

INTERNATIONAL STANDARD

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Packaging and the environment — Material recycling

Emballage et environnement — Recyclage de matériau



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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 18604 was prepared by Technical Committee ISO/TC 122, *Packaging*, Subcommittee SC 4, *Packaging and environment*.

Introduction

Packaging plays a critical role in almost every industry, every sector, and every supply chain. Appropriate packaging is essential to prevent loss of goods and, as a result, decrease impact on the environment. Effective packaging makes a positive contribution towards achieving a sustainable society by, e.g.:

- a) meeting consumer needs and expectations for the protection of goods, safety, handling, and information;
- b) efficiently using resources and limiting environmental impact;
- c) saving costs in the distribution and merchandising of goods.

An environmental assessment of packaging should include the manufacturing and distribution system, the wastage of packaging material and goods, the relevant collection systems, as well as recovery or disposal operations. This group of ISO standards and supporting reports provides a set of procedures which aim to:

- d) reduce environmental impact;
- e) support innovation in product, packaging, and the supply chain;
- f) avoid undue restrictions on the use of packaging;
- g) prevent barriers and restrictions to trade.

A packaging should be designed to provide a number of functions for users and producers such as: containment, protection, information, convenience, unitization, handling, delivery, or presentation of goods. A major role of packaging is prevention of damage to, or loss of goods. (See ISO 18601, [Annex A](#) for a list of the functions of packaging.)

ISO 18601 defines the interrelationships within the family of ISO standards which cover the environmental impact of packaging throughout its life cycle (see [Figure 1](#)). These standards will help define whether the selected packaging can be optimized and whether the packaging needs to be modified to ensure it can be reused or recovered after use.

Demonstration that the requirements of these standards are met can be performed by first party (manufacturer or supplier), second party (user or purchaser), or the support of third party.

There are different methods to which public claims on the environmental attributes of packaging are discussed. Some of these are technical aspects on reuse or recovery, others relate to access by the population to reuse or recovery systems or the amount of packaging placed on the market for recovery. This series of standards addresses the technical aspects of packaging. They do not address the requirements of ISO 14021 needed to support a claim or label.

This International Standard does not use the term “and/or” but instead, the term “or” is used as an inclusive disjunction, meaning one or the other or both.

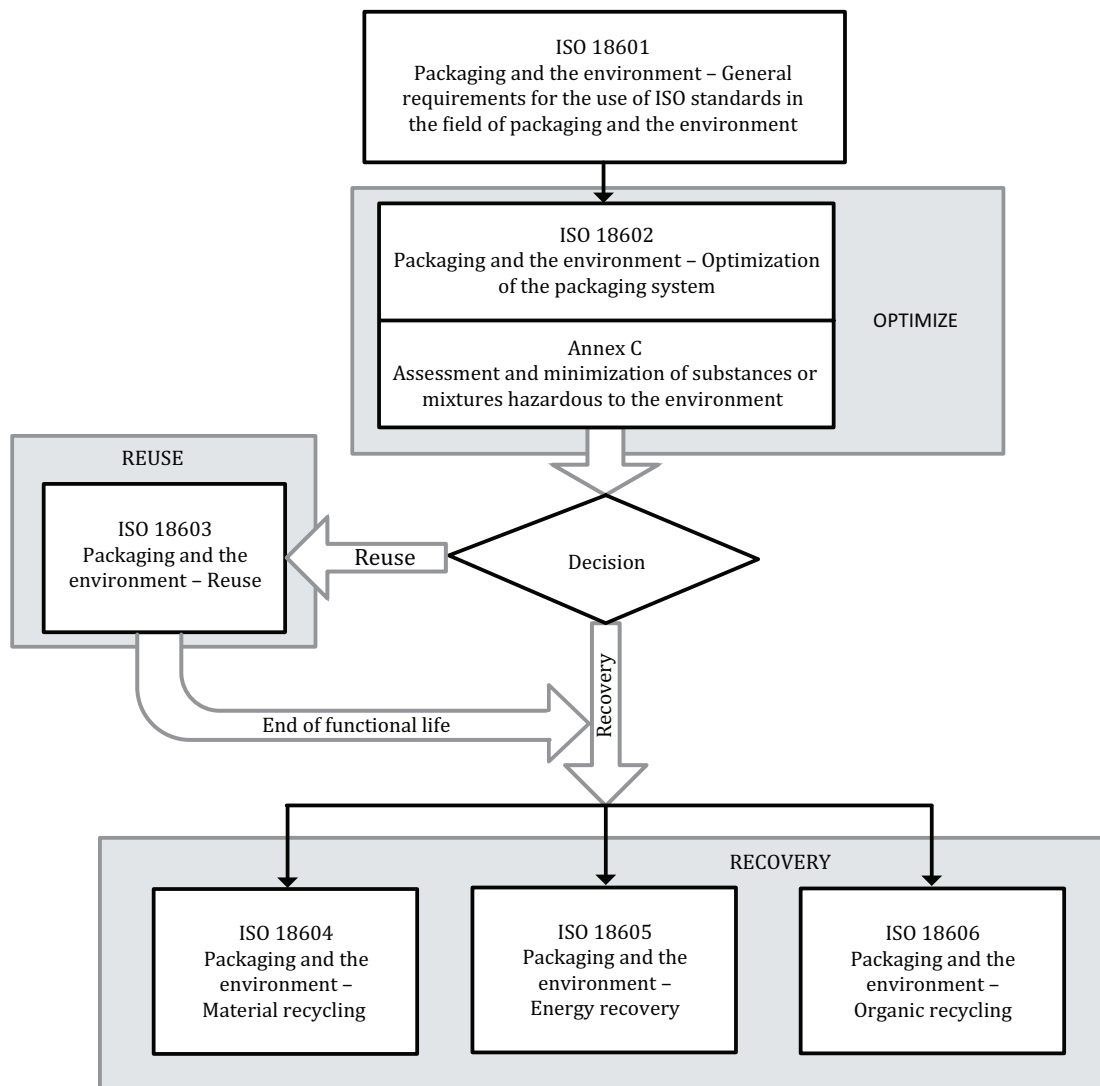


Figure 1 — Relationship of the Packaging and environment standards

Packaging and the environment — Material recycling

1 Scope

This International Standard specifies the requirements for packaging to be classified as recoverable in the form of material recycling while accommodating the continuing development of both packaging and recovery technologies and sets out procedures for assessment of meeting the requirements of this International Standard.

This International Standard cannot by itself provide presumption of meeting the requirements. The procedure for applying this International Standard is contained in ISO 18601.

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 18601, *Packaging and the environment — General requirements for the use of ISO standards in the field of packaging and the environment*

ISO 21067, *Packaging — Vocabulary*

3 Terms and definitions

For the purposes of this document, the terms and definitions in ISO 21067 and ISO 18601 and the following apply.

3.1

empty packaging

packaging is empty if, under normal and foreseeable circumstances, all product residues that can be removed by the emptier have been removed using practices commonly employed for that type of packaging

3.2

primary (virgin) raw material

material which has never been processed into any form of end-use product

3.3

material recycling

reprocessing, by means of a manufacturing process, of a used packaging material into a product, a component incorporated into a product, or a secondary (recycled) raw material; excluding energy recovery and the use of the product as a fuel

Note 1 to entry: References to recycling in this International Standard refer to material recycling. Other options for recycling or recovery are not considered in this International Standard.

3.4

packaging unit

unit which serves a packaging function such as the containment, protection, handling, delivery, storage, transport, and presentation of goods

Note 1 to entry: In this International Standard, it is the subject of analysis.

3.5

recycling process

physical or chemical process which converts collected and sorted used packaging, together in some instances with other material, into secondary (recycled) raw materials, products, or substances, excluding energy recovery and the use of the product as a fuel

3.6

recyclable

characteristic of a product, packaging, or associated component that can be diverted from the waste stream through available processes and programmes and can be collected, processed, and returned to use in the form of raw materials or products

[SOURCE: ISO 14021, definition 7.7.1]

3.7

supplier

entity responsible for placing packaging or packaged goods on the market

Note 1 to entry: The term “supplier” in normal usage can relate to various points in a supply chain. For the purpose of this International Standard, it relates to any point in the supply chain where a transaction relating to packaging or packaged goods takes place.

[SOURCE: ISO 18601, definition 3.20]

3.8

packaging component

part of packaging that can be separated by hand or by using simple physical means

[SOURCE: ISO 18601, definition 3.9]

4 Requirements

4.1 Application

The application of this International Standard to any particular packaging shall be as specified in ISO 18601.

4.2 Packaging assessment

The supplier shall be able to demonstrate that the procedures defined in normative [Annexes A](#) and [B](#) have been followed in arriving at the final design of the finished packaging such that a certain percentage of the packaging materials can be claimed to be recyclable.

4.3 Declaration of percentage recyclable

Packaging may use more than one material whose relative proportions may vary from small components and constituents, typically represented by labels and closures, to large proportions in multi-material packaging.

The supplier shall declare the percentage by weight of the packaging unit of packaging that is recyclable, identifying the intended material recycling stream(s). An example of statements for this declaration is given in [Annex C](#).

4.4 Meeting the requirements of this International Standard

The supplier should prepare a written statement of meeting the requirements stated in [4.2](#) and [4.3](#).

4.5 Support documentation

The assessment shall be documented and examples of the structure of such documentation are given in [Annex C](#) and examples are given in [Annex D](#).

Annex A (normative)

Procedures to evaluate packaging recoverable by material recycling

A.1 Objective

To identify the criteria that need to be taken into consideration when assessing the suitability of packaging for material recycling. These criteria for recycling should be considered in a perspective which includes all relevant aspects, from design, manufacture, and use, through to collection and sorting, until the packaging is recovered by material recycling, as well as the development of recycling technologies.

This perspective is conveniently illustrated and checked through the matrix approach presented in [Table A.1](#), which represents a guideline to elaborate practical requirements for packaging recoverable in the form of material recycling.

The relevant boxes in [Table A.1](#) highlight the interactions between life cycle steps and criteria for recyclable packaging.

A.2 Control of packaging construction/composition and processing

- Ensure that the design of packaging includes consideration of aspects significant for the recycling of the materials from which it is produced.
- Control selection of raw materials used in production/packing/filling operations and, where practicable, collection/sorting operations to ensure that the recycling processes are not negatively affected.

A.3 Suitability for available material recycling technology

- Ensure that the design of packaging makes use of suitable materials or combinations of materials which are compatible with the known, relevant, and industrially available recycling technologies while also recognizing the interrelationship of standards as detailed in [4.1](#).

NOTE The development and marketing of new packaging materials and systems may precede the substantial introduction of appropriate recycling processes. It is recognized that the development and expansion of such recycling processes may take a period of time, and that due consideration should be given regarding the impact on existing collection and recycling processes.

- Establish a system designed to ensure that new developments in the relevant technology for the recycling of the material used in packaging are monitored and recorded and that such records are available to the design function.

A.4 Releases to the environment caused by recycling of the packaging after use

Take account of the potential change in releases to the environment arising from the used packaging or product residues in the recycling process.

Table A.1 — Elaboration of requirements by a decision matrix with interactions between life cycle steps and criteria for material recycling of packaging

Life cycle steps	Criteria for recyclable packaging		
	Control of packaging construction/composition and processing	Suitability for available recycling technologies	Releases to the environment caused by the recycling of used packaging
	A.2 ^a	A.3 ^a	A.4 ^a
Design	Relevant	Relevant	Relevant
Production	Relevant	Relevant	Relevant
Utilization	Relevant	—	Relevant
Sorting by the end-user	Relevant	—	Relevant
Collection/sorting	Relevant	Relevant	Relevant

^a The numbering in the table refers to the Clauses of [Annex A](#).

Annex B (normative)

Procedure for assessing recyclability criteria

B.1 Objective

To assess the inter-relationship of the various criteria which support the requirements given in [Clause 4](#) of this International Standard, as identified in [Annex A](#) and [Table A.1](#), and detailed in the following paragraphs and in the matrix in [Table B.1](#).

B.2 Design criteria

Design the packaging, including construction, composition, combinations, and separability of components, so as to ensure that it is compatible with the specifications of related recycling technologies, enables a certain percentage by weight of materials to be recycled, and takes into account

- substances or materials that are liable to create technical problems in the recycling process,
- materials, combinations of materials, or designs of packaging that are liable to create problems in collecting and sorting before material recycling, and
- the presence of the amount of substances or materials that are liable to have a negative influence on the quality of the recycled material.

A format for the declaration of the percentage recyclable is given in [Annex C](#). Where the format and material of the packaging unit or components of packaging conform to national, international, or commercial standards or specifications suitable for collection, sorting, and recycling, this may be used as a basis for demonstration of recyclability.

Attention is drawn to the following factors affecting compatibility to specifications of recycling processes.

- a) Efficient recycling depends on a material input of specified properties suitable for a production process with or without primary (virgin) raw material.
- b) Packaging may use more than one material whose relative proportions may vary from the small proportions represented by labels or closures to the larger proportions in multi-material packaging. The manner in which specifications deal with this range of multi-material packaging can vary considerably depending on the materials being recycled, the recycling process, and the ability to empty the packaging as defined in 3.1.
- c) Specifications of the packaging should take account of
 - 1) the separability of components when appropriate, and
 - 2) the mechanical and chemical compatibility of material compositions or material combinations with the recycling process and recovery streams.

These specifications should comply with relevant national or International Standards that are associated with the technical requirements of delivery and supply of the input material for the related recycling process.

- d) Any other design characteristics which influence recyclability should be taken into account in arriving at the final packaging design, such as
 - 1) substances hazardous to the environment as addressed in ISO 18602, and

- 2) emptying characteristics as influenced by design (addressed in B.4.2).

B.3 Production criteria

B.3.1 Raw material and material composition in production, conversion, and filling

Supplier shall ensure that the production operations associated with raw material sourcing/manufacture, conversion, and filling operations for the packaging can be managed such that any changes or deviations shall not adversely affect the compatibility of the packaging with the specification of the recycling process.

NOTE Refer to ISO/TR 17098¹⁾.

B.3.2 Control of changes during processing

Supplier shall ensure that materials selected in the design stage cause no significant problems in recycling technologies. The supplier shall also ensure that the materials are not changed during the process so as to adversely affect compatibility with the specification of the recycling processes.

NOTE This can also apply to changes in other constituents such as adhesives, printing inks or coatings, and components such as labels, closures, and other sealing materials.

B.4 Utilization criteria

B.4.1 Non-prejudice to other requirements

Supplier shall ensure that the construction meets other requirements that meet the safety, hygiene, and consumer needs of the packaging.

B.4.2 Criteria for emptying by the end-user

Supplier shall ensure that the design of the primary packaging, e.g. shape of the packaging, design and location of the opening, etc., will enable emptying of the packaging using common practices as defined in 3.1 such that the used packaging is compatible with the recycling process.

NOTE Packaging systems may consist of primary packaging, which is in contact with the product, and secondary packaging (group packaging) or tertiary packaging (or transport packaging). These latter types of packaging should normally be easily separable and made available uncontaminated by the product.

B.4.3 Criteria for sorting by the end-user

Supplier shall ensure that where the packaging comprises more than one material component which needs to be separated to be compatible with the collection system as required for suitability with the recycling process, the packaging is constructed so that the end-user can carry out the separation under normal and foreseeable circumstances.

B.5 Criteria for collection/sorting

Supplier shall ensure, as far as may be practicable, that information has been sought regarding any particular requirements of the expected and relevant collection and sorting process are identified and that the design and construction of the packaging takes these into account.

1) To be published.

Table B.1 — Interactions between life cycle steps and criteria for recyclable packaging (Decision matrix)

Life cycle steps	Criteria for recyclable packaging		
	Control of packaging construction/composition and processing	Suitability for available recycling technologies	Releases to environment caused by recycling of packaging
	A.2 ^a	A.3 ^a	A.4 ^a
Design	Criteria B.2/B.4.2	Criteria B.2	Criteria B.2
Production	Criteria B.3	Criteria B.3	Criteria B.3
Utilization	Criteria B.4.2	—	Criteria B.4.1
Sorting by the end-user	Criteria B.4.3	—	Criteria B.4.3/B.5
Collection/sorting	Criteria B.5	Criteria B.5	Criteria B.5

^a The numbering of the criteria in the table refers to the Clauses of [Annexes A](#) and [B](#).

B.6 Note to [Annex B](#) material identification

When any material identification is used, it should be recognizable to its target groups. It facilitates identification of the predominant material in a packaging in a clear, unambiguous manner.

Identification of the predominant material used in packaging may assist at various points in the post-use chain, e.g.:

- for the user in indicating a disposal option;
- for collection and sorting;
- for the aggregation of materials into streams suitable for the recycling process.

The nature of some materials is clear without the need for applied identification.

Recognition may also be assisted by other means, e.g. colour or a specific shape of container.

Annex C (informative)

Example of statements to determine the percentage of a packaging unit recyclable

Table C.1 — Elaboration of requirements by a decision matrix with interactions between life cycle steps and criteria for material recycling of packaging

Packaging identification/description	Assessment reference
---	----------------------

a	Criteria ^b	Response ^c	Reference ^d
A.2, A.3/B.2, B.3	Is design and control of all stages of production, packing/filling including the materials used sufficient to maintain the suitability of the packaging for the recycling process?		
A.2./ B.4.2	Does the design and control of components used and of the method of construction facilitate effective emptying?		
A.2, A.4/ B.4.3	Does the design and control of the components used and of the method of construction facilitate the end-user role of separation, when necessary, to assist collection?		
A.2/ B.5	Does the design and control of the components used and of the method of construction ensure compatibility with collection and sorting systems?		
A.3/ B.2, B.3	Is the method of construction and the combination of raw materials and components (including additives) suitable for the recycling process?		
A.3/ B.5	Are any sorting systems in place, in preparation for the recycling process, suitable for the achievement of material recycling?		
A.4/ B.2	Are the construction, composition, and separability of components such as to minimize releases to the environment in the recycling process?		
A.4/ B.3	Is the control of all stages of production and packing/filling sufficient to ensure that the releases to the environment in the recycling system are minimized?		
A.4/ B.4.1	Can the packaging be emptied of contents sufficiently to minimize any additional emissions/residues from the recycling process?		
A.4/ B.5	Can the packaging be collected and sorted to minimize any additional residues/emission in the subsequent recycling operations?		
<p>^a Column 1 refers to the position in Table B.1 and the relevant Clauses in Annex A and Annex B.</p> <p>^b Column 2 “Criteria” is a summary of the criteria set out in Annex B against the life cycle steps for the packaging. For fuller explanation on the criteria and the life cycle steps, refer to the Clauses stated in Column 1 to be found in Annex A and Annex B of this International Standard.</p> <p>^c Column 3 “Response” records where the criteria described are satisfied or if there is a shortfall.</p> <p>^d Column 4 “Reference” provides for any references, comment, or explanation of the shortfall in that criterion. For example, refer to the region(s) or country(ies) where the format is applicable.</p>			

Table C.2 provides a way of assessing and recording the percentage by weight of material recyclable within a packaging unit of packaging.

For recovery by recycling technology under development, see NOTE in A.3.

Examples of declarations of some packaging units of packaging are given in the informative [Annex D](#). Where there is a series of similar packaging, comprising the same material(s), a collective declaration of recyclability may be made.

Assessment responses may vary by region or country. Then any conformity statement should refer to the region(s) or country(ies) where it is applicable in line 4 of Table C.2. If no reference can be given, “no reference” shall be written.

Table C.2 — Example of a statement to determine the percentage of a packaging unit which can be recycled

Packaging identification/description	Assessment reference
---	----------------------

1	Packaging unit of packaging	Description:		
	Component see NOTE 1	Component 1	Component 2	Component 3
2	Description			
3	Weight of component as % of total packaging unit			
4	If the whole component is accepted for recycling based on national, regional, international, commercial standards or specifications, give detailed reference			

If the component complies with such standard(s) or specification(s), fill in line 5 and then go to line 9 and note that 100 % is recyclable.

If not, continue with line 5.

5	Intended material stream See NOTE 2			
---	--	--	--	--

Identification of constituents within the component likely to create problems in the overall recycling such that alternative recovery is recommended.

6	Constituents liable to cause problems in collection and sorting			
7	Constituents liable to cause problems in recycling			
8	Constituents liable to have a negative influence in the recycled material			
9	Percentage by weight of component recyclable			
10	Percentage by weight of packaging unit recyclable (Line 9 × Line 3 / 100)			

11	Total percentage recyclable (Sum line 10)		Date and Signature	

NOTE 1 Component defined in ISO 18601, part of packaging that can be separated by hand or by using simple physical means.

NOTE 2 Intended material recycling stream — aluminium, glass, paper, plastic, steel, wood, and others. Where collection, sorting, and recycling operations are not available, or under development, see NOTE in A.3.

NOTE 3 Use “N/A” when not applicable.

In the light of the assessment results recorded above, this packaging meets the requirements of ISO 18604.

Details of the supplier

- Name:
- Title:
- Organization:
- Mailing Address:
- City: Country:

.....

Annex D (informative)

Examples of declaration of the percentage by weight of a packaging unit which can be recycled

The following are examples of the use of Table C.2 to assess and declare the availability of material for recycling, as detailed in 4.3, for various examples of packaging units of packaging.

Examples of statements to determine the percentage by weight of a packaging unit which is recyclable

Table D.1 — Example: Printed steel aerosol with plastic cap

1	Packaging unit of packaging	Description: Printed steel aerosol, fill volume 250 ml, with plastic cap (overall volume 335 ml)		
	Component see NOTE 1	Component 1	Component 2	Component 3
2	Description	Can with valve and nozzle	Plastic cap	
3	Weight of component as % of total packaging unit	91 %	9 %	
4	If the whole component is accepted for recycling based on national, regional, international, commercial standards or specifications, give detailed reference	German BDSV-WVS steel scrap specification N° 47	DSD product specification No. 06-09/02, fraction No. 324 Polypropylene	
<p>If the component complies with such standard(s) or specification(s), fill in line 5 and then go to line 9 and note that 100 % is recyclable. If not, continue with line 5.</p>				
5	Intended material stream See NOTE 2	Steel	Plastic	
<p>Identification of constituents within the component likely to create problems in the overall recycling such that alternative recovery is recommended.</p>				
6	Constituents liable to cause problems in collection and sorting	----	---	
7	Constituents liable to cause problems in recycling	----	---	
8	Constituents liable to have a negative influence in the recycled material	----	---	
9	Percentage by weight of component recyclable	100 %	100 %	
10	Percentage by weight of packaging unit recyclable (Line 9 × Line 3 / 100)	91 %	9 %	
			Date and Signature	
11	Total percentage recyclable (Sum line 10)	100 %		

NOTE 1 Component defined in ISO 18601, part of packaging that can be separated by hand or by using simple physical means.

NOTE 2 Intended material recycling stream — aluminium, glass, paper, plastic, steel, wood, and others. Where collection, sorting, and recycling operations are not available or under development, see NOTE in A.3.

NOTE 3 Use “N/A” when not applicable.

Table D.2 — Example: Corrugated tray with waxed corrugated lid and PE tray

1	Packaging unit of packaging	Description: Corrugated tray with waxed corrugated lid and PE tray for fresh fish. Total weight 550 g.		
	Component see NOTE 1	Component 1	Component 2	Component 3
2	Description	Open corrugated case	Tray made of PE	Lid made of corrugated paperboard and waxed
3	Weight of component as % of total packaging unit	64 %	9 %	27 %
4	If the whole component is accepted for recycling based on national, regional, international, commercial standards or specifications, give detailed reference	Paper recycling stream		

If the component complies with such standard(s) or specification(s), fill in line 5 and then go to line 9 and note that 100 % is recyclable.

If not, continue with line 5.

5	Intended material stream See NOTE 2	Paper	Plastic	Paper
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Identification of constituents within the component likely to create problems in the overall recycling such that alternative recovery is recommended.

6	Constituents liable to cause problems in collection and sorting	----	None	
7	Constituents liable to cause problems in recycling	----	None	Wax coating CR 13688:2000 Table 5.3 ii
8	Constituents liable to have a negative influence in the recycled material	----	None	Wax coating
9	Percentage by weight of component recyclable	100 %	100 %	0
10	Percentage by weight of packaging unit recyclable (Line 9 × Line 3 / 100)	64 %	9 %	0

11		Total percentage recyclable (Sum line 10)	73 %	Date and Signature

NOTE 1 Component defined in ISO 18601, part of packaging that can be separated by hand or by using simple physical means.

NOTE 2 Intended material recycling stream — aluminium, glass, paper, plastic, steel, wood, and others. Where collection, sorting, and recycling operations are not available or under development, see NOTE in A.3.

NOTE 3 Use “N/A” when not applicable.

Table D.3 — Example: Ceramic pottery jar with ceramic lid and paper labels

1	Packaging unit of packaging	Description: Ceramic pottery jar with ceramic lid and paper labels		
	Component see NOTE 1	Component 1	Component 2	Component 3
2	Description	Ceramic pottery jar	Ceramic lid	Paper labels
3	Weight of component as % of total packaging unit	87,2 %	12 %	0,8 %
4	If the whole component is accepted for recycling based on national, regional, international, commercial standards or specifications, give detailed reference	N/A	N/A	N/A

If the component complies with such standard(s) or specification(s), fill in line 5 and then go to line 9 and note that 100 % is recyclable.

If not, continue with line 5.

5	Intended material stream See NOTE 2	N/A	N/A	None
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Identification of constituents within the component likely to create problems in the overall recycling such that alternative recovery is recommended.

6	Constituents liable to cause problems in collection and sorting	None	None	
7	Constituents liable to cause problems in recycling	No recycling facilities available	No recycling facilities available	None
8	Constituents liable to have a negative influence in the recycled material	----	None	Wax coating
9	Percentage by weight of component recyclable	0 %	0 %	0 %
10	Percentage by weight of packaging unit recyclable (Line 9 × Line 3 / 100)	0 %	0 %	0

11	Total percentage recyclable (Sum line 10)	0 %	Date and Signature	

NOTE 1 Component defined in ISO 18601, part of packaging that can be separated by hand or by using simple physical means.

NOTE 2 Intended material recycling stream — aluminium, glass, paper, plastic, steel, wood, and others. Where collection, sorting, and recycling operations are not available or under development, see NOTE in A.3.

NOTE 3 Use “N/A” when not applicable.

Table D.4 — Example: Clear, non-coloured monolayer PET bottles with plastic closure and paper/foil label

1	Packaging unit of packaging	Description: Clear, non-coloured monolayer PET bottles with plastic closure and paper/foil label, volume range between 0,33 litre ≤ x ≤ 3,0 litre for soft drinks		
	Component see NOTE 1	Component 1	Component 2	Component 3
2	Description	PET bottle	PP closure	Paper/foil labels
3	Weight of component as % of total packaging unit	Range between 81,25 % - 90,00 %	Range between 12,50 % - 5,00 %	Range between 6,25 % - 5,00 %
4	If the whole component is accepted for recycling based on national, regional, international, commercial standards or specifications, give detailed reference	Italian UNI 10667-7 Post consumer PET to be used for fibres Italian UNI 10667-8 Post consumer PET to be used for blow moulding		

If the component complies with such standard(s) or specification(s), fill in line 5 and then go to line 9 and note that 100 % is recyclable.

If not, continue with line 5.

5	Intended material stream See NOTE 2	Plastic	Plastic	None
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Identification of constituents within the component likely to create problems in the overall recycling such that alternative recovery is recommended.

6	Constituents liable to cause problems in collection and sorting	—	None	
7	Constituents liable to cause problems in recycling	---	None	
8	Constituents liable to have a negative influence in the recycled material	----	None	
9	Percentage by weight of component recyclable	100 %	100 %	0 %
10	Percentage by weight of packaging unit recyclable (Line 9 × Line 3 / 100)	Range between 81,25 % - 90,00 %	Range Between 12,50 % - 5,00 %	0

11	Total percentage recyclable (Sum line 10)	Range between 93,75 % - 95 %	Date and Signature	

NOTE 1 Component defined in ISO 18601, part of packaging that can be separated by hand or by using simple physical means.

NOTE 2 Intended material recycling stream — aluminium, glass, paper, plastic, steel, wood, and others. Where collection, sorting, and recycling operations are not available or under development, see NOTE in A.3.

NOTE 3 Use “N/A” when not applicable.

Table D.5 — Example: PET bottle

1	Packaging unit of packaging	Description: PET bottle (0,5 litre)		
	Component see NOTE 1	Component 1	Component 2	Component 3
2	Description	Bottle (PET)	Cap (PP)	Label (PS)
3	Weight of component as % of total packaging unit	86 %	10 %	4 %
4	If the whole component is accepted for recycling based on national, regional, international, commercial standards or specifications, give detailed reference	Sorting and collection criteria for The Law for Promotion of Sorted Collection and Recycling of Containers and Packaging in Japan	Sorting and collection criteria for The Law for Promotion of Sorted Collection and Recycling of Containers and Packaging in Japan	Sorting and collection criteria for The Law for Promotion of Sorted Collection and Recycling of Containers and Packaging in Japan

If the component complies with such standard(s) or specification(s), fill in line 5 and then go to line 9 and note that 100 % is recyclable.

If not, continue with line 5.

5	Intended material stream See NOTE 2	Plastic (PET bottle)	Plastic (others)	Plastic (others)
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Identification of constituents within the component likely to create problems in the overall recycling such that alternative recovery is recommended.

6	Constituents liable to cause problems in collection and sorting	No	No	No
7	Constituents liable to cause problems in recycling	No	No	No
8	Constituents liable to have a negative influence in the recycled material	No	No	No
9	Percentage by weight of component recyclable	100 %	100 %	0
10	Percentage by weight of packaging unit recyclable (Line 9 × Line 3 / 100)	86 %	10 %	0

11		Total percentage recyclable (Sum line 10)	96 %	Date and Signature

NOTE 1 Component defined in ISO 18601, part of packaging that can be separated by hand or by using simple physical means.

NOTE 2 Intended material recycling stream — aluminium, glass, paper, plastic, steel, wood, and others. Where collection, sorting, and recycling operations are not available or under development, see NOTE in A.3.

NOTE 3 Use “N/A” when not applicable.

Table D.6 — Example: Paper cup

1	Packaging unit of packaging	Description: Paper cup		
	Component see NOTE 1	Component 1	Component 2	Component 3
2	Description	Hot cup	Hot cup lid	Hot cup sleeve
3	Weight of component as % of total packaging unit	66 %	17 %	17 %
4	If the whole component is accepted for recycling based on national, regional, international, commercial standards or specifications, give detailed reference			Meets FTC (Federal Trade Commission) guidelines that a substantial majority of communities in the U.S. recycle this material

If the component complies with such standard(s) or specification(s), fill in line 5 and then go to line 9 and note that 100 % is recyclable.

If not, continue with line 5.

5	Intended material stream See NOTE 2	Paper	Plastic	Paper
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Identification of constituents within the component likely to create problems in the overall recycling such that alternative recovery is recommended.

6	Constituents liable to cause problems in collection and sorting	Food soiled	Lid may not be separated from cup before disposal; food soiled	None
7	Constituents liable to cause problems in recycling	LDPE coating	Plastic resin, polystyrene, is not commonly recycled in the United States	Food soiled
8	Constituents liable to have a negative influence in the recycled material	---	---	
9	Percentage by weight of component recyclable	0 %	0 %	100 %
10	Percentage by weight of packaging unit recyclable (Line 9 × Line 3 / 100)	0 %	0 %	17 %

11	Total percentage recyclable (Sum line 10)	17 %
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Date and Signature

NOTE 1 Component defined in ISO 18601, part of packaging that can be separated by hand or by using simple physical means.

NOTE 2 Intended material recycling stream — aluminium, glass, paper, plastic, steel, wood, and others. Where collection, sorting, and recycling operations are not available or under development, see NOTE in A.3.

NOTE 3 Use “N/A” when not applicable.

Table D.7 — Example: Green glass bottle with cork closure and aluminium overcap

1	Packaging unit of packaging	Description: Green glass bottle for wine, with cork closure and aluminium overcap, volume 75 cl		
	Component see NOTE 1	Component 1	Component 2	Component 3
2	Description	Glass wine bottle with screen-printed label	Cork	Aluminium foil overcap
3	Weight of component as % of total packaging unit	99.1 %	0.6 %	0.3 %
4	If the whole component is accepted for recycling based on national, regional, international, commercial standards or specifications, give detailed reference	Accepted in all glass container collection schemes. No standardization existing or necessary as container glass for food and beverages is of compatible composition worldwide	Dedicated public or private collection schemes (e.g. “le petit liège” in Belgium).	Collection schemes for caps & closures

If the component complies with such standard(s) or specification(s), fill in line 5 and then go to line 9 and note that 100 % is recyclable.

If not, continue with line 5.

5	Intended material stream See NOTE 2	Glass	Wood	Aluminium
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Identification of constituents within the component likely to create problems in the overall recycling such that alternative recovery is recommended.

6	Constituents liable to cause problems in collection and sorting	none	none	none
7	Constituents liable to cause problems in recycling	none	none	none
8	Constituents liable to have a negative influence in the recycled material	none	none	none
9	Percentage by weight of component recyclable	100 %	100 %	100 %
10	Percentage by weight of packaging unit recyclable (Line 9 × Line 3 / 100)	99,1 %	0,6 %	0,3 %

11	Total percentage recyclable (Sum line 10)	100 %	Date and Signature	

NOTE 1 Component defined in ISO 18601, part of packaging that can be separated by hand or by using simple physical means.

NOTE 2 Intended material recycling stream — aluminium, glass, paper, plastic, steel, wood, and others. Where collection, sorting, and recycling operations are not available or under development, see NOTE in A.3.

NOTE 3 Use “N/A” when not applicable.

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2) To be published.

3) To be published.

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