poor decision on the part of the consumer as higher recycled content does not always correlate to environmental benefit.

- the claim *for recycled content* can never be validated by analysis of the product, *therefore* the veracity of claims could not be effectively tested and proved.

The conclusion therefore is that although the recycled content can be from zero to a very high percentage for some specific packaging applications, it is not feasible to set a minimum recycled content for each type of packaging or material.