Stiftung Zentrale Stelle VERPACKUNGSREGISTER

Minimum standard for assessing the recyclability performance of packaging subject to system participation pursuant to section 21 (3) VerpackG

Draft for consultation

Osnabrück, 19 June 2025

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Context and introduction

This minimum standard enables companies to assess the recyclability performance of their packaging subject to system participation for the German market. This can be relevant in a variety of ways:

- The result of this mathematical assessment (packaging recyclability percentage) is the basis for participation fees as per section 21 (1) of the 'Gesetz über das Inverkehrbringen, die Rücknahme und die hochwertige Verwertung von Verpackungen' (Act Governing the Placing on the Market, Collection and High-Quality Recovery of Packaging, known in German as the 'Verpackungsgesetz' or 'VerpackG'). The systems set these participation fees in alignment with the recyclability performance.
- For companies, the assessment results can be the starting point for optimising their packaging and designing it better for recycling. Doing so can help these companies meet any internal requirements or targets for the recycling-compatible design of their packaging.
- In light of the ban on non-recyclable packaging that will come into effect in 2030 pursuant to Article 6 of Regulation (EU) 2025/40 of 19 December 2024 on packaging and packaging waste (PPWR), companies can use the assessment results as an indicator of whether their packaging is expected to remain marketable from today's perspective and to identify any potential need for action early on, subject to any future European legislative developments.

In accordance with the PPWR, recyclability is a packaging property under this minimum standard. Recyclability quantifies how suitable a packaging unit is for a recycling process that generates secondary raw materials of sufficient quality – compared to the original material – to replace the primary raw material of the same substance in typical applications for that material. As per the requirements for recycling-compatible packaging design set out in section 21 VerpackG (Packaging Act) and Article 6 PPWR, recyclability performance is quantified as a percentage of a packaging unit's weight. This assessment of recyclability performance is undertaken using a uniform methodology, irrespective of the material type:

Step 1: Delineate the object of assessment

As a rule, recyclability performance is assessed for an unfilled unit of packaging as a whole, including closures, decorations, labels, etc. Exceptions to this rule regarding the object of assessment are discussed in chapter 2.

Step 2: Assign to a packaging category

The object of assessment then has to be assigned to a packaging category (see Annex 1).

Step 3: Assess recyclability performance

Recyclability performance is assessed separately for each object of assessment. The assessment principles for each packaging category are included in Annex 2.

The tables in Annex 2 classify design parameters according to their recyclability performance. Parameters are assigned to the categories 'valuable material', 'incompatibilities', 'separable or conditionally compatible' and 'requiring examination'. These categories were defined by the ZSVR and German Environment Agency on a scientific basis and in reference to the waste management context (separate collecting, sorting in separate streams, recycling (processing), applying recyclate). On this basis, recyclability performance is assessed as follows:

1. If no parameter is classified as ‘incompatible’, the recyclability corresponds numerically to the sum of the shares of the materials or formulations that are classified as ‘valuable material’ (see Annex 2 for calculation details). This scenario represents the standard case. Potential deductions under Section 2 apply.

2. Where one or more design parameters are categorised as 'requiring examination' category, the user has to determine if the design causes valuable materials to be lost when assessing recyclability performance. If such losses can be ruled out through examination, the feature has no impact on the calculation in accordance with Section 1 Otherwise, design-related losses must be determined and deducted. Annex 2 also includes information about required examination and assessment rules.
3. Where one or more design parameters are assigned to the 'incompatibilities' category, recyclability of the object of assessment is 0%.

Where design parameters are assigned to the 'separable or conditionally compatible' category or not listed at all, they are neither valuable materials nor incompatibilities. This has to be taken into account during the assessment under Sections 1-3. The recyclability performance of the object of assessment can usually be improved if these design parameters are replaced with valuable materials in the course of an optimisation.

Figure 1 illustrates the process for assessing recyclability performance.

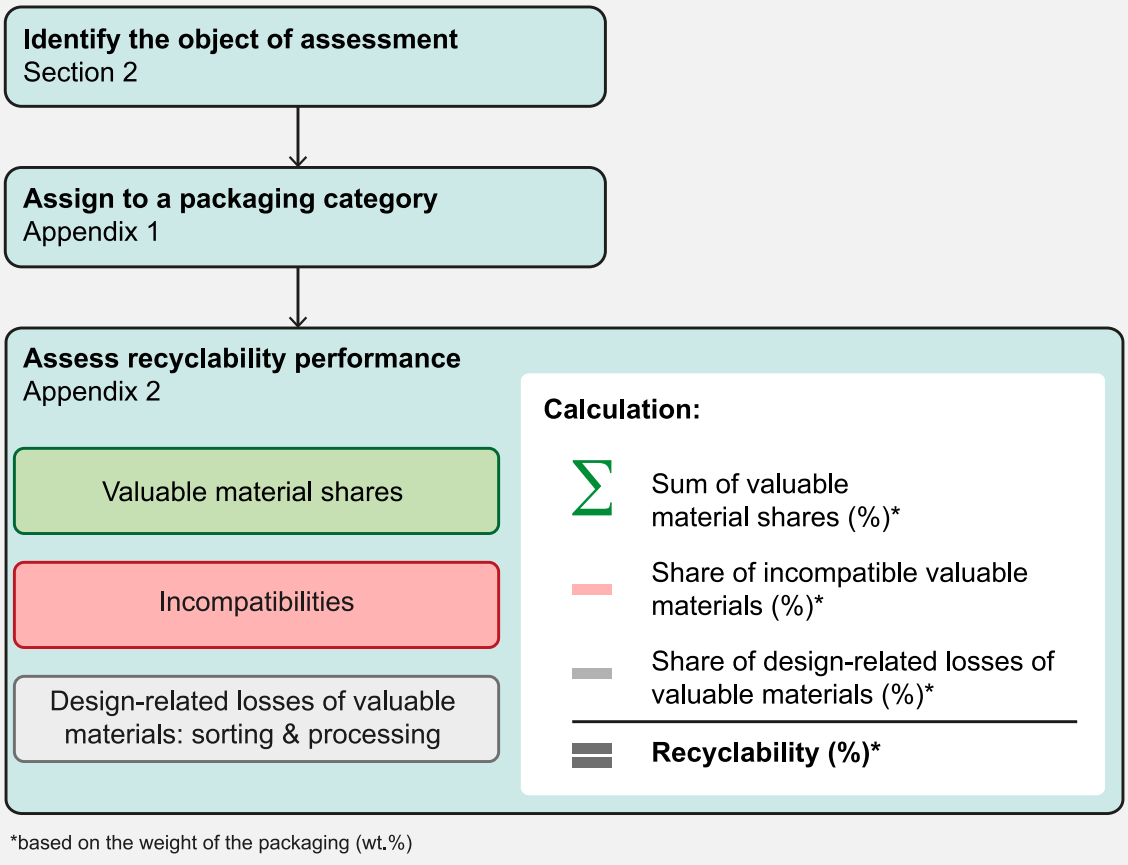

Figure 1: structure and application of the minimum standard

For some packaging categories, no or only limited infrastructure recycling infrastructure in the aforementioned sense exists. In these cases, Annex 2 states that the existence of recycling infrastructure has to be evidenced in each individual case for recyclability performance to be above 0%.

Recyclability performance is calculated as follows:

$$Recyclability\ performance\ [\%] = \frac{Valuable\ materials\ share\ [g] - design{-}related\ losses\ of\ valuable\ materials\ [g]}{Total\ weight\ of\ the\ object\ of\ assessment\ [g]}\ x\ 100\ ^{*}$$

* Where one or more design parameters are assigned to the 'incompatibilities' category, recyclability is 0%.

1. Legal framework under the Verpackungsgesetz

An essential goal of extended producer responsibility regulations is to incentivise producers to consider their products' environmental impact throughout the entire product life-cycle, especially eventual disposal, from the outset of design and production.[1] That is why lawmakers have broadened extended producer responsibility provisions under the Verpackungsgesetz (Packaging Act – VerpackG) to include an obligation for systems (system operators according to section 18 VerpackG) to set monetary incentives through system participation fees.

Section 21 VerpackG requires that general recyclability performance be considered when calculating participation fees. However, no specific legal requirements have been introduced for increasing or reducing these fees because, on the one hand, such requirements cannot currently be quantified in a universally binding manner based on the current state of knowledge and, on the other hand, they would constitute a significant encroachment on the system's pricing freedom, which is protected under German antitrust law.[2] Specifically, section 21 (1) VerpackG stipulates that:

> '(1) Systems are obliged to calculate their participations fees in such a way that incentives are included with a view to the production of packaging subject to system participation
>
> 1. to promote the use of materials and material combinations that allow for the highest possible percentage to be recycled, taking into account the practice of sorting and recovery [...]'

In order to provide the systems with a uniform framework for the assessment of recyclability performance as defined in section 21 (1) no. 1, section 21 (3) requires the ZSVR to publish a minimum standard every year in agreement with the German Environment Agency.[3] The Verpackungsgesetz requires annual publication of the minimum standard, in agreement with the German Environment Agency and no later than 1 September.

Stakeholders were initially involved in preparing this minimum standard through an expert committee. The minimum standard draft was based largely on recommendations from the ZSVR's Expert Committee III and subsequently refined to incorporate consultation feedback. The minimum standard was finalised after the consultation procedure was completed.

The minimum standard is to be used to assess the recyclability performance of packaging placed on the German market during the calendar year following the minimum standard's publication.

2. Object of assessment

It is the packaging as a whole[4], after use, that is usually the object of assessment.

The recyclability performance assessment refers to the unfilled packaging as a whole, including all integrated packaging components such as labels, sealing films, caps, covers and lids, adhesive applications, safety seals and closures, etc. Separability by hand is not a criterion for assessing recyclability performance.

The following exceptions to this rule for separate packaging components apply:

(1) Components of packaging are to be assessed separately if and to the extent that they necessarily and irrevocably have to be separated for consumption or use (e.g. tear-off strips, crown caps, champagne corks, clasps).

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1 Bundestag-Drucksache 18/11274, explanatory statement for section 21, p. 107

2 ibid

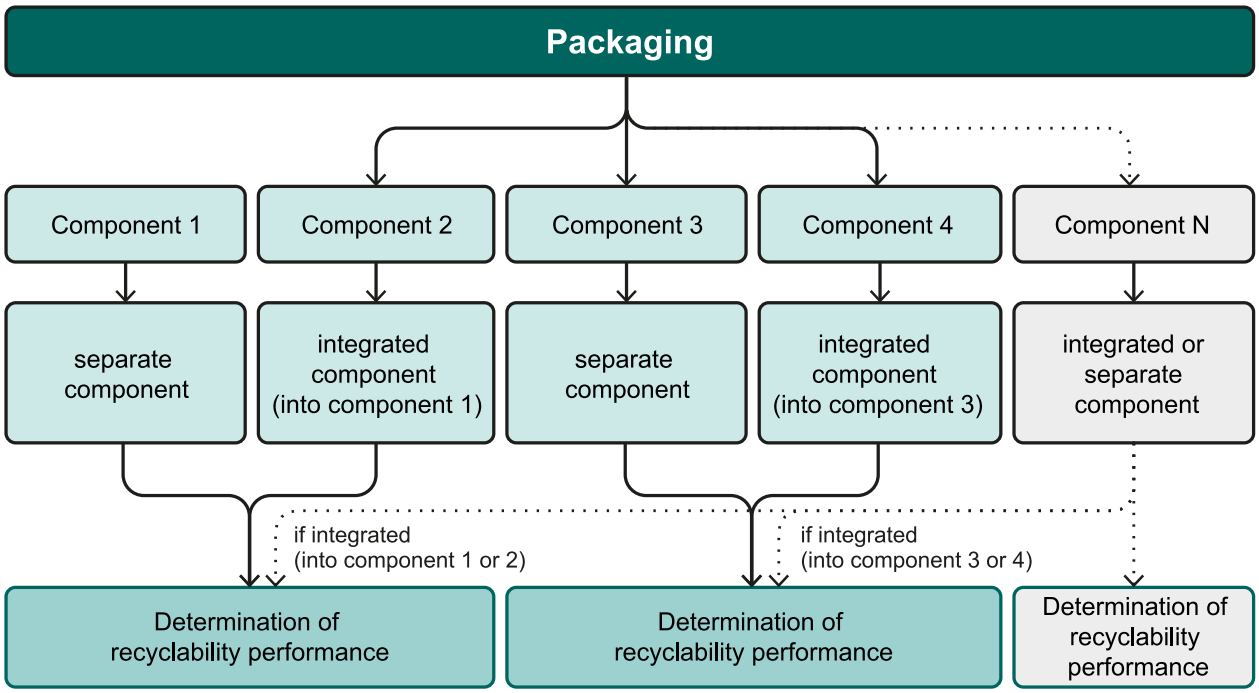
3 ibid

4 'Functional unit of packaging' within the meaning of DIN/EN 13430, or DIN/EN 13427. This functional unit of packaging usually consists of various components (the smallest parts of packaging).

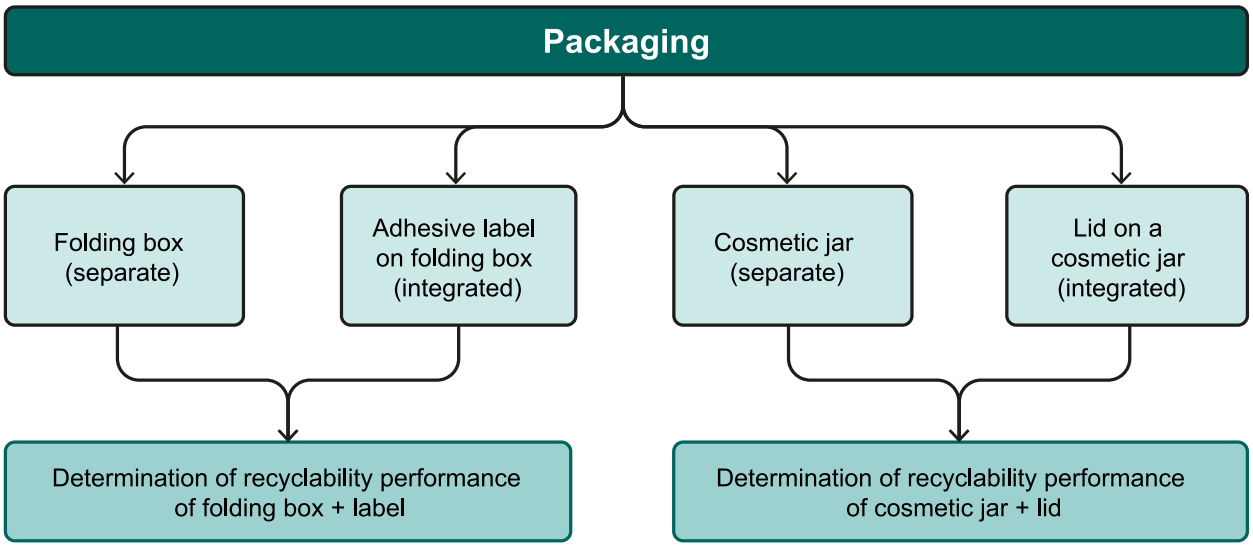
(2) separate packaging components also include grouped packaging such as folding boxes or wrapping films, and
(3) non-attached packaging components that serve to protect the product during transport or to package individual product or assembly components, and
(4) inserts, organisers, paper or plastic dividers if these are not glued in nor otherwise attached to the packaging in a force-fitting or form-fitting manner.
(5) recyclability must also be assessed based on individual packaging components in cases where it the separation of the packaging components from each other can only be ensured through mechanical stress during transportation or preparation for sorting; as such, they would appear separately in the first relevant sorting stage, as can be assumed, e.g. for slip and snap-on lids and overcaps with no undercuts. This exception is applicable only to packaging intended to be allocated to the mixed collection of lightweight packaging (yellow sack, yellow bin, recycling bin).

Assessment results for separate packaging components relate to those packaging components only; they must not be factored into a packaging unit's weighted total (see chart 2).

The assessment of packaging in groups is permissible if the individual packaging units in such a group possess the same material structure and only differ in terms of packaged goods and/or quantity, but not in terms of relevant process-specific criteria (see **criteria in chapter 3**). An example of where classification of packaging as a group does not make sense is where plastic articles are identical in their material structure but only partially sortable due to differences in colouring. For group assessments, the minimum recyclability has to be assessed and then applied to all packaging units of that group.



A subsequent breakdown of the determination results by weight is not currently envisaged under the minimum standard.



3. Description of the recyclability performance assessment methodology and criteria

At a minimum, the assessment of recyclability performance must take into account the available valuable material share of the packaging unit. In determining the available valuable material share, Annex 2 must be applied to verify and consider at least the following four requirements:

1. Packaging components or substances contained in the packaging materials must not be recycling-incompatible; **recycling incompatibilities** may render successful recycling unfeasible.
2. The packaging and/or separate packaging component must be **sortable** by its valuable material share.
3. The packaging materials must be **separable** after disintegration if this is necessary to enable recycling that generates secondary raw materials of sufficient quality – compared to the original material – to replace the primary raw material of the same substance in typical applications for that material.
4. A **recycling infrastructure** must exist that allows for this packaging and/or separate packaging component to be recycled in such a way that secondary raw materials of sufficient quality – compared to the original material – are generated to replace the primary raw material of the same substance in typical applications for that material.

If the object of assessment meets these requirements without qualification, the valuable material share determines recyclability. If criteria 1 or 4 have not been met, the packaging is not recyclable under this minimum standard. Criteria 2 and 3 can have a quantitative influence on the assessment result. Systems may also take further criteria into account when assessing recyclability performance.

When assessing recyclability performance under this minimum standard, the individual design parameters of a packaging unit were methodologically checked for conformity with recycling requirements. This check was conducted for each packaging category in accordance with Annex II table 1 PPWR. The packaging category is defined by the major component's predominant material. The individual packaging types' category assignment can be found in Annex 1, which also refers to the applicable section of Annex 2. To compare a packaging unit's design parameters with the recycling-compatible design criteria, the qualitative and quantitative criteria that determine whether a given packaging category can be successfully recycled were applied. This comparison has already been undertaken for the present version of the minimum standard; the results for the individual packaging categories are presented in Appendices 2.1 to 2.22.

The assessment criteria and methodologies are presented in the following chapters.

3.1. Packaging category and recycling path assignment

A packaging unit (or a separately assessable packaging component) is assigned to a packaging category according to the major component's predominant material.

The packaging category determines which recycling path will be applied in the assessment, including its specific requirements and the resulting recycling-compatible design criteria.

The mandatory assignment is presented in Annex 1, which also refers to the applicable part of Annex 2.

3.2. Valuable material share assessment

Valuable materials (target materials) are materials intended to be recovered as either a main product or by-product for high-quality applications through an established recycling process applicable to a given packaging category (reference process).

The assessment requirements in Annex 2 contain a list of materials and substances that are to be classified as valuables materials. Classification as a valuable material is undertaken in consideration of the recyclates' reference applications. The list is exhaustive.

When additional valuable materials, substances or formulations are to be used, individual evidence needs to be provided in line with Annex 3.1.

To assess the valuable material share of an individual unit of packaging or a separately assessable packaging component, the mean valuable material shares (in % by mass based on the mean total weight of the object of assessment) are added.

3.3. Identifying and assessing incompatibilities

The recyclability of packaging depends on the absence of any materials, substances or other design parameters that could prevent successful recycling, i.e. the packaging must not exhibit any incompatibilities.

Annex 2 provides the basis for determining incompatibilities in each packaging category. Incompatibility is determined with reference to the relevant recyclate reference application, based on the assumption that adequate removal during processing is not feasible. Each incompatibility list is exhaustive.

If a packaging unit (or a separately assessable packaging component) contains materials, substances or other design parameters categorised as incompatible under the relevant section of Annex 2, the recyclability of that packaging unit and/or separately assessed packaging component is 0%.

For a different result, evidence based on analytical testing methods must be provided. Testing must be repeated where measurement has been used to evidence compatibility for an individual packaging unit, but the reference recyclate application differs from the minimum standard and is not covered by the existing evidence. Detailed requirements for individual evidence are included in Annex 3.2.

Where packaging has been designed in such a way that residual packaged goods remain inside the packaging even after the packaging has been emptied as intended, the influence of the residual packaged goods has to be taken into account when determining incompatibilities[5] if the packaged goods cannot be separated completely during the recycling process without causing a significant loss in valuable materials.

3.4. Assessing packaging sortability

In the minimum standard, sortability refers to the 'sorting' step of processing where a collected mix is separated into different sorting fractions according to packaging type. This applies to the paper and lightweight packaging collected mixes. Sorting processes that separate disintegrated packaging according to material type by shredding it (for example) are discussed in chapter 3.5.

A distinction must be made between packaging sorting involving individual operations that serve to prepare the packaging for sorting and the actual sorting operations resulting in sorting fractions. Established sorting processes include sorting operations to prepare for sorting, sifting, air

5 Contents to be considered in combination with plastic packaging include silicones, acrylates, polyurethanes and other cross-linking substances, waxes and paraffins, as well as bituminous compounds.

separation and ballistic separation. Design criteria are not based on these sub-operations because the latest technology makes it safe to assume that running the right separation operation processes, including repetition and recirculation, prevents any design-related packaging losses.

The sortability criteria are also based on the individual sorting fractions' production stages. The processes used in this context are:

- magnetic separation to sort steel-based packaging and steel-based separate packaging components (criterion: ferromagnetism),
- eddy current separation to sort aluminium-based packaging and non-ferrous metal separate packaging components (criterion: effective electrical conductivity);
- NIR separator to sort paper and plastic-based packaging and separate packaging components (criterion: packaging reflection spectrum in the NIR wavelength range).

The minimum standard operates under the assumption that the relevant object of assessment meets sortability requirements. For some design parameters, however, that assumption has to be examined, evidenced and, where necessary, corrected. Indicators that such an examination should be undertaken are listed in Annex 2.

Detailed requirements for individual evidence are included in Annex 3.2.

The assessment result has to reflect gradually reduced sortability through a directly proportional reduction in recyclability performance.

3.5. Assessing the separability of valuable materials

Recyclates for high-quality applications can only be produced if valuable materials of sufficient purity can be converted into a valuable material concentrate. To do so, the material composite needs to be disintegrated so that it can be separated by material property. The minimum standard refers to this recycling process stage as 'processing'.

Design-related losses of valuable materials during processing reduce recyclability. These losses may occur, for example, in the production of material composites where the state of technology does not allow for downstream separation by material property after disintegration. Losses may also occur from modifications to specific material properties – such as density – that are used to physically separate valuable from non-valuable materials.

As such, the criteria for valuable material separability following the disintegration of the packaging are based on the relevant individual operations of each processing procedure.

The key procedures used in this context are:

- Mechanically pulping paper packaging to sort fibrous material through separation by geometric property (criterion: defiberability);
- Density separation to sort the ground particles of plastics packaging by plastic type (criterion: density);
- Optical separation to sort glass fragments by transmission measurement (criterion: translucency).

The assessment operates under the assumption that a packaging unit meets the requirements for separating valuable material from foreign material. For some design parameters, however, that assumption has to be examined and, where necessary, corrected. Indicators that such an examination should be undertaken are listed in Annex 2.

Valuable material separability is not binary, but rather a property to be assessed analogously. Design-related losses of valuable materials during processing must be quantified through appropriate analysis and measurement methods as set out in Annex 3.2.

The assessment result must reflect gradually reduced separability with a directly proportional reduction in recyclability performance.

3.6. Calculating recyclability

Under this minimum standard, recyclability is defined by the valuable content available for recycling.

The following calculation rules apply:

1. If no parameter is classified as ‘incompatible’, the recyclability corresponds numerically to the sum of the shares of the materials or formulations that are classified as ‘valuable material’ (see Annex 2 for calculation details). These cases are the norm. Potential deductions under Section 2 apply.
2. Where one or more design parameters are categorised as 'requiring examination' category, the user has to determine if the design causes valuable materials to be lost when assessing recyclability performance. If such losses can be ruled out through examination, the feature has no impact on the calculation under Section 1. If it is determined that the design causes valuable materials to be lost, however, these losses must be determined and deducted. Annex 2 also includes information about required examination and assessment rules.
3. Where one or more design parameters are assigned to the 'incompatibilities' category, recyclability is 0%.

Accordingly, recyclability performance is calculated as follows:

$$Recyclability\ performance\ [\%] = \frac{Valuable\ materials\ share\ [g] - design{-}related\ losses\ of\ valuable\ materials\ [g]}{Total\ weight\ of\ the\ object\ of\ assessment\ [g]}\ x\ 100^{*}$$

* Where one or more design parameters are assigned to the 'incompatibilities' category, recyclability is 0%.

Assessment results for separate packaging components relate to those packaging components only; they must not be factored into a packaging unit's weighted total.

4. Existence of recycling infrastructure

The existence of recycling infrastructure at an operational scale is a basic precondition for declaring of recyclability of more than 0% for an object of assessment. Refer to Annex 2 for whether it can be assumed that recycling infrastructure exists for a given packaging category.

Exceptions may apply in individual cases if it can be proven that (i) the infrastructure exists that is required for recycling that generates secondary raw materials of sufficient quality – compared to the original material – to replace the primary raw material of the same substance in typical applications for that material and (ii) this infrastructure is used. Proof must be provided for each individual case and must comprise the following:

(1) evidence that the result of the recycling process is of high quality within the meaning of the minimum standard, and
(2) weighing notes evidence that this recycling path has received, from systems, packaging waste of the same packaging category in a volume that is equal to or greater than the participation volume in the reference year.

Annex 3.3 lists the packaging categories for which individual evidence of recycling infrastructure existence is recommended or required for recyclability assessments other than 0%. It also contains additional information about how to provide evidence.

5. Terminology and definitions

In this document, the following definitions apply:

(1) Recyclability

It means the fundamental and gradual suitability of any given unit of packaging – after undergoing recovery processes that are available on an industrial scale (separate collecting, sorting in separate streams, recycling) – to generate secondary raw materials of sufficient quality when compared to the original material that they can replace the primary raw material of the same substance in typical applications for that material[6].

(2) Metallisation

Metallising is the application of a thin metal coating, generally aluminium, in a thickness of between approx. 5 and 50 nanometres. Manufacturer specifications for metallising generally involve adding 'met' to the coated plastic film type (e.g. PET met, PP met). Typical packaging applications include crisp packets and bonbon wrappers.

(3) Recyclates[7]

A product (substance or mixture) obtained from waste that is suitable to serve as a substitute for virgin material in applications typical for that material.

(4) Valuable materials

Valuable materials are those materials in a unit of packaging that are to be recovered as recyclates through a material-specific recycling process (e.g. steel alloys, metallic aluminium alloys, NF metallisations, PE plastics, fibrous material, PET-A, etc.).

(5) Foreign material

Foreign material is any material that cannot be classified as valuable content.

(6) Available valuable content

The available valuable content is the proportion of valuable materials that is available for recycling in the total weight of an object of assessment, taking into account the provisions of this minimum standard. A synonym for this term is 'recyclability'.

(7) Fibrous material

When determining valuable content, 'fibrous material' can be defined as the sum of fibre, filling material, starch, mineral pigment-based coating colour, including binder as well as further additives typically used in the paper industry such as wet-strength agents, glue or bound water.

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6 This comprises primary or secondary recyclate applications. Examples of primary applications (i.e. use in applications of the same type) include using glass fragments from recycled waste glass to produce container glass or using polypropylene granulate to produce paint buckets or nursery plant pots for garden beds. Examples of secondary applications include using packaging steel scrap in the production of constructional steel or polypropylene granulate in the production of cleaning buckets or filing trays.

Recycling methods are not classified as leading to 'high-quality' recycling if they enable packaging waste to be processed only up to the point required for the recyclate to be incorporated into foreign material products or products that are not typically made from virgin material of the same substance. In the context of foreign material products, examples of applications with low recyclate requirements include using cellulose fibres as filler material in road construction. Products that are not typically made from virgin material of the same substance include, in particular, substitutes for wood, concrete or natural stone made from plastics that have undergone dry-mechanical treatment, such as palisades.

7 This definition of recyclates applies only to the minimum standard in relation to section 21 (1) no. 1 VerpackG.

(8) Composite packaging/composites

Composite packaging is packaging made from two or more different material types that cannot be separated by hand. When assigning composite packaging to packaging categories under this minimum standard, the terms 'composite packaging' or 'composites' refer to packaging where no single material type accounts for more than 95% of the packaging mass.

(9) Plastics

When determining the valuable content of plastic-based packaging, the following applies: the valuable content (PE, PP, PO, etc.) of 'plastic-based packaging' is equal to the eponymous main polymer part (plus additives, fine-disperse filling and strengthening agents, as well as pigments included in the polymer matrix composite).

(10) Targeted separability

Targeted separability is the mechanical separability of packaging into target fractions during industrial sorting, based on the degree of identification, mass and geometric properties.

(11) Fibre-based packaging

Fibre-based packaging under this minimum standard is packaging containing more than 50% fibrous material (see 5.9 above).

(12) Reference application

Reference applications are products established on the market for which a recyclate can serve as a substitute for a primary raw material. They determine the minimum requirements on recycling-compatible design for a unit of packaging, its recycling process and the required recyclate quality.

6. Abbreviations

In this document, the following relevant abbreviations are used:

Al	Aluminium
BT	Bundestag (German parliament)
DM	Dry mass
EAN	GS1 European Article Number
EPRC	European Paper Recycling Council
EPS	Expanded polystyrene
EVA	Ethylene vinyl acetate
EVOH	Ethylene vinyl alcohol copolymer
Fe	Ferrous metal
GTIN	GS1 Global Trade Item Number
HDPE	High-density polyethylene
HV	Haftvermittler (tie layer)
KrWG	*Kreislaufwirtschaftsgesetz* (German Circular Economy Act)
KS	Kunststoff (plastic)
LDPE	Low-density polyethylene
LPB	Liquid packaging carton
LVP	Leichtstoffverpackungen (lightweight packaging)
MAH	Maleic anhydride
MHD	Minimum shelf life
MPO	Mixed polyolefin
MSN	Mengenstromnachweis (volume flow record)
NC	Nitrocellulose (also known as: cellulose nitrate)
OPS	Oriented polystyrene
PA	Polyamide
PE	Polyethylene
PET	Polyethylene terephthalate
PET-A	(Amorphous) PET
PET-G	Glycol-modified polyethylene terephthalate
PE-X	Cross-linked polyethylene
PO	Polyolefin
POM	Polyoxymethylene
PP	Polypropylene
PPC	Paper/cardboard
PPC from lightweight packaging	Paper/cardboard from the lightweight packaging collection fraction
PPWR	Regulation (EU) on packaging and packaging waste

PS	Polystyrene
PTS	Papiertechnische Stiftung (Paper Technology Foundation)
PVC	Polyvinyl chloride
PVDC	Polyvinylidene chloride
UFI code	Unique Formula Identifier Code
VerpackG	Verpackungsgesetz (Packaging Act)

Appendices

Annex 1	Packaging types and packaging categories
Annex 2	Assessment principles and requirements for individual packaging categories
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Annex 2.2	Packaging made of paper/cardboard (excluding composite packaging)
Annex 2.3a	Liquid packaging board
Annex 2.3b	Composite packaging of which the majority is paper/cardboard (excluding liquid packaging carton)
Annex 2.4	Steel and composite packaging of which the majority is steel
Annex 2.5/2.6	Aluminium and composite packaging of which the majority is aluminium – rigid, semi-rigid and flexible
Annex 2.7	Bottles made of PET-A – rigid (transparent, clear/coloured)
Annex 2.8a	Thermoforms made of PET-A and PET-C – rigid (transparent, clear/coloured, opaque)
Annex 2.8b	Other packaging made of PET-A and PET-C – rigid (transparent, clear /coloured, opaque)
Annex 2.9	PET – flexible (natural/coloured)
Annex 2.10	PE – rigid (natural/coloured)
Annex 2.11	PE – flexible (natural/coloured)
Annex 2.12	PP – rigid (natural/coloured)
Annex 2.13	PP – flexible (natural/coloured)
Annex 2.14	HDPE and PP – rigid (natural/coloured)
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Annex 2.16	EPS and XPS – rigid (natural/coloured)
Annex 2.17	Other rigid plastics (e.g. PVC, PC) including multi-materials – rigid
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Annex 3	Analyses and individual evidence
Annex 3.1	Requirements for compatibility analyses
Annex 3.2	Requirements for evidencing sortability and separability
Annex 3.3	Requirements for evidencing the existence of recycling infrastructure

Annex 1: Assign to a packaging category

Assigning an object of assessment to a packaging category in accordance with Annex II table 1 PPWR and the related assessment requirements

Procedure:

The following steps are required to assign an object of assessment to the correct packaging category, based on this Annex:

1. In column 1, the predominant packaging material of the major component is identified.
2. If there are multiple rows with identical entries in column 1, the applicable packaging type is identified in column 2; the entries are checked in the order of the table. In column 3, typical packaging formats for the packaging types are provided by way of example to determine plausibility.
3. If the packaging type is identified in column 2, column 4 will indicate which section of Annex 2 contains the relevant provisions for assessing the recyclability performance.

Objects of assessment that cannot be assigned to a packaging category:

If an object of assessment cannot be assigned to any category using the procedure described above, it should generally be assumed that no recycling infrastructure exists. Such objects are usually not sorted out and therefore not recycled; as a consequence, they are to be classified as non-recyclable (0% recyclability). For a different result, individual evidence in line with the provisions of Annex 2.22 must be provided.

	Column 1	Column 2	Column 3	Column 4
Category no.	**Predominant packaging material (of the main body)**	**Packaging type (Colour /optical transmittance)**	**Format (illustrative and non-exhaustive)**	**Assessment requirements in Annex**
1	Glass	Glass and composite packaging, of which the majority is glass	Bottles, canning jars, flacons, cosmetics pots, jars, tubs, ampoules, vials made of glass (soda lime silica), aerosol cans	2.1
2	Paper/cardboard	Paper/cardboard packaging (excluding composite packaging)	Corrugated cardboard, folding boxes, cartons, trays, grouped packaging, flexible paper packaging (e.g. films, sheets, pouches, lidding, cones, wrappers)	2.2
3	Paper/cardboard	Liquid packaging carton	Aseptic, non-aseptic or autoclavable cardboard composite packaging, coated on both sides, for beverages, foods with a pasty consistency, animal feed, etc.	2.3a
3	Paper/cardboard	Composite packaging of which the majority is paper/cardboard (excluding liquid packaging board)	Laminated folding boxes, composite cans, paper cups (i.e. laminated with polyolefin and with or without aluminium), trays, plates and cups, metallised or plastic laminated	2.3b

	Column 1	Column 2	Column 3	Column 4
Category no.	**Predominant packaging material (of the main body)**	**Packaging type (Colour /optical transmittance)**	**Format (illustrative and non-exhaustive)**	**Assessment requirements in Annex**
			paper/cardboard, paper/cardboard with plastic liners/windows, cardboard tubes	
4	Metal	Steel and composite packaging of which the majority is steel	Aerosols cans, food cans, paint and colour cans, boxes, trays, drums, tubes made of steel, including tinplate, thin sheet metal and stainless steel	2.4
5	Metal	Aluminium and composite packaging of which the majority is aluminium – rigid	Rigid formats (food and beverage cans, bottles, aerosols, drums, tubes, cans, boxes, trays) made of aluminium	2.5/2.6
6	Metal	Aluminium and composite packaging of which the majority is aluminium – semi-rigid and flexible	Semi rigid and flexible formats (containers and trays, tubes, foils, flexible foil) made of aluminium	2.5/2.6
7	Plastics	Bottles made of PET-A – rigid (transparent, clear /coloured, opaque)	Bottles and flasks	2.7
8	Plastics	Thermoforms made of PET-A and PET-C – rigid (transparent, clear /coloured, opaque)	Mono- and multilayer trays, snap-on caps, cups, blisters, other thermoforms, etc.	2.8a
8	Plastics	Other packaging made of PET-A and PET-C – rigid (transparent, clear /coloured, opaque)	Rigid formats other than bottles and flasks as well as thermoformed packaging (including pots, tubs, cans, jars, cups, mono- and multilayer trays and containers, aerosol cans)	2.8b
9	Plastics	PET – flexible (Natural/coloured)	Films, pouches, foams, stand-up pouches, carrier bags, wrapping films	2.9
10	Plastics	PE – rigid (Natural/coloured)	Containers, bottles ≤ 5l, cups, trays, blisters, pots, cans, buckets ≤ 5l, canisters ≤ 5l and tubes	2.10
11	Plastics	PE – flexible (Natural/coloured)	Flowpacks, pouches, nets, foams, tubular bags, shrink wraps, stand-up pouches,	2.11

	Column 1	Column 2	Column 3	Column 4
Category no.	**Predominant packaging material (of the main body)**	**Packaging type (Colour /optical transmittance)**	**Format (illustrative and non-exhaustive)**	**Assessment requirements in Annex**
			carrier bags, bags, wrapping films, bubble wrap, films, including multilayer and multi-material packaging	
12	Plastics	PP – rigid (Natural/coloured)	Containers, bottles ≤ 5l, cups, trays, blisters, pots, cans, buckets ≤ 5l, canisters ≤ 5l and tubes	2.12
13	Plastics	PP – flexible (Natural/coloured)	Flowpacks, pouches, nets, foams, tubular bags, shrink wraps, stand-up pouches, carrier bags, bags, wrapping films, bubble wraps, films, including multilayer and multi-material packaging	2.13
14	Plastics	HDPE and PP – rigid (Natural/coloured)	Crates and pallets, corrugated plastic sheets	2.14
15	Plastics	PS – rigid (Natural/coloured)	Rigid formats (including dairy packaging, bottles ≤ 5l, trays, blisters, cans, cups and other food containers, buckets ≤ 5l, canisters ≤ 5l, tubes)	2.15
16	Plastics	EPS and XPS – rigid (Natural/coloured)	Rigid formats (including cool boxes, fish boxes, edge protectors and other impact protection for electronic items and trays), cups and other food containers	2.16
17	Plastics	Other rigid plastics (e.g. PVC, PC) including multi-materials – rigid	Rigid formats, including intermediate bulk containers, drums	2.17
18	Plastics	Other flexible plastics including multi-materials – flexible	Pouches, blisters, thermoformed packaging, vacuum packaging, modified atmosphere /modified humidity packaging, including flexible intermediate bulk containers, bags, stretch films	2.18
19	Plastics	Biodegradable plastics ([1]) – rigid (e.g. PLA, PHB) and flexible (e.g. PLA)	Rigid and flexible formats	2.19

	Column 1	Column 2	Column 3	Column 4
Category no.	**Predominant packaging material (of the main body)**	**Packaging type (Colour /optical transmittance)**	**Format (illustrative and non-exhaustive)**	**Assessment requirements in Annex**
20	Wood, cork	Wooden packaging, including cork	Pallets, boxes, crates	2.20
21	Textiles	Natural and synthetic textile fibres	Bags, cords	2.21
22	Ceramics or porcelain stoneware	Clay, stone, ceramics, porcelain	Pots, containers, bottles, jars	2.22

([1]) Please note that this category contains plastics that are readily biodegradable (meaning a proven ability to convert > 90 % of the original material into CO_2, water and minerals by biological processes within six months) and regardless of the feedstock used for their production. Biobased polymers that are not readily biodegradable are covered under the other relevant plastic categories.

Annex 2: Assessment principles and requirements for individual packaging categories

A 2.1 Glass and composite packaging, of which the majority is glass

a. Scope of application

The following assessment principles, criteria and requirements apply to packaging with glass as the main material. These are, for example: canning jars, bottles, jars, flacons and ampoules.

b. Classification of design features incl. examination and test requirements

The most common design features of glass packaging are listed below in a table, assigned to the columns 'valuable material, 'incompatibilities', 'separable or conditionally compatible', and 'examination of design-related losses of valuable materials'. The latter assignment may also be additive and refers to the corresponding examination or assessment regulation in the lower section of the table at the end of the chapter.

c. Calculation of recyclability

1. If no parameter is classified as ‘incompatible’, the recyclability corresponds numerically to the sum of the shares of the materials or formulations that are classified as ‘valuable material’. This scenario represents the standard case.
2. If one or more design features are categorised as ‘requiring examination, it must be determined whether they lead to design-related losses of the valuable material. If such losses can be ruled out through examination, the feature has no impact on the calculation in accordance with section 1. Otherwise, design-related losses must be determined and deducted.
3. If one or more design features are categorised under ‘incompatibilities’, the recyclability is 0%.

d. Requirement for individual evidence regarding the criterion of the existence of a recycling infrastructure

No individual evidence of the existence of a recycling infrastructure is required for the declaration of recyclability.

Glass and composite packaging, of which the majority is glass | Reference application: Container glass						
Main body						
			Valuable material	**Incompatibilities**	**Separable or conditionally compatible**	**Examination of design-related losses of valuable material**
Main body	**Material**	Normal glass (soda-lime glass)	X			
		Leaded glass		X		
		Opal glass (cryolite glass)			X	
		Borosilicate glass		X		
		Glass-ceramic		X		
		Quartz glass		X		
		Other glass containing lead		X		
	Printing, lacquer and stamping	Direct printing			X	P2.2
		Foil stamping			X	
		Lacquer			X	P2.2
Minor components						
			Valuable material	**Incompatibilities**	**Separable or conditionally compatible**	**Examination of design-related losses of valuable material**
Closure/ Functional head	**Material**	Borosilicate glass		X		
		Normal glass (soda-lime glass)	X			
		Leaded glass		X		
		Opal glass (cryolite glass)			X	
		Glass-ceramic		X		
		Quartz glass		X		
		Other glass containing lead		X		
		Plastic*			X	
		Ceramic		X		
		Natural material (wood, cork)			X	
		Swing tops with non-ferromagnetic metal shares only		X		
		Non-ferrous metal and stainless Steel (except valve spring and ball)	X			
		Steel alloys, ferromagnetic (except valve spring and ball)	X			
		Valve spring and ball in plastic functional closures			X	
		Tinplate	X			
Label/Sleeve	**Material**	Plastic			X	P2.1
		Paper*			X	
		Paper-plastic label			X	P2.1
	Adhesive application	Adhesive			X	
	Decoration	Printing ink			X	
		Foil stamping			X	
		Lacquer			X	
Wrapping and other decoration	**Material**	Borosilicate glass		X		
		Normal glass (soda-lime glass)	X			
		Leaded glass		X		
		Opal glass (cryolite glass)			X	
		Glass-ceramic		X		
		Quartz glass		X		
		Other glass containing lead		X		
		Plastic			X	
		Ceramic		X		
		Wicker basket			X	P9
		Metal net				P9
		Metal net, non-ferromagnetic		X		
		Natural material (wood, cork)			X	
		Non-ferrous metal and Stainless Steel	X			P6
		Steel alloys, ferromagnetic	X			P6
		Tinplate	X			P6
* Note: Different categorisation for crate-based deposit systems as valuable material possible.						

Examination of design-related losses of valuable material	
P2.1	In the case of glass packaging with adhesive labels made from plastic, the glass share covered by these labels cannot be classified as valuable material share if the adhesive used produces waterproof adhesive applications.
P2.2	Glass shares with a level of transmission of less than 10% in a 400 nm to 780 nm wave range (e.g. due to varnishing or tinting) cannot be classified as valuable material share either.
P6	In the case of glass packaging with glued-on metal plaques, the glass share covered by this plaque is not to be counted towards to the available valuable material share if the adhesive used produces waterproof adhesive applications.
P9	With demijohns (i.e. bottles covered with a basket) and metal nets the glass share is to be considered completely lost. Individual exceptions are to be proven.

A 2.2 Paper/cardboard packaging (excluding composite packaging)

a. Scope of application

The following assessment principles, criteria and requirements apply to packaging with paper/paperboard/cardboard as the main material. These are, for example: corrugated cardboard, folding boxes, paper bags and pouches.

b. Classification of design features incl. examination and test requirements

The most common design features of PPC packaging (paper/cardboard/cardboard) are listed below in a table, assigned to the columns 'valuable material, 'incompatibilities', 'separable or conditionally compatible', and 'examination of design-related losses of valuable materials'. The latter assignment may also be additive and refers to the corresponding examination or assessment regulation in the lower section of the table at the end of the chapter.

c. Calculation of recyclability

1. If no parameter is classified as ‘incompatible’, the recyclability corresponds numerically to the sum of the shares of the materials or formulations that are classified as ‘valuable material’. This scenario represents the standard case.
2. If one or more design features are categorised as ‘requiring examination, it must be determined whether they result in design-related valuable material losses. If such losses can be ruled out through examination, the feature has no impact on the calculation in accordance with section 1. Otherwise, design-related losses must be determined and deducted.
3. If one or more design features are categorised under ‘incompatibilities’, the recyclability is 0%.

d. Requirement for individual evidence regarding the criterion of the existence of a recycling infrastructure

No individual evidence of the existence of a recycling infrastructure is required for the declaration of recyclability.

Paper/cardboard packaging (excluding composite packaging) | Reference application: corrugated base paper						
Main body						
			Valuable material	**Incompatibilities**	**Separable or conditionally compatible**	**Examination of design-related losses of valuable material**
Main body	**Material**	Corrugated fibreboard	X			
		Kraft paper	X			
		Moulded pulp, highly compressed	X			P6.2
		Moulded pulp, slightly compressed	X			
		Glassine	X			
		Bogus paper	X			
		Wrapping tissue	X			
		Bitumen paper		X		
		Oil paper		X		
		Wax/Paraffin paper		X		
		Paper, paperboard, cardboard (PPC), other sorts	X			
		Foamed, extruded, thermoformed component made of starch			X	
		Aluminium lamination			X	P0.1
		Plastic film (extrusion lamination, film lamination)			X	
	Dyeing	Dyed black, using soot-carbon-based pigments				P2
	Other equipment (of the paper)	Dry strength agent: PVOH	X			P6.2
		Dry strength agent: Starch (mass and surface)	X			
		Dry strength agent: Other synthetic polymers	X			P6.2
		Sizing agent, hydrophobic (mass and surface)	X			
		Wet strength agent, impregnating agent	X			P6.2
		Mineral fillers	X			
		Other equipment	X			
	Barriers and surface finish (of the paper)	Metallization			X	
		Mineral pigment coating incl. binding agent	X*			
		Polymer dispersion coating (thermoplastic)		X		P8
		Polymer mineral coating (thermoplastic)		X		P8
		Silicone coating			X	P6.2
		Paraffin, wax, oil			X	P6.2
		Other surface finish		X		P6.2, P8
	Additives and coatings (of the plastic layer)	AlOx			X	
		Metallization			X	
		SiOx			X	
	Adhesive in multilayer structure	Dispersion adhesive			X	
		Hot-melt adhesive application, criteria of EPRC scorecard fulfilled			X	
		Hot-melt adhesive application, criteria of EPRC scorecard not fulfilled		X		P8
		Starch-based adhesive	X			
	Decoration	Direct printing, with substances on the EuPIA exclusion list		X		
		Direct printing, without substances on the EuPIA exclusion list			X	
		Foil stamping			X	
		Lacquer			X	
		Fully lacquered surface - Excluding clear protective lacquer up to a thickness of <= 5 micrometers - Excluding internal bag layers if the grammage is at least 100 g/m²				P2
Minor components						
			Valuable material	**Incompatibilities**	**Separable or conditionally compatible**	**Examination of design-related losses of valuable material**
Label	**Material**	Paper (not equipped with wet strength agent)	X			
		Paper (equipped with wet strength agent)	X			P6.2
		Plastic			X	
	Adhesive	Dispersion adhesive			X	
		Hot-melt adhesive application, criteria of EPRC scorecard fulfilled			X	
		Hot-melt adhesive application, criteria of EPRC scorecard not fulfilled		X		P8
		Starch-based adhesive	X			
	Decoration	Direct printing, with substances on the EuPIA exclusion list		X		
		Direct printing, without substances on the EuPIA exclusion list			X	
		Lacquer			X	
Seam adhesion / Attachment	**Adhesive**	Dispersion adhesive			X	
		Hot-melt adhesive application, criteria of EPRC scorecard fulfilled			X	
		Hot-melt adhesive application, criteria of EPRC scorecard not fulfilled		X		P8
		Starch-based adhesive	X			
Minor component (not fibre-based)	**Material**	Cellophane			X	
		Plastic (non-specific)			X	
		PVOH			X	
		Non-ferrous metal, stainless steel, magnetic materials, steel			X	P0.1, P0.2

Other design parameters						
Other design parameters	**Structure**	Plastic-coated surface - Excluding internal bag layers if the grammage is at least 100 g/m²				P2
	Decoration	Metal pigments applied on a large scale (taking up > 50% of the projected surface) (lacquering, print, coating or embossing)				P2
		> 50% fully printed black (including background) using soot-carbon-based pigments				P2
	Packaged good	Non-dry packaged good – i.e. fibre-based packaging for example for liquids, certain foodstuffs, oils and emulsions				P6.1
	Structure	Double-sided barrier coating				P6.2
	PFAS	PFAS share in food-contact packaging ≥ limit value according to Article 5, paragraph 5 PPWR		X		

* Mineral pigment coatings including binding agents without a sealing function and without a function as a water vapour, oxygen or grease barrier are to be counted towards the valuable material share.

Examination of design-related losses of valuable material	
P0.1	Presence of an aluminium foil layer; examination required (test if necessary) whether the design causes sorting into aluminium fraction. If so, a complete loss of valuable material for packaging category 2 has to be factored.
P0.2	Presence of ferromagnetic components ≥ 5% by weight in relation to the object of assessment; examination required (test if necessary) whether the design causes sorting into ferrous metal fraction. If so, a complete loss of valuable material for packaging category 2 has to be factored.
P2	Requirement to test whether identifiability, including targeted separability, is given in sensor-based sorting. Restrictions must be taken into account as proportionate losses of valuable materials.
P6.1	When determining the recyclability of fibre-based packaging, the gradual defiberability of the fibrous material is a decisive factor. For PPC packaging for non-dry contents – i.e. fibre-based packaging for example for liquids, certain foodstuffs, oils and emulsions – evidence must be provided that the operating conditions (for example, dwell time and other operating parameters in the processing of the material) of the respective recovery path (PPC or lightweight packaging collection) result in the dispersion of the fibrous material, and that the fibrous material is recycled. This obligation to provide evidence does not apply to fibre-based packaging that is typically filled with contents that are dry (< 15% moisture content), free-flowing or particulate, such as flour or sugar. The non-recoverable fibrous material share must be deducted to determine the available valuable material share. If, during the pulping of fibre-based packaging, substances that cannot be classified as fibrous material pass into the aqueous phase (water-soluble, colloidally dissolved or finely dispersed), these shall be quantified by a suitable testing method and deducted when calculating the fibrous material recovery rate.
P6.2	Where wet-strength agents, impregnating agents, waxes, etc., are used for fibre-based packaging, and in the case of paper or cartons (excluding liquid packaging carton) coated or metallised on both sides, the determination of recyclability needs to be based on a suitable testing methodology, regardless of the filling material. The non-recoverable fibrous material share must be deducted to determine the available valuable material share. If, during the pulping of fibre-based packaging, substances that cannot be classified as fibrous material pass into the aqueous phase (water-soluble, colloidally dissolved or finely dispersed), these shall be quantified by a suitable testing method and deducted when calculating the fibrous material recovery rate.
P8	For any deviating determination in the sense that incompatible substances do not negatively affect recyclability in individual cases, individual evidence produced through analytical testing must be provided. Requirements for the implementation and documentation of an individual evidence are specified in Annex 3.1.

Scope of application of the design parameters categorised as P	
P0.1	The criterion explicitly does not apply to metallised packaging.
P2	Explicitly not applicable to large-format transport packaging (e.g. cartons).

A 2.3a Liquid packaging carton (LPC)

a. Scope of application

The following assessment principles, criteria and requirements apply to packaging with carton as the main material. These are, for example: liquid packaging cartons.

b. Classification of design features incl. examination and test requirements

The most common design features of liquid packaging cartons are listed below in a table, assigned to the columns 'valuable material, 'incompatibilities', 'separable or conditionally compatible', and 'examination of design-related losses of valuable materials'. The latter assignment may also be additive and refers to the corresponding examination or assessment regulation in the lower section of the table at the end of the chapter.

c. Calculation of recyclability

1. If no parameter is classified as ‘incompatible’, the recyclability corresponds numerically to the sum of the shares of the materials or formulations that are classified as ‘valuable material’. This scenario represents the standard case.
2. If one or more design features are categorised as ‘requiring examination, it must be determined whether they result in design-related valuable material losses. If such losses can be ruled out through examination, the feature has no impact on the calculation in accordance with section 1. Otherwise, design-related losses must be determined and deducted.
3. If one or more design features are categorised under ‘incompatibilities’, the recyclability is 0%.

d. Requirement for individual evidence regarding the criterion of the existence of a recycling infrastructure

No individual evidence of the existence of a recycling infrastructure is required for the declaration of recyclability; if PE, PP and aluminium components are claimed as valuable material, individual evidence of poly-Al recycling in accordance with Annex 3.3 is recommended.

Liquid packaging carton (LPC) | Reference Application: corrugated base paper (fibre share) and injection moulding products (PO share) and aluminium casting or deoxidising agent (Al share)						
Main body						
			Valuable material	**Incompatibilities**	**Separable or conditionally compatible**	**Examination of design-related losses of valuable material**
Main body	**Material**	Cardboard	X			
		PE	X[1]			
		PET			X	
		PP	X[1]			
		Aluminium foil	X[1]			
	Material in multilayer films, density < 1 g/cm³	Biodegradable and compostable materials as a layer		X		
		COC layer	X[1]			
		EVOH layer			X	
		Ionomer layer (non-specific)			X	
		PA layer		X		
		Nylon 6 or co-polyamide 6-66 in coextruded PE/PA films (with or without EVOH), combined with MAH-grafted PE as an adhesion promoter at a ratio of at least 0. 5 g of adhesive per 1 g of PA (+EVOH)			X	
		Nylon 6 in laminated PE/PA films, combined with MAH-grafted PE as a compatibiliser at a ratio of at least 0.15 g of compatibiliser per 1 g of PA			X	
		PE layer (non-specific)	X[1]			
		HDPE layer	X[1]			
		MDPE layer	X[1]			
		LDPE layer	X[1]			
		LLDPE layer	X[1]			
		mPE (metallocene) layer	X[1]			
		PET layer in combination with PE (PET/PE composite)		X		
		PP layer	X[1]			
		Other non-PO plastics		X		
		Non-polymeric layers (excluding aluminium foil and SiOx/AlOx/metallizations)		X		
	Material in multilayer films, density > 1 g/cm³	Plastic multilayer film, density > 1 g/cm³			X	
	Other equipment (of the paper)	Dry strength agent: PVOH	X			P6.2
		Dry strength agent: Starch (mass and surface)	X			
		Dry strength agent: Other synthetic polymers	X			P6.2
		Sizing agent, hydrophobic (mass and surface)	X			
		Wet strength agent, impregnating agent	X			P6.2
		Mineral fillers	X			
		Other equipment	X			
	Barriers and surface finish (of the paper)	Metallisation			X	
		Mineral pigment coating incl. binding agent	X[2]			
		Polymer dispersion coating (thermoplastic)		X		P8
		Polymer mineral coating (thermoplastic)		X		P8
		Silicone coating			X	P6.2
		Paraffin, wax, oil			X	P6.2
		Other surface finish		X		P6.2, P8
	Additives and coatings (of the plastic layer)	AlOx			X	
		Metallisation			X	
		SiOx			X	
		Other additives and coatings		X		
	Adhesive in multilayer structure	Dispersion adhesive			X	
		Hot-melt adhesive application, criteria of EPRC scorecard fulfilled			X	
		Hot-melt adhesive application, criteria of EPRC scorecard not fulfilled		X		P8
		Starch-based adhesive	X			
	Decoration	Direct printing, with substances on the EuPIA exclusion list		X		
		Direct printing, without substances on the EuPIA exclusion list			X	
		Foil stamping			X	
		Lacquer			X	

Minor components						
			Valuable material	Incompatibilities	Separable or conditionally compatible	Examination of design-related losses of valuable material
Closure	Material	PE	X[1]			P5
		PET			X	
		POM			X	
		PP	X[1]			P5
		PS			X	
		Non-PO plastic, density < 1 g/cm³		X		
		Other plastic			X	
Other design parameters						
Other design parameters	Structure	Design different from standard structure (no wet-strength cardboard, PE ± aluminium)				P2
	Decoration	Metal pigments applied on a large scale (taking up > 50% of the projected surface) (lacquering, print, coating or embossing)				P2
		> 50% fully printed black (including background) using soot-carbon-based pigments				P2
	PFAS	PFAS share in food-contact packaging ≥ limit value according to Article 5, paragraph 5 PPWR		X		

[1] To be counted towards valuable material, individual evidence according to Annex 3.3 is recommended.

[2] Mineral pigment coatings including binding agents without a sealing function and without a function as a water vapour, oxygen or grease barrier are to be counted towards the valuable material share.

Examination of design-related losses of valuable material	
P2	Requirement to test whether identifiability, including targeted separability, is given in sensor-based sorting. Restrictions must be taken into account as proportionate losses of valuable materials.
P5	Only the packaging components containing valuable material that have a verified density of less than 1 g/cm³ (including additives, masterbatches, fillers, or in multilayer structures as well as printing inks) shall be counted towards available valuable material share.
P6.2	Where wet-strength agents, impregnating agents, waxes, etc., are used for fibre-based packaging, the determination of recyclability needs to be based on a suitable testing methodology, regardless of the filling material. The non-recoverable fibrous material share must be deducted to determine the available valuable material share. If, during the pulping of fibre-based packaging, substances that cannot be classified as fibrous material pass into the aqueous phase (water-soluble, colloidally dissolved or finely dispersed), these shall be quantified by a suitable testing method and deducted when calculating the fibrous material recovery rate.
P8	For any deviating determination in the sense that incompatible substances do not negatively affect recyclability in individual cases, individual evidence produced through analytical testing must be provided. Requirements for the implementation and documentation of an individual evidence are specified in Annex 3.1.

A 2.3b Composite packaging of which the majority is paper/cardboard (excluding liquid packaging carton)

a. Scope of application

The following assessment principles, criteria and requirements apply to packaging with paper/paperboard/cardboard as the main material. These are, for example: laminated folding boxes, composite cans, coated papers, paper cups coated on both sides, wrappers.

b. Classification of design features incl. examination and test requirements

The most common design features of PPC packaging (paper/cardboard/cardboard) are listed below in a table, assigned to the columns 'valuable material, 'incompatibilities', 'separable or conditionally compatible', and 'examination of design-related losses of valuable materials'. The latter assignment may also be additive and refers to the corresponding examination or assessment regulation in the lower section of the table at the end of the chapter.

c. Calculation of recyclability

1. If no parameter is classified as ‘incompatible’, the recyclability corresponds numerically to the sum of the shares of the materials or formulations that are classified as ‘valuable material’. This scenario represents the standard case.
2. If one or more design features are categorised as ‘requiring examination, it must be determined whether they result in design-related valuable material losses. If such losses can be ruled out through examination, the feature has no impact on the calculation in accordance with section 1. Otherwise, design-related losses must be determined and deducted.
3. If one or more design features are categorised under ‘incompatibilities’, the recyclability is 0%.

d. Requirement for individual evidence regarding the criterion of the existence of a recycling infrastructure

Individual evidence of the existence of a recycling infrastructure is recommended for the declaration of recyclability.

Composite packaging of which the majority is paper/cardboard (excluding liquid packaging carton) | Reference application: corrugated base paper						
Main body						
			Valuable material	**Incompatibilities**	**Separable or conditionally compatible**	**Examination of design-related losses of valuable material**
Main body	**Material**	Corrugated fibreboard	X			
		Kraft paper	X			
		Moulded pulp, highly compressed	X			P6.2
		Moulded pulp, slightly compressed	X			
		Glassine	X			
		Bogus paper	X			
		Wrapping tissue	X			
		Bitumen paper		X		
		Oil paper		X		
		Wax/Paraffin paper		X		
		Paper, paperboard, cardboard (PPC), other sorts	X			
		Foamed, extruded, thermoformed component made of starch			X	
		Aluminium lamination			X	P0.1
		Plastic film (extrusion lamination, film lamination)			X	
	Dyeing	Dyed black, using soot-carbon-based pigments				P2
	Other equipment (of the paper)	Dry strength agent: PVOH	X			P6.2
		Dry strength agent: Starch (mass and surface)	X			
		Dry strength agent: Other synthetic polymers	X			P6.2
		Sizing agent, hydrophobic (mass and surface)	X			
		Wet strength agent, impregnating agent	X			P6.2
		Mineral fillers	X			
		Other equipment	X			
	Barriers and surface finish (of the paper)	Metallisation			X	
		Mineral pigment coating incl. binding agent	X*			
		Polymer dispersion coating (thermoplastic)		X		P8
		Polymer mineral coating (thermoplastic)		X		P8
		Silicone coating			X	P6.2
		Paraffin, wax, oil			X	P6.2
		Other surface finish		X		P6.2, P8
	Additives and coatings (of the plastic layer)	AlOx			X	
		Metallisation			X	
		SiOx			X	
	Adhesive in multilayer structure	Dispersion adhesive			X	
		Hot-melt adhesive application, criteria of EPRC scorecard fulfilled			X	
		Hot-melt adhesive application, criteria of EPRC scorecard not fulfilled		X		P8
		Starch-based adhesive	X			
	Decoration	Direct printing, with substances on the EuPIA exclusion list		X		
		Direct printing, without substances on the EuPIA exclusion list			X	
		Foil stamping			X	
		Lacquer			X	
		Fully lacquered surface - Excluding clear protective lacquer up to a thickness of <= 5 micrometers - Excluding internal bag layers if the grammage is at least 100 g/m²				P2

Minor components						
			Valuable material	Incompatibilities	Separable or conditionally compatible	Examination of design-related losses of valuable material
Label	Material	Paper (not equipped with wet strength agent)	X			
		Paper (equipped with wet strength agent)	X			P6.2
		Plastic			X	
	Adhesive	Dispersion adhesive			X	
		Hot-melt adhesive application, criteria of EPRC scorecard fulfilled			X	
		Hot-melt adhesive application, criteria of EPRC scorecard not fulfilled		X		P8
		Starch-based adhesive	X			
	Decoration	Direct printing, with substances on the EuPIA exclusion list		X		
		Direct printing, without substances on the EuPIA exclusion list			X	
		Lacquer			X	
Seam adhesion / Attachment	Adhesive	Dispersion adhesive			X	
		Hot-melt adhesive application, criteria of EPRC scorecard fulfilled			X	
		Hot-melt adhesive application, criteria of EPRC scorecard not fulfilled		X		P8
		Starch-based adhesive	X			
Minor component (not fibre-based)	Material	Cellophane			X	
		Plastic (non-specific)			X	
		PVOH			X	
		Non-ferrous metal, stainless steel, magnetic materials, steel			X	P0.1, P0.2
Other design parameters						
Other design parameters	Structure	Plastic-coated surface - Excluding internal bag layers if the grammage is at least 100 g/m²				P2
	Decoration	Metal pigments applied on a large scale (taking up > 50% of the projected surface) (lacquering, print, coating or embossing)				P2
		> 50% fully printed black (including background) using soot-carbon-based pigments				P2
	Packaged good	Non-dry packaged good – i.e. fibre-based packaging for example for liquids, certain foodstuffs, oils and emulsions				P6.1
	Structure	Double-sided barrier coating				P6.2
	PFAS	PFAS share in food-contact packaging ≥ limit value according to Article 5, paragraph 5 PPWR		X		

* Mineral pigment coatings including binding agents without a sealing function and without a function as a water vapour, oxygen or grease barrier are to be counted towards the valuable material share.

Examination of design-related losses of valuable material	
P0.1	Presence of an aluminium foil layer; examination required (test if necessary) whether the design causes sorting into aluminium fraction. If so, a complete loss of valuable material for packaging category 3 has to be factored.
P0.2	Presence of ferromagnetic components ≥ 5% by weight in relation to the object of assessment; examination required (test if necessary) whether the design causes sorting into ferrous metal fraction. If so, a complete loss of valuable material for packaging category 3 has to be factored.
P2	Requirement to test whether identifiability, including targeted separability, is given in sensor-based sorting. Restrictions must be taken into account as proportionate losses of valuable materials.
P6.1	When determining the recyclability of fibre-based packaging, the gradual defiberability of the fibrous material is a decisive factor. For fibre-based composite packaging (except for liquid packaging board) for non-dry contents – i.e. fibre-based packaging for example for liquids, certain foodstuffs, oils and emulsions – evidence must be provided that the operating conditions (for example, dwell time and other operating parameters in the processing of the material) of the respective recovery path (PPC or lightweight packaging collection) result in the dispersion of the fibrous material, and that the fibrous material is recycled. This obligation to provide evidence does not apply to fibre-based packaging that is typically filled with contents that are dry (< 15% moisture content), free-flowing or particulate, such as flour or sugar. The non-recoverable fibrous material share must be deducted to determine the available valuable material share. If, during the pulping of fibre-based packaging, substances that cannot be classified as fibrous material pass into the aqueous phase (water-soluble, colloidally dissolved or finely dispersed), these shall be quantified by a suitable testing method and deducted when calculating the fibrous material recovery rate.
P6.2	Where wet-strength agents, impregnating agents, waxes, etc., are used for fibre-based packaging, and in the case of paper or cartons (excluding liquid packaging carton) coated or metallised on both sides, the determination of recyclability needs to be based on a suitable testing methodology, regardless of the filling material. The non-recoverable fibrous material share must be deducted to determine the available valuable material share. If, during the pulping of fibre-based packaging, substances that cannot be classified as fibrous material pass into the aqueous phase (water-soluble, colloidally dissolved or finely dispersed), these shall be quantified by a suitable testing method and deducted when calculating the fibrous material recovery rate.
P8	For any deviating determination in the sense that incompatible substances do not negatively affect recyclability in individual cases, individual evidence produced through analytical testing must be provided. Requirements for the implementation and documentation of an individual evidence are specified in Annex 3.1.

Scope of application of the design parameters categorised as P	
P0.1	The criterion explicitly does not apply to metallised packaging.
P2	Explicitly not applicable to large-format transport packaging (e.g. cartons).

A 2.4 Steel and composite packaging of which the majority is steel

a. Scope of application

The following assessment principles, criteria and requirements apply to packaging with steel as the main material. These are, for example: food cans, aerosol cans, paint and colour cans, buckets.

b. Classification of design features incl. examination and test requirements

The most common design features of tinplate and sheet metal packaging are listed below in a table, assigned to the columns 'valuable material, 'incompatibilities', 'separable or conditionally compatible', and 'examination of design-related losses of valuable materials'. The latter assignment may also be additive and refers to the corresponding examination or assessment regulation in the lower section of the table at the end of the chapter.

c. Calculation of recyclability

1. If no parameter is classified as ‘incompatible’, the recyclability corresponds numerically to the sum of the shares of the materials or formulations that are classified as ‘valuable material’. This scenario represents the standard case.
2. If one or more design features are categorised as ‘requiring examination, it must be determined whether they result in design-related valuable material losses. If such losses can be ruled out through examination, the feature has no impact on the calculation in accordance with section 1. Otherwise, design-related losses must be determined and deducted.
3. If one or more design features are categorised under ‘incompatibilities’, the recyclability is 0%.

d. Requirement for individual evidence regarding the criterion of the existence of a recycling infrastructure

No individual evidence of the existence of a recycling infrastructure is required for the declaration of recyclability.

Steel and composite packaging of which the majority is steel | Reference application: Steel products						
Main body						
			Valuable material	**Incompatibilities**	**Separable or conditionally compatible**	**Examination of design-related losses of valuable material**
Main body	**Material**	Steel	X			
		Steel, chrome-plated	X			
		Steel, tin-plated	X			
		Aluminium	X			
		Plastic			X	
		Paper			X	
	Printing, lacquer and coatings	Direct printing			X	
		Lacquer (inner and external lacquer)			X	
		Other			X	
Minor components						
			Valuable material	**Incompatibilities**	**Separable or conditionally compatible**	**Examination of design-related losses of valuable material**
Closure/ Functional head	**Material**	Steel	X			
		Steel, chrome-plated	X			
		Steel, tin-plated	X			
		Stainless steel	X			
		Aluminium	X			
		Non-ferrous metal, other	X			
		Glass			X	
		Plastic			X	
		Other			X	
Label	**Material**	Plastic			X	
		Paper			X	
		Other material			X	
	Adhesive application	Adhesive			X	
	Decoration	Printing ink			X	
		Foil stamping			X	
		Lacquer			X	
Examination of design-related losses of valuable material						
P4	Examination of ferromagnetic properties: For non-ferromagnetic packaging, Annex 2.5/2.6 is to be applied.					
Scope of application of the design parameters categorised as P						
P4	The criterion explicitly does not apply to large-format transport packaging that is recycled as ferrous metal scrap via a separate mono-collection.					

A 2.5/2.6 Aluminium and composite packaging of which the majority is aluminium – rigid, semi-rigid and flexible

a. Scope of application

The following assessment principles, criteria and requirements apply to packaging with aluminium as the main material. These are, for example: food cans, aerosol cans, aluminium trays and aluminium tubes.

b. Classification of design features incl. examination and test requirements

The most common design features of aluminium packaging are listed below in a table, assigned to the columns 'valuable material, 'incompatibilities', 'separable or conditionally compatible', and 'examination of design-related losses of valuable materials'. The latter assignment may also be additive and refers to the corresponding examination or assessment regulation in the lower section of the table at the end of the chapter.

c. Calculation of recyclability

1. If no parameter is classified as ‘incompatible’, the recyclability corresponds numerically to the sum of the shares of the materials or formulations that are classified as ‘valuable material’. This scenario represents the standard case.
2. If one or more design features are categorised as ‘requiring examination, it must be determined whether they result in design-related valuable material losses. If such losses can be ruled out through examination, the feature has no impact on the calculation in accordance with section 1. Otherwise, design-related losses must be determined and deducted.
3. If one or more design features are categorised under ‘incompatibilities’, the recyclability is 0%.

d. Requirement for individual evidence regarding the criterion of the existence of a recycling infrastructure

No individual evidence of the existence of a recycling infrastructure is required for the declaration of recyclability.

Aluminium and composite packaging of which the majority is aluminium — rigid, semi-rigid and flexible | Reference application: Aluminium casting						
Main body						
			Valuable material	**Incompatibilities**	**Separable or conditionally compatible**	**Examination of design-related losses of valuable material**
Main body	**Material**	Aluminium	X			
		Non-ferrous metal, other	X			P3
		Plastic			X	
		Paper			X	
		Steel	X			
		Steel, chrome-plated	X			
		Steel, tin-plated	X			
	Printing, lacquer and coatings	Direct printing			X	
		Lacquer (inner and external lacquer)			X	
		Other			X	
Minor components						
			Valuable material	**Incompatibilities**	**Separable or conditionally compatible**	**Examination of design-related losses of valuable material**
Closure/ Functional head	**Material**	Aluminium	X			
		Glass			X	
		Plastic			X	
		Non-ferrous metal, other	X			
		Stainless steel	X			
		Steel	X			
		Steel, chrome-plated	X			
		Steel, tin-plated	X			
		Other			X	
Label	**Material**	Plastic			X	
		Paper			X	
		Other material			X	
	Adhesive application	Adhesive			X	
	Decoration	Printing ink			X	
		Foil stamping			X	
		Lacquer			X	
Other design parameters						
Other design parameters	**PFAS**	PFAS share in food-contact packaging ≥ limit value according to Article 5, paragraph 5 PPWR		X		
Examination of design-related losses of valuable material						
P3	Examination of effective electrical conductivity (eddy current separator test): Non-sortable packaging is to be assessed with a recyclability = 0 %.					
Scope of application of the design parameters categorised as P						
P3	The criterion explicitly does not apply to metallized packaging and large-format transport packaging that is recycled as non-ferrous metal scrap via a separate mono-collection.					

A 2.7 Bottles made of PET-A – rigid (transparent clear/coloured)

a. Scope of application

The following assessment principles, criteria and requirements apply to transparent PET bottles.

b. Classification of design features incl. examination and test requirements

The most common design features of transparent PET bottles are listed below in a table, assigned to the columns 'valuable material, 'incompatibilities', 'separable or conditionally compatible', and 'examination of design-related losses of valuable materials'. The latter assignment may also be additive and refers to the corresponding examination or assessment regulation in the lower section of the table at the end of the chapter.

c. Calculation of recyclability

1. If no parameter is classified as ‘incompatible’, the recyclability corresponds numerically to the sum of the shares of the materials or formulations that are classified as ‘valuable material’. This scenario represents the standard case.
2. If one or more design features are categorised as ‘requiring examination, it must be determined whether they result in design-related valuable material losses. If such losses can be ruled out through examination, the feature has no impact on the calculation in accordance with section 1. Otherwise, design-related losses must be determined and deducted.
3. If one or more design features are categorised under ‘incompatibilities’, the recyclability is 0%.

d. Requirement for individual evidence regarding the criterion of the existence of a recycling infrastructure

No individual evidence of the existence of a recycling infrastructure is required for the declaration of recyclability.

Bottles made of PET-A — rigid (transparent clear / coloured) | Reference application: Bottles (contact-sensitive) or thermoforms (contact-sensitive)						
Main body						
			Valuable material	**Incompatibilities**	**Separable or conditionally compatible**	**Examination of design-related losses of valuable material**
Main body	**Material**	PET-A	X			
		PET-G		X		
		rPET PET(REC)	X			
		EVOH layer		X		
		PA layer		X		
	Material in multilayer, density < 1 g/cm³	Multilayer structure, density < 1 g/cm³			X	P5
	Structure	Multilayer structure				P2
	Masterbatch or colour batch	Masterbatch, colour batch	X			
		Dyeing using soot-carbon-based pigments (also when used for internal layers)				P2
	Additives	AA-blocker	X			
		Anti-block	X			
		Nanocomposite	X			
		Oxygen scavenger (PA free)	X			
		PA additivation		X		
		UV stabilizers	X			
		Other blended barriers		X		
	Coating	AlOx			X	
		Antifog coating			X	
		EVOH coating		X		
		PFAS share in food-contact packaging ≥ limit value according to Article 5, paragraph 5 PPWR		X		
		SiOx			X	
	Decoration	Direct printing (excluding production codes, 'best before' dates and UFI codes)		X		
Minor components						
			Valuable material	**Incompatibilities**	**Separable or conditionally compatible**	**Examination of design-related losses of valuable material**
Closure/ functional head	**Material**	rigid HDPE, rHDPE from closures and functional elements	X			
		rigid PP, rPP from closures and functional elements	X			
		PA (e.g. in applicators)		X		
		PEF from closures and functional elements	X			
		Aluminium		X		
		Glass			X	
		High-alloy steels, non-ferromagnetic		X		
		Steel, ferromagnetic			X	P0.2
		Silicone components, density > 1 g/cm³		X		
		Elastomer components, density > 1 g/cm³		X		
		Other polymer components, density > 1 g/cm³ (except PET-A)		X		P8
Label/sleeve	**Material**	Mono/multilayer film incl. print and lacquer, density > 1 g/cm³		X		
		Mono/multilayer film incl. print and varnish, density < 1 g/cm³			X	
		Paper label (not wet-strength / wet-strength equipped)			X	
	Coverage	Large labels (taking up > 50% of the projected surface) made from foreign material				P2
		Full sleeve labels (excluding full sleeves of PET hollow bodies without a light barrier – clear or light blue – where OPS PET or PO sleeves are used)				P2
Label	**Adhesive application**	Adhesive application (wash-off capability unknown)		X		
		Adhesive application (wash-off capable in alkaline hot wash, 80 °C)			X	
		Adhesive application (not wash-off capable in alkaline hot wash, 80 °C)		X		

Other design parameters						
Other design parameters	Structure	Different types of plastic used on front and back sides				P2
	Decoration	> 50% fully printed black (including background) using soot-carbon-based pigments				P2
		Metal pigments applied on a large scale (taking up > 50% of the projected surface) (lacquering, coating or embossing))				P2
	PFAS	PFAS share in food-contact packaging ≥ limit value according to Article 5, paragraph 5 PPWR		X		

Examination of design-related losses of valuable material	
P0.2	Presence of ferromagnetic components ≥ 5% by weight in relation to the object of assessment; examination required (test if necessary) whether the design causes sorting into ferrous metal fraction. If so, a complete loss of valuable material for packaging category 7 has to be factored.
P2	Requirement to test whether identifiability, including targeted separability, is given in sensor-based sorting. Restrictions must be taken into account as proportionate losses of valuable materials.
P5	Only shares of PET-valuable material with a verified density of larger than 1 g/cm³ (including additives, masterbatches, fillers, or in multilayer structures as well as printing inks) shall be counted towards available valuable material share. Shares of PO-valuable material with a verified density of less than 1 g/cm³ (including additives, masterbatches, fillers, or in multilayer structures as well as printing inks) shall be counted towards available valuable material share.
P8	For any deviating determination in the sense that incompatible substances do not negatively affect recyclability in individual cases, individual evidence produced through analytical testing must be provided. Requirements for the implementation and documentation of an individual evidence are specified in Annex 3.1.

Scope of application of the design parameters categorised as P	
P2	Explicitly not applicable to large-format transport packaging and to plastic packaging for which a separate plastic-type-only mono-collection is a prerequisite for recycling (e.g. reusable packaging in deposit systems, etc.).
P5	Explicitly not applicable to large-format transport packaging or reusable packaging such as crates for drinks bottles, which are recycled via a separate mono-collection and for which no density separation is carried out in the recycling process.

A 2.8a Thermoformed packaging made of PET-A, PET-C – rigid (transparent clear/coloured, opaque)

a. Scope of application

The following assessment principles, criteria and requirements apply to packaging with PET as the main material. These are, for example: trays, snap-on cap, cups, blisters and other thermoforms.

b. Classification of design features incl. examination and test requirements

The most common design features of PET thermoformed packaging are listed below in a table, assigned to the columns 'valuable material, 'incompatibilities', 'separable or conditionally compatible', and 'examination of design-related losses of valuable materials'. The latter assignment may also be additive and refers to the corresponding examination or assessment regulation in the lower section of the table at the end of the chapter.

c. Calculation of recyclability

1. If no parameter is classified as ‘incompatible’, the recyclability corresponds numerically to the sum of the shares of the materials or formulations that are classified as ‘valuable material’. This scenario represents the standard case.
2. If one or more design features are categorised as ‘requiring examination, it must be determined whether they result in design-related valuable material losses. If such losses can be ruled out through examination, the feature has no impact on the calculation in accordance with section 1. Otherwise, design-related losses must be determined and deducted.
3. If one or more design features are categorised under ‘incompatibilities’, the recyclability is 0%.

d. Requirement for individual evidence regarding the criterion of the existence of a recycling infrastructure

Individual evidence of the existence of a recycling infrastructure is required for the declaration of recyclability.

Thermoforms made of PET-A, PET-C — rigid (transparent clear / coloured, opaque) | Reference application: Thermoforms (contact-sensitive)						
Main body						
			Valuable material	Incompatibilities	Separable or conditionally compatible	Examination of design-related losses of valuable material
Main body	Material	PET-A	X			
		PET-A opaque	X			
		PET-C	X			
		PET-G		X		
		rPET PET(REC)	X			
		PEF	X			
		PBT	X			
	Material in multilayer, density > 1 g/cm³	Aluminium layer		X		P0.1
		EVOH layer		X		
		Ionomer layer		X		
		PA layer		X		
		PBT layer	X			
		PE layer			X	
		PE-X layer		X		
		PE peel layer (non-specific)		X		
		PEF layer	X			
		PP layer		X		
		PP Peel layer (non-specific)		X		
		PVDC layer		X		
		PVOH layer		X		
	Material in multilayer, density < 1 g/cm³	Multilayer structure, density < 1 g/cm³			X	P5
	Masterbatch or colour batch	Masterbatch, colour batch	X			
		Dyeing using soot-carbon-based pigments (also when used for internal layers)				P2
	Fillers, mineral additives and absorbers	Absorber (mineral)	X			P5
		Lime, Chalk	X			P5
		Talc	X			P5
		Titanium dioxide	X			P5
	Additives	AA-blocker	X			
		Anti-block	X			
		Bio-/oxo-/photodegradable additives		X		
		Nanocomposite	X			
		Oxygen scavenger (PA free)	X			
		PA additivation		X		
		UV stabilizers	X			
		Other blended barriers		X		
	Coating	Acrylic-based coating		X		
		AlOx			X	
		EVOH coating		X		
		PVOH coating		X		
		Sealing edge coating (wash-off capable in hot wash, 80 °C)			X	
		Sealing edge coating (not wash-off capable in hot wash, 80 °C)		X		
		SiOx			X	
		Other coatings		X		P8
	Adhesive application	Adhesive		X		
	Decoration	Direct printing (excluding production codes, 'best before' dates and UFI codes)		X		

Minor components						
			Valuable material	Incompatibilities	Separable or conditionally compatible	Examination of design-related losses of valuable material
Label/ sealing film	Material	Monolayer film/coextruded multilayer film made of PET (except PET-G), density > 1 g/cm³, unprinted and not lacquered	X			
		Multilayer film made of PET, adhesive-laminated, density > 1 g/cm³, unprinted and not lacquered		X		P8
		Coextruded multilayer film made of PET (except PET-G)/PO, unprinted and not lacquered			X	
		Mono/multilayer film incl. print and lacquer, density > 1 g/cm³		X		
		Mono/multilayer film incl. print and lacquer, density < 1 g/cm³, removable without residue in alkaline hot wash, 80 °C			X	
		Mono/multilayer film incl. print and lacquer, density < 1 g/cm³, not removable without residue in alkaline hot wash, 80 °C		X		
		Paper label (not wet-strength / wet-strength equipped)			X	
	Coverage	Large labels (taking up > 50% of the projected surface) made from foreign material				P2
Sealing film	Additives	AA-blocker	X			
		Anti-block	X			
		Nanocomposite	X			
		Oxygen scavenger (PA free)	X			
		PA additivation		X		
		UV stabilizers	X			
		Other blended barriers		X		
	Coating	Acrylic-based coating		X		
		AlOx			X	
		PFAS share in food-contact packaging ≥ limit value according to Article 5, paragraph 5 PPWR		X		
		SiOx			X	
		Other coatings		X		P8
Absorbent pad/bubble pad	Material	Absorbent			X	
		PE, density < 1 g/cm³			X	
		PP, density < 1 g/cm³			X	
		XPS, density < 1 g/cm³			X	
		Cellulose			X	
Label/absorbent pad/bubble pad	Adhesive application	Adhesive application (wash-off capability unknown)		X		P8
		Adhesive application (wash-off capable in alkaline hot wash, 80 °C)			X	
		Adhesive application (not wash-off capable in alkaline hot wash, 80 °C)		X		
Other design parameters						
Other design parameters	Structure	Different types of plastic used on front and back sides				P2
	Decoration	> 50% fully printed black (including background) using soot-carbon-based pigments				P2
		Metal pigments applied on a large scale (taking up > 50% of the projected surface) (lacquering, coating or embossing))				P2
	PFAS	PFAS share in food-contact packaging ≥ limit value according to Article 5, paragraph 5 PPWR		X		

Examination of design-related losses of valuable material	
P0.1	Presence of an aluminium foil layer; examination required (test if necessary) whether the design causes sorting into aluminium fraction. If so, a complete loss of valuable material for packaging category 8 has to be factored.
P2	Requirement to test whether identifiability, including targeted separability, is given in sensor-based sorting. Restrictions must be taken into account as proportionate losses of valuable materials.
P5	Only shares of PET-valuable material with a verified density of larger than 1 g/cm³ (including additives, masterbatches, fillers, or in multilayer structures as well as printing inks) shall be counted towards available valuable material share.
P8	For any deviating determination in the sense that incompatible substances do not negatively affect recyclability in individual cases, individual evidence produced through analytical testing must be provided. Requirements for the implementation and documentation of an individual evidence are specified in Annex 3.1.

Scope of application of the design parameters categorised as P	
P0.1	The criterion explicitly does not apply to metallized packaging.
P2	Explicitly not applicable to large-format transport packaging.
P5	Explicitly not applicable to large-format transport packaging, which is recycled via a separate mono-collection and in whose no density separation is carried out in the recycling process.

A 2.8b Other packaging made of PET-A, PET-C – rigid (transparent clear/coloured, opaque)

a. Scope of application

The following assessment principles, criteria and requirements apply to packaging with PET as the main material. These are, for example: cans and jars.

b. Classification of design features incl. examination and test requirements

The most common design features of other PET packaging are listed below in a table, assigned to the columns 'valuable material, 'incompatibilities', 'separable or conditionally compatible', and 'examination of design-related losses of valuable materials'. The latter assignment may also be additive and refers to the corresponding examination or assessment regulation in the lower section of the table at the end of the chapter.

c. Calculation of recyclability

1. If no parameter is classified as ‘incompatible’, the recyclability corresponds numerically to the sum of the shares of the materials or formulations that are classified as ‘valuable material’. This scenario represents the standard case.
2. If one or more design features are categorised as ‘requiring examination, it must be determined whether they result in design-related valuable material losses. If such losses can be ruled out through examination, the feature has no impact on the calculation in accordance with section 1. Otherwise, design-related losses must be determined and deducted.
3. If one or more design features are categorised under ‘incompatibilities’, the recyclability is 0%.

d. Requirement for individual evidence regarding the criterion of the existence of a recycling infrastructure

Individual evidence of the existence of a recycling infrastructure is required for the declaration of recyclability.

Other packaging made of PET-A, PET-C — rigid (transparent clear / coloured, opaque) | Reference application: Thermoforms or strapping bands						
Main body						
			Valuable material	Incompatibilities	Separable or conditionally compatible	Examination of design-related losses of valuable material
Main body	Material	PET-A	X			
		PET-A opaque	X			
		PET-C not additionally nucleated	X			
		PET-G		X		
		r-PET PET(REC)	X			
		PEF	X			
		PBT	X			
	Material in multilayer, density > 1 g/cm³	Aluminium layer		X		P0.1
		EVOH layer			X	
		PA layer			X	
		PBT layer	X			
		PE layer			X	
		PE-X layer		X		
		PE peel layer (non-specific)		X		
		PEF layer	X			
		PP Peel layer (non-specific)		X		
		PVDC layer		X		
		PVOH layer		X		
	Material in multilayer, density < 1 g/cm³	Multilayer structure, density < 1 g/cm³			X	P5
	Structure	Multilayer structure				P2
	Masterbatch or colour batch	Masterbatch, colour batch	X			
		Dyeing using soot-carbon-based pigments (also when used for internal layers)				P2
	Fillers, mineral additives and absorbers	Absorber (mineral)	X			P5
		Lime, Chalk	X			P5
		Talc	X			P5
		Titanium dioxide	X			P5
		Other fillers		X		P5
	Additives	AA-blocker	X			
		Anti-block	X			
		Bio-/oxo-/photodegradable additives		X		
		Nanocomposite	X			
		Oxygen scavenger (PA free)	X			
		PA additivation			X	
		UV stabilizers	X			
		Other blended barriers		X		
	Coating	Acrylic-based coating		X		
		AlOx			X	
		Antifog coating			X	
		SiOx			X	
		Other coatings		X		P8
	Decoration	Direct printing (excluding production codes, 'best before' dates and UFI codes)		X		
		Lacquer		X		

Minor components						
			Valuable material	Incompatibilities	Separable or conditionally compatible	Examination of design-related losses of valuable material
Closure/ functional head	Material	rigid HDPE, rHDPE from closures and functional elements	X			P5
		rigid PP, rPP from closures and functional elements	X			P5
		PA (e.g. in applicators)		X		
		Aluminium		X		
		Glass			X	
		High-alloy steels, non-ferromagnetic		X		
		Steel, ferromagnetic			X	P0.2
		Silicone components, density > 1 g/cm³		X		
		Elastomer components, density > 1 g/cm³		X		
Label/sleeve/ sealing film	Material	Monolayer film/coextruded multilayer film made of PET (except PET-G), density > 1 g/cm³, unprinted and not lacquered	X			
		Multilayer film made of PET, adhesive-laminated, density > 1 g/cm³, unprinted and not lacquered		X		
		Coextruded multilayer film made of PET (except PET-G)/PO, unprinted and not lacquered			X	
		Mono/multilayer film incl. print and lacquer, density > 1 g/cm³		X		
		Mono/multilayer film incl. print and lacquer, density < 1 g/cm³			X	
		Paper label (not wet-strength / wet-strength equipped)			X	
	Coverage	Large labels (taking up > 50% of the projected surface) made from foreign material				P2
		Full sleeve labels (excluding full sleeves of PET hollow bodies without a light barrier – clear or light blue – where OPS PET or PO sleeves are used)				P2
Sealing film	Additive	AA-blocker	X			
		Anti-block	X			
		Bio-/oxo-/photodegradable additives		X		
		Nanocomposite	X			
		Oxygen scavenger (PA free)	X			
		PA additivation			X	
		UV stabilizers	X			
		Other blended barriers		X		
	Coating	Acrylic-based coating		X		
		AlOx			X	
		Metallisation			X	
		PVOH coating		X		
		SiOx			X	
		Other coatings		X		P8
Label	Adhesive application	Adhesive application (wash-off capability unknown)		X		
		Adhesive application (wash-off capable in alkaline hot wash, 80 °C)			X	
		Adhesive application (not wash-off capable in alkaline hot wash, 80 °C)		X		
Other design parameters						
Other design parameters	Structure	Different types of plastic used on front and back sides				P2
	Decoration	> 50% fully printed black (including background) using soot-carbon-based pigments				P2
		Metal pigments applied on a large scale (taking up > 50% of the projected surface) (lacquering, coating or embossing))				P2
	PFAS	PFAS share in food-contact packaging ≥ limit value according to Article 5, paragraph 5 PPWR		X		

Examination of design-related losses of valuable material	
P0.1	Presence of an aluminium foil layer; examination required (test if necessary) whether the design causes sorting into aluminium fraction. If so, a complete loss of valuable material for packaging category 8 has to be factored.
P0.2	Presence of ferromagnetic components ≥ 5% by weight in relation to the object of assessment; examination required (test if necessary) whether the design causes sorting into ferrous metal fraction. If so, a complete loss of valuable material for packaging category 8 has to be factored.
P2	Requirement to test whether identifiability, including targeted separability, is given in sensor-based sorting. Restrictions must be taken into account as proportionate losses of valuable materials.
P5	Only shares of PET-valuable material with a verified density of larger than 1 g/cm³ (including additives, masterbatches, fillers, or in multilayer structures as well as printing inks) shall be counted towards available valuable material share. Shares of PO-valuable material with a verified density of less than 1 g/cm³ (including additives, masterbatches, fillers, or in multilayer structures as well as printing inks) shall be counted towards available valuable material share.
P8	For any deviating determination in the sense that incompatible substances do not negatively affect recyclability in individual cases, individual evidence produced through analytical testing must be provided. Requirements for the implementation and documentation of an individual evidence are specified in Annex 3.1.

Scope of application of the design parameters categorised as P	
P0.1	The criterion explicitly does not apply to metallized packaging.
P2	Explicitly not applicable to large-format transport packaging and to plastic packaging for which a separate plastic-type-only mono-collection is a prerequisite for recycling (e.g. reusable packaging in deposit systems, etc.).
P5	Explicitly not applicable to large-format transport packaging or reusable packaging, which are recycled via a separate mono-collection and for which no density separation is carried out in the recycling process.

A 2.9 PET – flexible (natural/coloured)

a. Scope of application

The following assessment principles, criteria and requirements apply to flexible packaging with PET as the main material. These are, for example: films, pouches, foams, stand-up pouches, carrier bags and wrapping films.

b. Classification of design features incl. examination and test requirements

Recycling paths do not exist for PET flexible plastic packaging subject to system participation obligations. Consequently, no requirements for recycling-compatible design can be derived as assessment regulation.

c. Calculation of recyclability

The recyclability is 0 %, unless individual evidence is provided.

d. Requirement for individual evidence regarding the criterion of the existence of a recycling infrastructure

Individual evidence in accordance with Section 4 and Annex 3.3 is required for the declaration of recyclability. Based on the verified recycling path, the criteria for recycling-compatible design must be derived and applied to the object of assessment.

A 2.10 PE – rigid (natural/coloured)

a. Scope of application

The following assessment principles, criteria and requirements apply to packaging with PE as the main material. These are, for example: bottles < 5 litres, cups, trays, blisters, tubes, cans, buckets ≤ 5 litres, canisters ≤ 5 litres, buckets > 5 litres, canisters > 5 litres.

b. Classification of design features incl. examination and test requirements

The most common design features of rigid plastic packaging made of PE are listed below in a table, assigned to the columns 'valuable material, 'incompatibilities', 'separable or conditionally compatible', and 'examination of design-related losses of valuable materials'. The latter assignment may also be additive and refers to the corresponding examination or assessment regulation in the lower section of the table at the end of the chapter.

c. Calculation of recyclability

1. If no parameter is classified as ‘incompatible’, the recyclability corresponds numerically to the sum of the shares of the materials or formulations that are classified as ‘valuable material’. This scenario represents the standard case.
2. If one or more design features are categorised as ‘requiring examination, it must be determined whether they result in design-related valuable material losses. If such losses can be ruled out through examination, the feature has no impact on the calculation in accordance with section 1. Otherwise, design-related losses must be determined and deducted.
3. If one or more design features are categorised under ‘incompatibilities’, the recyclability is 0%.

d. Requirement for individual evidence regarding the criterion of the existence of a recycling infrastructure

No individual evidence of the existence of a recycling infrastructure is required for the declaration of recyclability.

PE – rigid (natural / coloured) | Reference application: **Blown moulding** or injection moulding products or tubes						
Main body						
			Valuable material	**Incompatibilities**	**Separable or conditionally compatible**	**Examination of design-related losses of valuable material**
Main body	**Material**	HDPE	X			
		MDPE	X			
		LDPE	X			
		LLDPE	X			
		rPE PE(REC)	X			
		rPO PO(REC)	X			
		PE-PP blend	X			
		PE-X		X		
	Material in multilayer, density < 1 g/cm³	PE peel (non-specific)		X		
		PE-PB peel	X			
		PS-PE blend			X	
		Aluminium layer			X	P0.1, P5
		Biodegradable and compostable materials as a layer		X		
		COC layer	X			
		EVOH layer			X	
		Ionomer layer			X	
		PA layer		X		
		PAN layer		X		P8
		PB layer	X			
		mPE (Metallocen) layer	X			
		PEN layer		X		P8
		PET layer		X		P8
		rPET layer		X		P8
		Plastomer (PE) layer	X			
		PP layer	X			
		PP-ethylene copolymer layer	X			
		rPP PP(REC) layer	X			
		PP peel layer (non-specific)		X		
		PP-PB peel layer	X			
		PVC layer		X		
		PVDC layer		X		
		PVOH layer		X		
	Material in multilayer, density > 1 g/cm³	Multilayer structure, density > 1 g/cm³			X	P5
	Structure	Multilayer structure				P2
	Masterbatch or colour batch	Masterbatch, colour batch	X			
		Dyeing using soot-carbon-based pigments (also when used for internal layers)				P2
	Fillers, mineral additives and absorbers	Absorber (mineral)	X			P5
		Lime, Chalk	X			P5
		Talc	X			P5
		Titanium dioxide	X			P5
	Additives	Additive	X			
	Coating	AlOx			X	
		Metallisation			X	
		PVOH coating		X		
		SiOx			X	
		Other coatings		X		P8
	Tie layer, adhesive application	MAH grafted LDPE or LLDPE	X			
		Adhesive and other tie layer			X	
	Decoration	Direct printing with non-PVC-based binder			X	
		Lacquer			X	

Minor components						
			Valuable material	Incompatibilities	Separable or conditionally compatible	Examination of design-related losses of valuable material
Closure/ functional head/ valve	Material	HDPE, MDPE, LDPE, LLDPE, rPE PE(REC)	X			
		Elastomer, Rubber (non thermoplastic), density < 1 g/cm³		X		
		Elastomer (thermoplastic), density < 1 g/cm³			X	
		Ionomer			X	
		PA in applicators with density < 1 g/cm³		X		
		PB	X			
		PET			X	
		PET (foamed, density < 1 g/cm³)		X		P8
		rPET			X	
		PP	X			
		PP-ethylene copolymers	X			
		rPP PP(REC)	X			
		PS			X	
		rPS			X	
		PS-PE blend			X	
		PU, density < 1 g/cm³		X		
		PVC			X	
		Silicone, density < 1 g/cm³		X		
		Non-PO plastics, density < 1 g/cm³		X		
		Aluminium			X	
		Stainless steel			X	
		Glass			X	
		Steel			X	P0.2
Label/sleeve	Material	PE	X			
		PET (foamed, density < 1 g/cm³)		X		
		PP			X	
		Fibre-based labels if the cellulose share can be removed by means of cold washing			X	
		Fibre-based labels if the cellulose share cannot be removed by means of cold washing		X		
		Other materials	Classification analogue to main body			
	Density	Label/sleeve, density > 1 g/cm³			X	
	Adhesive application	Adhesive			X	
	Decoration	Printing ink with non-PVC-based binder			X	
		Lacquer			X	
	Coverage	Large labels (taking up > 50% of the projected surface) made from foreign material				P2
		Full sleeve labels				P2
Sealing film	Material	Aluminium (sealing) lid, aluminium membrane			X	
		Other materials	Classification analogue to main body			
	Density	Sealing film, density > 1 g/cm³				
	Additives	Additive	X			P5
	Coating	AlOx			X	
		Metallisation			X	
		SiOx			X	
		Other coatings		X		P8
	Tie layer, adhesive application	MAH grafted LDPE or LLDPE	X			
		Adhesive and other tie layer			X	
	Decoration	Printing ink with non-PVC-based binder			X	
		Lacquer			X	
Other design parameters						
Other design parameters	Structure	Different types of plastic used on front and back sides				P2
	Decoration	> 50% fully printed black (including background) using soot-carbon-based pigments				P2
		Metal pigments applied on a large scale (taking up > 50% of the projected surface) (lacquering, coating or embossing))				P2
	PFAS	PFAS share in food-contact packaging ≥ limit value according to Article 5, paragraph 5 PPWR		X		
	Sealant cartridges			X		

Examination of design-related losses of valuable material	
P0.1	Presence of an aluminium foil layer; examination required (test if necessary) whether the design causes sorting into aluminium fraction. If so, a complete loss of valuable material for packaging category 10 has to be factored.
P0.2	Presence of ferromagnetic components ≥ 5% by weight in relation to the object of assessment; examination required (test if necessary) whether the design causes sorting into ferrous metal fraction. If so, a complete loss of valuable material for packaging category 10 has to be factored.
P2	Requirement to test whether identifiability, including targeted separability, is given in sensor-based sorting. Restrictions must be taken into account as proportionate losses of valuable materials.
P5	Only the packaging components containing valuable material that have a verified density of less than 1 g/cm³ (including additives, masterbatches, fillers, or in multilayer structures as well as printing inks) shall be counted towards available valuable material share.
P8	For any deviating determination in the sense that incompatible substances do not negatively affect recyclability in individual cases, individual evidence produced through analytical testing must be provided. Requirements for the implementation and documentation of an individual evidence are specified in Annex 3.1.

Scope of application of the design parameters categorised as P	
P0.1	The criterion explicitly does not apply to metallized packaging.
P2	Explicitly not applicable to large-format transport packaging and to plastic packaging for which a separate plastic-type-only mono-collection is a prerequisite for recycling (e.g. PPWR category 14 packaging, EPS, reusable packaging in deposit systems, etc.).
P5	Explicitly not applicable to large-format transport packaging or reusable packaging such as crates for drinks bottles, which are recycled via a separate mono-collection and for which no density separation is carried out in the recycling process.

A 2.11 PE – flexible (natural/coloured)

a. Scope of application

The following assessment principles, criteria and requirements apply to packaging with PE-flex as the main material. These are, for example: flowpacks, films, bags, nets, foams, tubular bags, shrink films, stand-up pouches, carrier bags, bags, wrapping films, bubble wrap, pouches.

b. Classification of design features incl. examination and test requirements

The most common design features for flexible plastic packaging made of PE are listed below in a table, assigned to the columns 'valuable material, 'incompatibilities', 'separable or conditionally compatible', and 'examination of design-related losses of valuable materials'. The latter assignment may also be additive and refers to the corresponding examination or assessment regulation in the lower section of the table at the end of the chapter.

c. Calculation of recyclability

1. If no parameter is classified as ‘incompatible’, the recyclability corresponds numerically to the sum of the shares of the materials or formulations that are classified as ‘valuable material’. This scenario represents the standard case.
2. If one or more design features are categorised as ‘requiring examination, it must be determined whether they result in design-related valuable material losses. If such losses can be ruled out through examination, the feature has no impact on the calculation in accordance with section 1. Otherwise, design-related losses must be determined and deducted.
3. If one or more design features are categorised under ‘incompatibilities’, the recyclability is 0%.

d. Requirement for individual evidence regarding the criterion of the existence of a recycling infrastructure

No individual evidence of the existence of a recycling infrastructure is required for the declaration of recyclability.

PE – flexible (natural / coloured) | Reference application: Blown film and injection moulding products						
Main body						
			Valuable material	**Incompatibilities**	**Separable or conditionally compatible**	**Examination of design-related losses of valuable material**
Main body	**Material**	HDPE	X			
		MDPE	X			
		LDPE	X			
		LLDPE	X			
		rPE PE(REC)	X			
		PE-PP blend	X			
		PE-X (non-specific)		X		
		PE-X (≤ 50 kGy)	X			
		PE-X (> 50 kGy)		X		
	Material in multilayer, density < 1 g/cm³	PE peel (non-specific)		X		
		PE-PB peel	X			
		Aluminium layer		X		P0.1
		Biodegradable and compostable materials as a layer		X		
		COC layer	X			
		EVA layer (VA ≤ 15 %)	X			
		EVOH layer			X	
		Ionomer layer			X	
		PA layer		X		
		Nylon 6 or co-polyamide 6-66 in coextruded PE/PA films (with or without EVOH), combined with MAH-grafted PE as an adhesion promoter at a ratio of at least 0.5g of adhesive per 1g of PA (+EVOH)			X	
		Nylon 6 in laminated PE/PA films, combined with MAH-grafted PE as a compatibiliser at a ratio of at least 0.15g of compatibiliser per 1g of PA			X	
		PAN layer		X		
		PB layer	X			
		PBT layer		X		
		PC layer		X		
		PEN layer		X		
		PET layer		X		
		rPET layer		X		
		PLA layer		X		
		PMMA layer		X		
		POM layer		X		
		PP layer			X	
		PP-ethylene copolymer layer	X			
		PP terpolymer layer		X		
		rPP PP(REC) layer			X	
		PP Peel layer (non-specific)		X		
		PS layer		X		
		rPS layer		X		
		PVC layer		X		
		PVDC layer		X		
		PVOH layer		X		
		Other non-PE polymer layer		X		
		Other non-polymer layer		X		
	Material in multilayer, density > 1 g/cm³	Multilayer structure, density > 1 g/cm³			X	P5
	Structure	Multilayer structure				P2
	Masterbatch or colour batch	Masterbatch, colour batch	X			
		Dyeing using soot-carbon-based pigments (also when used for internal layers)				P2
	Fillers, mineral additives and absorbers	Absorber (mineral)	X			P5
		Lime, Chalk	X			P5
		Talc	X			P5
		Titanium dioxide	X			P5
	Additives	Additive	X			
	Coating	AlOx			X	
		Metallisation			X	
		PVOH coating		X		
		SiOx			X	
		Other coatings		X		P8
	Tie layer, adhesive application	MAH grafted LDPE or LLDPE	X			
		Adhesive and other tie layer			X	
	Decoration	NC-, PU-, PVB-based binders in frontal printing			X	
		PU-, PVB-based binders in interlayer printing			X	
		NC-based binders in interlayer printing		X		
		Lacquer			X	

Minor components						
			Valuable material	Incompatibilities	Separable or conditionally compatible	Examination of design-related losses of valuable material
Closure/ functional head/ valve	Material	HDPE, MDPE, LDPE, LLDPE, rPE PE(REC)	X			
		Elastomer, Rubber (non thermoplastic), density < 1 g/cm³		X		
		Elastomer (thermoplastic), density < 1 g/cm³			X	
		EVA (VA ≤ 15 %)	X			
		PB	X			
		Ionomer			X	
		PA in applicators with density < 1 g/cm³		X		
		PET			X	
		PET (foamed, density < 1 g/cm³)		X		
		rPET			X	
		PP			X	
		PP-ethylene copolymers	X			
		PP terpolymers		X		
		rPP PP(REC)			X	
		PS			X	
		PU, density < 1 g/cm³		X		
		PVC			X	
		PVDC			X	
		Silicone, density < 1 g/cm³		X		
		Other polymer components, density < 1 g/cm³		X		P8
		Aluminium			X	
		Stainless steel			X	
		Glass			X	
		Steel			X	P0.2
Label	Material	PE	X			
		PP			X	
		Fibre-based labels if the cellulose share can be removed by means of cold washing			X	
		Fibre-based labels if the cellulose share cannot be removed by means of cold washing		X		
		Other materials	Classification analogue to main body			
	Density	Label, density > 1 g/cm³			X	P5
	Adhesive application	Adhesive			X	
	Decoration	NC-, PU-, PVB-based binders in frontal printing			X	
		PU-, PVB-based binders in interlayer printing			X	
		NC-based binders in interlayer printing		X		
		Lacquer			X	
	Coverage	Large labels (taking up > 50% of the projected surface) made from foreign material				P2
Other design parameters						
Other design parameters	Structure	Different types of plastic used on front and back sides				P2
	Decoration	> 50% fully printed black (including background) using soot-carbon-based pigments				P2
		Metal pigments applied on a large scale (taking up > 50% of the projected surface) (lacquering, coating or embossing))				P2
	Nets					P2
	PFAS	PFAS share in food-contact packaging ≥ limit value according to Article 5, paragraph 5 PPWR		X		

Examination of design-related losses of valuable material	
P0.1	Presence of an aluminium foil layer; examination required (test if necessary) whether the design causes sorting into aluminium fraction. If so, a complete loss of valuable material for packaging category 11 has to be factored.
P0.2	Presence of ferromagnetic components ≥ 5% by weight in relation to the object of assessment; examination required (test if necessary) whether the design causes sorting into ferrous metal fraction. If so, a complete loss of valuable material for packaging category 11 has to be factored.
P2	Requirement to test whether identifiability, including targeted separability, is given in sensor-based sorting. Restrictions must be taken into account as proportionate losses of valuable materials.
P5	Only the packaging components containing valuable material that have a verified density of less than 1 g/cm³ (including additives, masterbatches, fillers, or in multilayer structures as well as printing inks) shall be counted towards available valuable material share.
P8	For any deviating determination in the sense that incompatible substances do not negatively affect recyclability in individual cases, individual evidence produced through analytical testing must be provided. Requirements for the implementation and documentation of an individual evidence are specified in Annex 3.1.

Scope of application of the design parameters categorised as P	
P0.1	The criterion explicitly does not apply to metallized packaging.
P2	Explicitly not applicable to large-format transport packaging and to plastic packaging for which a separate plastic-type-only mono-collection is a prerequisite for recycling (e.g. stretch films (transport packaging)).
P5	Explicitly not applicable to large-format transport packaging, which is recycled via a separate mono-collection and in whose no density separation is carried out in the recycling process.

A 2.12 PP – rigid (natural/coloured)

a. Scope of application

The following assessment principles, criteria and requirements apply to packaging with PP as the main material. These are, for example: bottles < 5 litres, cups, trays, blisters, tubes, cans, buckets ≤ 5 litres, canisters ≤ 5 litres, buckets > 5 litres, canisters > 5 litres.

b. Classification of design features incl. examination and test requirements

The most common design features for rigid plastic packaging made of PP are listed below in a table, assigned to the columns 'valuable material, 'incompatibilities', 'separable or conditionally compatible', and 'examination of design-related losses of valuable materials'. The latter assignment may also be additive and refers to the corresponding examination or assessment regulation in the lower section of the table at the end of the chapter.

c. Calculation of recyclability

1. If no parameter is classified as ‘incompatible’, the recyclability corresponds numerically to the sum of the shares of the materials or formulations that are classified as ‘valuable material’. This scenario represents the standard case.
2. If one or more design features are categorised as ‘requiring examination, it must be determined whether they result in design-related valuable material losses. If such losses can be ruled out through examination, the feature has no impact on the calculation in accordance with section 1. Otherwise, design-related losses must be determined and deducted.
3. If one or more design features are categorised under ‘incompatibilities’, the recyclability is 0%.

d. Requirement for individual evidence regarding the criterion of the existence of a recycling infrastructure

No individual evidence of the existence of a recycling infrastructure is required for the declaration of recyclability.

PP – rigid (natural / coloured) | Reference application: Injection moulding products or thermoforms						
Main body						
			Valuable material	**Incompatibilities**	**Separable or conditionally compatible**	**Examination of design-related losses of valuable material**
Main body	**Material**	PP	X			
		PP-ethylene copolymer	X			
		rPP PP(REC)	X			
	Material in multilayer, density < 1 g/cm³	PP peel (non-specific)		X		
		PP-PB peel	X			
		Aluminium layer			X	P0.1, P5
		Biodegradable and compostable materials as a layer		X		
		COC layer	X			
		EVOH layer			X	
		Ionomer layer			X	
		PA layer		X		
		PAN layer		X		P8
		PB layer	X			
		HDPE layer	X			
		MDPE layer	X			
		LDPE layer	X			
		LLDPE layer	X			
		rPE PE(REC) layer	X			
		PE-PP blend layer	X			
		PE peel layer (non-specific)		X		
		PE-PB peel layer	X			
		PEN layer		X		P8
		PET layer		X		P8
		rPET layer		X		P8
		PS layer			X	
		rPS layer			X	
		PVC layer		X		
		PVDC layer		X		
		PVOH layer		X		
	Material in multilayer, density > 1 g/cm³	Multilayer structure, density > 1 g/cm³				P5
	Masterbatch or colour batch	Masterbatch, colour batch	X			
		Dyeing using soot-carbon-based pigments (also when used for internal layers)				P2
	Fillers, mineral additives and absorbers	Absorber (mineral)	X			P5
		Lime, Chalk	X			P5
		Talc	X			P5
		Titanium dioxide	X			P5
		Other fillers		X		P5
	Additives	Additive	X			
	Coating	AlOx			X	
		Metallisation			X	
		PVOH coating		X		
		SiOx			X	
		Other coatings		X		P8
	Tie layer, adhesive application	PE-based tie layer	X			
		PP-based tie layer	X			
		Adhesive			X	
	Decoration	Direct printing with non-PVC-based binder			X	
		Lacquer			X	

Minor components						
			Valuable material	Incompatibilities	Separable or conditionally compatible	Examination of design-related losses of valuable material
Closure/ functional head/ valve	Material	PP, PP-ethylene copolymer, rPP PP(REC)	X			
		Elastomer, Rubber (non thermoplastic), density < 1 g/cm³		X		
		Elastomer (thermoplastic), density < 1 g/cm³			X	
		Ionomer			X	
		PA in applicators with density < 1 g/cm³		X		
		PB	X			
		HDPE	X			
		MDPE	X			
		LDPE	X			
		LLDPE	X			
		rPE PE(REC)	X			
		PE-PP blend	X			
		PET			X	
		PET (foamed, density < 1 g/cm³)		X		P8
		rPET			X	
		PS			X	
		PU, density < 1 g/cm³		X		
		PVC		X		
		PVDC		X		
		Silicone, density < 1 g/cm³		X		
		Non-PO plastics, density < 1 g/cm³		X		
		Aluminium			X	
		Stainless steel			X	
		Glass			X	
		Steel			X	P0.2
Label/sleeve	Material	PE	X			
		PET (foamed, density < 1 g/cm³)		X		P8
		PP			X	
		Fibre-based labels if the cellulose share can be removed by means of cold washing			X	
		Fibre-based labels if the cellulose share cannot be removed by means of cold washing		X		
		Other materials	Classification analogue to main body			
	Density	Label/sleeve, density > 1 g/cm³			X	P5
	Adhesive application	Adhesive			X	
	Decoration	Printing ink with non-PVC-based binder			X	
		Lacquer			X	
	Coverage	Large labels (taking up > 50% of the projected surface) made from foreign material				P2
		Full sleeve labels				P2
Sealing film	Material	Aluminium (sealing) lid*, aluminium membrane*	X			
		Other materials	Classification analogue to main body			
	Density	Sealing film, density > 1 g/cm³			X	
	Additives	Additive	X			P5
	Coating	AlOx			X	
		Metallisation			X	
		PVOH coating		X		
		SiOx			X	
		Other coatings		X		P8
	Tie layer, adhesive application	PE-based tie layer	X			
		PP-based tie layer	X			
		Adhesive			X	
	Decoration	Printing ink with non-PVC-based binder			X	
		Lacquer			X	
Other design parameters						
Other design parameters	Structure	Different types of plastic used on front and back sides				P2
	Decoration	> 50% fully printed black (including background) using soot-carbon-based pigments				P2
		Metal pigments applied on a large scale (taking up > 50% of the projected surface) (lacquering, coating or embossing))				P2
	PFAS	PFAS share in food-contact packaging ≥ limit value according to Article 5, paragraph 5 PPWR		X		
	Sealant cartridges			X		

*Credit as valuable material subject to individual evidence in accordance with Annex 3.3

Examination of design-related losses of valuable material	
P0.1	Presence of an aluminium foil layer; examination required (test if necessary) whether the design causes sorting into aluminium fraction. If so, a complete loss of valuable material for packaging category 12 has to be factored.
P0.2	Presence of ferromagnetic components ≥ 5% by weight in relation to the object of assessment; examination required (test if necessary) whether the design causes sorting into ferrous metal fraction. If so, a complete loss of valuable material for packaging category 12 has to be factored.
P2	Requirement to test whether identifiability, including targeted separability, is given in sensor-based sorting. Restrictions must be taken into account as proportionate losses of valuable materials.
P5	Only the packaging components containing valuable material that have a verified density of less than 1 g/cm³ (including additives, masterbatches, fillers, or in multilayer structures as well as printing inks) shall be counted towards available valuable material share.
P8	For any deviating determination in the sense that incompatible substances do not negatively affect recyclability in individual cases, individual evidence produced through analytical testing must be provided. Requirements for the implementation and documentation of an individual evidence are specified in Annex 3.1.

Scope of application of the design parameters categorised as P	
P0.1	The criterion explicitly does not apply to metallized packaging.
P2	Explicitly not applicable to large-format transport packaging and to plastic packaging for which a separate plastic-type-only mono-collection is a prerequisite for recycling (e.g. PPWR category 14 packaging, EPS, reusable packaging in deposit systems, etc.).
P5	Explicitly not applicable to large-format transport packaging or reusable packaging such as crates for drinks bottles, which are recycled via a separate mono-collection and for which no density separation is carried out in the recycling process.

A 2.13 PP – flexible (natural/coloured)

a. Scope of application

The following assessment principles, criteria and requirements apply to packaging with PP-flex as the main material. These are, for example: flowpacks, films, bags, nets, foams, tubular bags, shrink films, stand-up pouches, carrier bags, bags, wrapping films, bubble wrap, pouches.

b. Classification of design features incl. examination and test requirements

The most common design features for flexible plastic packaging made of PP are listed below in a table, assigned to the columns 'valuable material, 'incompatibilities', 'separable or conditionally compatible', and 'examination of design-related losses of valuable materials'. The latter assignment may also be additive and refers to the corresponding examination or assessment regulation in the lower section of the table at the end of the chapter.

c. Calculation of recyclability

1. If no parameter is classified as ‘incompatible’, the recyclability corresponds numerically to the sum of the shares of the materials or formulations that are classified as ‘valuable material’. This scenario represents the standard case.
2. If one or more design features are categorised as ‘requiring examination, it must be determined whether they result in design-related valuable material losses. If such losses can be ruled out through examination, the feature has no impact on the calculation in accordance with section 1. Otherwise, design-related losses must be determined and deducted.
3. If one or more design features are categorised under ‘incompatibilities’, the recyclability is 0%.

d. Requirement for individual evidence regarding the criterion of the existence of a recycling infrastructure

No individual evidence of the existence of a recycling infrastructure is required for the declaration of recyclability; however, this is recommended.

PP – flexible (natural / coloured) | Reference application: Injection moulding products or thermoforms						
Main body						
			Valuable material	Incompatibilities	Separable or conditionally compatible	Examination of design-related losses of valuable material
Main body	Material	PP	X			
		PP-ethylene copolymer	X			
		rPP PP(REC)	X			
	Material in multilayer, density < 1 g/cm³	PP peel (non-specific)		X		
		PP-PB peel	X			
		Aluminium layer			X	P0.1, P5
		Biodegradable and compostable materials as a layer		X		
		COC layer	X			
		EVA layer (VA ≤ 15 %)	X			
		EVOH layer			X	
		Ionomer layer			X	
		PA layer		X		
		PAN layer		X		P8
		PB layer	X			
		HDPE layer	X			
		MDPE layer	X			
		LDPE layer	X			
		LLDPE layer	X			
		rPE PE(REC) layer	X			
		PE-PP blend layer	X			
		PE peel layer (non-specific)		X		
		PE-PB peel layer	X			
		PEN layer		X		P8
		PET layer		X		P8
		rPET layer		X		P8
		PS layer			X	
		PVC layer		X		
		PVDC layer		X		
		PVOH layer		X		
	Material in multilayer, density > 1 g/cm³	Multilayer structure, density > 1 g/cm³			X	P5
	Structure	Multilayer structure				P2
	Masterbatch or colour batch	Masterbatch, colour batch	X			
		Dyeing using soot-carbon-based pigments (also when used for internal layers)				P2
	Fillers, mineral additives and absorbers	Absorber (mineral)	X			P5
		Lime, Chalk	X			P5
		Talc	X			P5
		Titanium dioxide	X			P5
	Additives	Additive	X			
	Coating	AlOx			X	
		Metallisation			X	
		PVOH coating			X	
		SiOx		X		
		Other coatings		X		P8
	Tie layer, adhesive application	PE-based tie layer (halogen-free)	X			
		PP-based tie layer (halogen-free)	X			
		Adhesive			X	
	Decoration	Direct printing with non-PVC-based binder			X	
		Lacquer			X	

Minor components						
			Valuable material	Incompatibilities	Separable or conditionally compatible	Examination of design-related losses of valuable material
Closure/ functional head/ valve	Material	PP, PP-ethylene copolymer, rPP PP(REC)	X			
		Elastomer, Rubber (non thermoplastic), density < 1 g/cm³		X		
		Elastomer (thermoplastic), density < 1 g/cm³			X	
		EVA (VA ≤ 15 %)	X			
		Ionomer			X	
		PB	X			
		HDPE	X			
		MDPE	X			
		LDPE	X			
		LLDPE	X			
		rPE PE(REC)	X			
		PE-PP blend	X			
		PET (foamed, density < 1 g/cm³)		X		P8
		rPET			X	
		PS			X	
		rPS			X	
		PU, density < 1 g/cm³		X		
		PVC			X	
		PVDC			X	
		Silicone, density < 1 g/cm³		X		
		Other polymer components, density < 1 g/cm³		X		P8
		Aluminium			X	
		Stainless steel			X	
		Glass			X	
		Steel			X	P0.2
Label	Material	PE	X			
		PET (foamed, density < 1 g/cm³)		X		P8
		PP			X	
		Other foamed non-polyolefin components		X		
		Fibre-based labels if the cellulose share can be removed by means of cold washing			X	
		Fibre-based labels if the cellulose share cannot be removed by means of cold washing		X		
		Other materials	Classification analogue to main body			
	Density	Label, density > 1 g/cm³			X	P5
	Metallisation	Metallisation			X	P2
	Adhesive application	Adhesive			X	
	Decoration	Printing ink with non-PVC-based binder			X	
		Printing ink with PVC-based binder		X		
		Lacquer			X	
	Coverage	Large labels (taking up > 50% of the projected surface) made from foreign material			X	
Other design parameters						
Other design parameters	Structure	Different types of plastic used on front and back sides				P2
	Decoration	> 50% fully printed black (including background) using soot-carbon-based pigments				P2
		Metal pigments applied on a large scale (taking up > 50% of the projected surface) (lacquering, coating or embossing))				P2
	Nets					P2
	PFAS	PFAS share in food-contact packaging ≥ limit value according to Article 5, paragraph 5 PPWR		X		

Examination of design-related losses of valuable material	
P0.1	Presence of an aluminium foil layer; examination required (test if necessary) whether the design causes sorting into aluminium fraction. If so, a complete loss of valuable material for packaging category 13 has to be factored.
P0.2	Presence of ferromagnetic components ≥ 5% by weight in relation to the object of assessment; examination required (test if necessary) whether the design causes sorting into ferrous metal fraction. If so, a complete loss of valuable material for packaging category 13 has to be factored.
P2	Requirement to test whether identifiability, including targeted separability, is given in sensor-based sorting. Restrictions must be taken into account as proportionate losses of valuable materials.
P5	Only the packaging components containing valuable material that have a verified density of less than 1 g/cm³ (including additives, masterbatches, fillers, or in multilayer structures as well as printing inks) shall be counted towards available valuable material share.
P8	For any deviating determination in the sense that incompatible substances do not negatively affect recyclability in individual cases, individual evidence produced through analytical testing must be provided. Requirements for the implementation and documentation of an individual evidence are specified in Annex 3.1.

Scope of application of the design parameters categorised as P	
P0.1	The criterion explicitly does not apply to metallized packaging.
P2	Explicitly not applicable to large-format transport packaging and to plastic packaging for which a separate plastic-type-only mono-collection is a prerequisite for recycling (e.g. EPS, reusable packaging in deposit systems, etc.).
P5	Explicitly not applicable to large-format transport packaging or reusable packaging, which are recycled via a separate mono-collection and for which no density separation is carried out in the recycling process.

A 2.14 HDPE and PP – rigid (natural/coloured)

According to the current status, packaging category no. 14 does not include any packaging subject to system participation. If any packaging subject to system participation falls under packaging category no. 14 in the future, its recyclability must be assessed according to the main material in accordance with Annex A 2.10 for HDPE and Annex A 2.12 for PP.

A 2.15 PS – rigid (natural/coloured)

a. Scope of application

The following assessment principles, criteria and requirements apply to packaging with PS as the main material. These are, for example: bottles < 5 litres, cups, trays, blisters, cans, jars.

b. Classification of design features incl. examination and test requirements

The most common design features for rigid plastic packaging made of PS are listed below in a table, assigned to the columns 'valuable material, 'incompatibilities', 'separable or conditionally compatible', and 'examination of design-related losses of valuable materials'. The latter assignment may also be additive and refers to the corresponding examination or assessment regulation in the lower section of the table at the end of the chapter.

c. Calculation of recyclability

1. If no parameter is classified as ‘incompatible’, the recyclability corresponds numerically to the sum of the shares of the materials or formulations that are classified as ‘valuable material’. This scenario represents the standard case.
2. If one or more design features are categorised as ‘requiring examination, it must be determined whether they result in design-related valuable material losses. If such losses can be ruled out through examination, the feature has no impact on the calculation in accordance with section 1. Otherwise, design-related losses must be determined and deducted.
3. If one or more design features are categorised under ‘incompatibilities’, the recyclability is 0%.

d. Requirement for individual evidence regarding the criterion of the existence of a recycling infrastructure

No individual evidence of the existence of a recycling infrastructure is required for the declaration of recyclability; however, this is recommended.

PS — rigid (natural / coloured) | Reference application: Injection moulding products						
Main body						
			Valuable material	Incompatibilities	Separable or conditionally compatible	Examination of design-related losses of valuable material
Main body	Material	PS	X			
		HIPS	X			
		GPPS	X			
		SBS	X			
		rPS	X			
	Materials in multilayer, density ≥ 1 g/cm³ or ≤ 1.08 g/cm³	COC layer		X		
		EAA, EEA, EMA, EMAA layer		X		
		EVA layer		X		
		EVOH layer		X		
		PA layer		X		
		HDPE layer		X		
		MDPE layer		X		
		LDPE layer		X		
		LLDPE layer		X		
		rPE PE(REC) layer		X		
		PE-PP blend layer		X		
		PE-X layer		X		
		PE peel layer (non-specific)		X		
		PET layer		X		
		rPET layer		X		
		PP layer		X		
		PP-ethylene copolymer layer		X		
		rPP PP(REC) layer		X		
		PP Peel layer (non-specific)		X		
		PVDC layer		X		
		PVOH layer		X		
		Other non-PS polymer layer		X		
	Materials in multilayer, density < 1 g/cm³ or > 1.08 g/cm³	Multilayer structure, density < 1 g/cm³ or > 1.08 g/cm³			X	P5
	Structure	Multilayer structure				P2
	Masterbatch or colour batch	Masterbatch, colour batch	X			
		Dyeing using soot-carbon-based pigments (also when used for internal layers)				P2
	Fillers, mineral additives and absorbers	Absorber (mineral)	X			P5
		Lime, Chalk	X			P5
		Talc	X			P5
		Titanium dioxide	X			P5
	Additives	Additive	X			
	Coating	Acrylic-based coating		X		
		AlOx			X	
		Metallisation			X	
		PVOH coating		X		
		SiOx			X	
		Other coatings		X		P8
	Tie layer, adhesive application	Tie layer		X		
		Adhesive			X	
	Decoration	Direct printing with non-PVC-based binder			X	
		Lacquer			X	

Minor components						
			Valuable material	Incompatibilities	Separable or conditionally compatible	Examination of design-related losses of valuable material
Closure/ functional head	Material	rigid HDPE, rHDPE from closures and functional elements	X			
		rigid PP, rPP from closures and functional elements	X			
		PA in applicators, 1 g/cm³ ≤ density ≤ 1.08 g/cm³		X		
		SBS	X			
		Aluminium			X	P0.1
		Stainless steel			X	
		Glass			X	
		Steel			X	P0.2
		Non-PS plastic, foamed or filled, density > 1.08 g/cm³			X	
		Other polymer components, 1 g/cm³ ≤ density ≤ 1.08 g/cm³		X		
Label/sleeve/ sealing film	Material	Monolayer film made of PS, 1 g/cm³ ≤ density (incl. print and lacquer) ≤ 1.08 g/cm³	X			
		Mono/multilayer film incl. print and lacquer, density < 1 g/cm³ or > 1.08 g/cm³			X	P5
		Mono (not PS)/multilayer film, 1 g/cm³ ≤ density (incl. printing and lacquer) ≤ 1.08 g/cm³		X		
		Fibre-based labels if the cellulose share can be removed by means of cold washing			X	
		Fibre-based labels if the cellulose share cannot be removed by means of cold washing		X		
		Aluminium (sealing) lid*, aluminium membrane*	X			
	Decoration	Printing ink with non-PVC-based binder			X	
		Lacquer			X	
	Coverage	Large labels (taking up > 50% of the projected surface) made from foreign material				P2
		Full sleeve labels				P2
Label	Adhesive application	Adhesive			X	
Sealing film	Additives	Additive	X			
	Coating	Acrylic-based coating		X		
		AlOx			X	
		Metallisation			X	
		PVOH coating		X		
		SiOx			X	
		Other coatings		X		P8
Other design parameters						
Other design parameters	Structure	Different types of plastic used on front and back sides				P2
	Decoration	> 50% fully printed black (including background) using soot-carbon-based pigments				P2
		Metal pigments applied on a large scale (taking up > 50% of the projected surface) (lacquering, coating or embossing))				P2
	PFAS	PFAS share in food-contact packaging ≥ limit value according to Article 5, paragraph 5 PPWR		X		

*Credit as valuable material subject to individual evidence in accordance with Annex 3.3

Examination of design-related losses of valuable material	
P0.1	Presence of an aluminium foil layer; examination required (test if necessary) whether the design causes sorting into aluminium fraction. If so, a complete loss of valuable material for packaging category 15 has to be factored.
P0.2	Presence of ferromagnetic components ≥ 5% by weight in relation to the object of assessment; examination required (test if necessary) whether the design causes sorting into ferrous metal fraction. If so, a complete loss of valuable material for packaging category 15 has to be factored.
P2	Requirement to test whether identifiability, including targeted separability, is given in sensor-based sorting. Restrictions must be taken into account as proportionate losses of valuable materials.
P5	Only PS components and shares with a density of > 1 g/cm³ and a verified density of < 1.08 g/cm³ (including additives, masterbatch, fillers or in multilayer and including printing inks) shall be counted towards available valuable material share. Shares of PO-valuable material with a verified density of less than 1 g/cm³ (including additives, masterbatches, fillers, or in multilayer structures as well as printing inks) shall be counted towards available valuable material share.
P8	For any deviating determination in the sense that incompatible substances do not negatively affect recyclability in individual cases, individual evidence produced through analytical testing must be provided. Requirements for the implementation and documentation of an individual evidence are specified in Annex 3.1.

Scope of application of the design parameters categorised as P	
P0.1	The criterion explicitly does not apply to metallized packaging.
P2	Explicitly not applicable to large-format transport packaging and to plastic packaging for which a separate plastic-type-only mono-collection is a prerequisite for recycling (e.g. EPS, reusable packaging in deposit systems, etc.).
P5	Explicitly not applicable to large-format transport packaging or reusable packaging, which are recycled via a separate mono-collection and for which no density separation is carried out in the recycling process.

A 2.16 EPS and XPS – rigid (natural/coloured)

a. Scope of application

The following assessment principles, criteria and requirements apply to packaging made of expanded polystyrene (EPS). These are, for example: cool boxes, edge protectors and other impact protection for electronic items. These are also applicable to packaging made of extruded polystyrene (XPS), such as trays.

b. Classification of design features incl. examination and test requirements

Packaging subject to system participation made of EPS or XPS can only be recycled in Germany if it is collected as mono-material (white and coarse-grained) through bring systems at recycling centres. Packaging that is separately collected in this form by the end consumer must therefore be classified as 100% valuable material.

c. Calculation of recyclability

The recyclability is 0 %, unless individual evidence is provided.

d. Requirement for individual evidence regarding the criterion of the existence of a recycling infrastructure

Individual evidence in accordance with Section 4 and Annex 3.3 is required for the declaration of recyclability. A prerequisite that must currently be verified is that the respective quantities have been collected in a mono collection outside the usual collection of lightweight packaging via the collection system. This is possible, for example, through bring systems at recycling centres, provided that the collection is sorted as mono-material (white and coarse-grained) (fraction number 340).

A 2.17 Other rigid plastics (e.g. PVC, PC) including multi- materials – rigid

a. Scope of application

The following assessment principles, criteria and requirements apply to rigid plastic packaging such as barrels and large containers (unless they belong to packaging categories 7, 8, 10, 12, 14, 15, 16 and 19).

b. Classification of design features incl. examination and test requirements

Recycling paths do not exist for sales packaging subject to system participation, such as rigid packaging like barrels and large containers (unless they belong to packaging categories 7, 8, 10, 12, 14, 15, 16, and 19). Consequently, no requirements for recycling-compatible design can be derived as assessment regulation.

c. Calculation of recyclability

The recyclability is 0 %, unless individual evidence is provided.

d. Requirement for individual evidence regarding the criterion of the existence of a recycling infrastructure

For rigid sales packaging such as barrels and large containers (unless they belong to packaging categories 7, 8, 10, 12, 14, 15, 16 and 19), individual evidence in accordance with Section 4 and Annex 3.3 is required for the declaration of recyclability. Based on the verified recycling path, the criteria for recycling-compatible design must be derived and applied to the object of assessment.

A 2.18 Other flexible plastics including multi-materials – flexible

a. Scope of application

The following assessment principles, criteria and requirements apply to flexible plastic packaging such as bags, blisters, thermoformed packaging, vacuum packaging, big bags and stretch films (unless they belong to packaging categories 9, 11, 13, 18 and 19).

b. Classification of design features incl. examination and test requirements

Recycling paths do not exist for flexible plastic packaging subject to system participation, such as bags, blisters, thermoformed packaging, vacuum packaging, big bags and stretch films (unless they belong to packaging categories 9, 11, 13, 18 and 19). Consequently, no requirements for recycling-compatible design can be derived as assessment regulation.

c. Calculation of recyclability

The recyclability is 0 %, unless individual evidence is provided.

d. Requirement for individual evidence regarding the criterion of the existence of a recycling infrastructure

For flexible plastic packaging such as bags, blisters, thermoformed packaging, vacuum packaging, big bags and stretch films (unless they belong to packaging categories 9, 11, 13, 18 and 19), individual evidence in accordance with Section 4 and Annex 3.3 is required for the declaration of recyclability. Based on the verified recycling path, the criteria for recycling-compatible design must be derived and applied to the object of assessment.

A 2.19 (e.g. PLA) Biodegradable plastics – rigid (e.g. PLA, PHB) and flexible (e.g. PLA)

a. Scope of application

The following assessment principles, criteria and requirements apply to packaging, rigid and flexible, made of biodegradable plastics such as PLA and PHB.

b. Classification of design features incl. examination and test requirements

Recycling paths do not exist for sales packaging made of biodegradable plastics subject to system participation obligations. Consequently, no requirements for recycling-compatible design can be derived as assessment regulation.

c. Calculation of recyclability

The recyclability is 0 %, unless individual evidence is provided.

d. Requirement for individual evidence regarding the criterion of the existence of a recycling infrastructure

Individual evidence in accordance with Section 4 and Annex 3.3 is required for the declaration of recyclability. Based on the verified recycling path, the criteria for recycling-compatible design must be derived and applied to the object of assessment.

A 2.20 Wooden packaging, including cork

a. Scope of application

The following assessment principles, criteria and requirements apply to packaging made of wood, including cork, such as pallets, crates and boxes.

b. Classification of design features incl. examination and test requirements

Recycling paths do not exist for sales packaging made of wood, including cork subject to system participation obligations. Consequently, no requirements for recycling-compatible design can be derived as assessment regulation.

c. Calculation of recyclability

The recyclability is 0 %, unless individual evidence is provided.

d. Requirement for individual evidence regarding the criterion of the existence of a recycling infrastructure

Individual evidence in accordance with Section 4 and Annex 3.3 is required for the declaration of recyclability. Based on the verified recycling path, the criteria for recycling-compatible design must be derived and applied to the object of assessment.

A 2.21 Natural and synthetic textile fibres

a. Scope of application

The following assessment principles, criteria and requirements apply to packaging made of natural/synthetic textile fibres, such as bags, pouches and cords.

b. Classification of design features incl. examination and test requirements

Recycling paths do not exist for textile sales packaging subject to system participation obligations. Consequently, no requirements for recycling-compatible design can be derived as assessment regulation.

c. Calculation of recyclability

The recyclability is 0 %, unless individual evidence is provided.

d. Requirement for individual evidence regarding the criterion of the existence of a recycling infrastructure

Individual evidence in accordance with Section 4 and Annex 3.3 is required for the declaration of recyclability according to the minimum standard. Based on the verified recycling path, the criteria for recycling-compatible design must be derived and applied to the object of assessment.

A 2.22 Clay, stone, ceramics, porcelain

a. Scope of application

The following assessment principles, criteria and requirements apply to packaging made of clay, stone, ceramics and porcelain, such as pots, containers, bottles and jugs.

b. Classification of design features incl. examination and test requirements

Recycling paths do not exist for sales packaging made of stoneware and porcelain subject to system participation obligations. Consequently, no requirements for recycling-compatible design can be derived as assessment regulation.

c. Calculation of recyclability

The recyclability is 0 %, unless individual evidence is provided.

d. Requirement for individual evidence regarding the criterion of the existence of a recycling infrastructure

Individual evidence in accordance with Section 4 and Annex 3.3 is required for the declaration of recyclability. Based on the verified recycling path, the criteria for recycling-compatible design must be derived and applied to the object of assessment.

Annex 3: Analyses and individual evidence

Annex 3.1: Requirements for compatibility analyses

1. Examining and determining the compatibility of packaging variations in deviation from the classification in Annex 2 requires analyses, measurements or calculations. These analyses, measurements or calculations must be conducted using reliable, exact and reproducible state-of-the-art methods whose results are subject to little uncertainty.
2. In the case of empirical analyses in laboratories, pilot plants or operations, the analysis methods, sample preparation and all relevant machine settings must be documented and aligned with the requirements set out in the first paragraph.
3. When planning and conducting analyses, it must be ensured (and explained in detail in the analysis report) that the chosen analysis and determination method, i.e. the determination parameters and criteria, is suitable for justifying that a packaging variation has been classified differently from the specification in Annex 2 based on the reference application(s) defined there.
4. If the analysis results are used to trigger general exemptions from the classification in Annex 2 for certain substances, materials or recipes, the analysis reports must be published in a suitable manner and in compliance with the requirements specified in the first to third paragraphs; the timing of the publication must enable participation in the minimum standard consultation.

Annex 3.2: Requirements for evidencing sortability and separability

1. When evidence is mandatory, examining and determining the sortability and separability of a packaging variation's valuable content requires measurements and calculations. These measurements and calculations must be conducted using reliable, exact and reproducible state-of-the-art methods whose results are subject to little uncertainty.
2. In the case of empirical analyses in laboratories, pilot plants or operations, the analysis methods, sample preparation and all relevant machinery and settings parameters must be documented and aligned with the requirements set out in the first paragraph. It is expressly noted that if measurements are conducted in operational plants with individual machinery or units being recognised, the functional integration of this individual machinery or these units into the overall process must also be documented (e.g. roughing stage for particles in the range of 20–140mm, cleaning stage, etc.) and the explicit indication of the maintenance state as per the manufacturer's maintenance requirements is mandatory (e.g. most recent calibration).
3. When planning and conducting analyses, it must be ensured (and explained in detail in the analysis report) that the chosen analysis and determination method, i.e. the determination parameters and criteria, is suitable for transferring the results to the practice of sorting and recovery. This particularly refers to the question whether state-of-the-art technology was used.
4. Sortability and separability are not binary, but rather an analogously developed packaging property. Design-related packaging losses (and therefore direct proportional losses of valuable materials) in the sorting and separation processes must be quantified. The analysis methods must take into account, for example, that the individual operations for sorting out non-metallic sorting fractions are carried out in several stages and that cleaning stages (RCS processes) can partially compensate for incorrect ejections. Stochastic and systematic measurement errors must also be taken into account so that only design-related losses are quantified.
5. If the analysis results are used to trigger general exemptions from the individual evidence obligation for certain packaging variations, packaging components or packaging material variations, the analysis reports must be published in a suitable manner and in compliance with the requirements specified in the first to third paragraphs; the reports must be published prior to the start of the minimum standard consultation.

Annex 3.3: Requirements for evidencing the existence of recycling infrastructure

Individual evidence for the existence of recycling infrastructure is recommended for packaging categories with an application rate below 80%, according to an analysis of the German Environment Agency[8]. Within the scope of the minimum standard, this evidence is mandatory if the application rate for the packaging category falls below 20%. Packaging categories for which individual evidence is recommended or mandatory, as well as the fraction numbers of the sorting fractions through which such evidence can be provided, are listed in the following table.

Packaging category, as defined in table 1 of Annex II PPWR:		Application rate (in %)*	Individual evidence recommended	Individual evidence mandatory	Individual evidence by fraction numbers
No	Packaging type				
3	Liquid packaging carton[9]	PolyAl 24.1 – 38.8	X		323-512 323-503
3	Composite packaging of which the majority is paper/cardboard	42.7 – 46.9	X		550
8	Thermoforms made of PET-A and PET-C – rigid (transparent, clear/coloured, opaque)	6.4 – 48.3		X	328-5 328-6
8	Other packaging made of PET-A and PET-C – rigid (transparent, clear/coloured, opaque)	6.4 – 48.3		X	328-5 (328-1) (328-2) (328-3)
9	PET – flexible (Natural/coloured)	0		X	–
11	PE – flexible (Natural/coloured)	50.8	X		310 (323) 323-2
13	Flexible packaging made from PP	33.0	X		324-2 (310) (323) (323-2) (324-1)
15	Rigid packaging made from PS	64.4	X		331 (351)

8 https://www.umweltbundesamt.de/publikationen/praxis-der-sortierung-verwertung-von-verpackungen-1

9 Individual evidence is recommended for the PO and Al share (polyolefins from PE/PP film and PE/PP caps and closures as well as aluminium foil), as the existence of the recycling infrastructure for polyAl (by-product from the processing of paper grades 5.03.00 as per EN 643 or fraction number 512 consisting of polyolefin-based plastics, plastic-aluminium composites and aluminium, largely fibre-free (< 5% DM) according to technical standards) has been limited to date.

Packaging category, as defined in table 1 of Annex II PPWR:		Application rate (in %)*	Individual evidence recommended	Individual evidence mandatory	Individual evidence by fraction numbers
No	Packaging type				
16	Rigid packaging made from EPS and XPS	0		X	340
17	Other rigid plastic packaging (e.g. PVC, PC), including multi-materials	0		X	–
18	Other flexible plastic packaging, including multi-materials	0		X	–
19	Biodegradable flexible and rigid plastic packaging [1] (e.g. PLA, PHB)	0		X	–
20	Wood, cork	0		X	–
21	Textiles (natural and synthetic textile fibres)	0		X	–
22	Ceramics or porcelain stoneware (clay, stone)	0		X	–

* The application rates are provisional and reflect the current state of progress. Changes and corrections may still be made during the final stages of the work.

Requirements for documenting individual evidence under Section 4, applicable to dual systems

Individual evidence must be produced for each party under participation obligation, packaging type and reference year. The systems should provide the ZSVR with evidence for a given reference year in an aggregated form, i.e. with a report pursuant to section 21 (2) VerpackG. They are required to document recovery volumes and participation volumes, the latter classified as recyclable by individual evidence.

1. Evidence of recovery volumes for the reference year includes:
   (1) Supply volumes received by the system as per the list of weighting notes, broken down by fraction number, showing sender and final recipient facility
   (2) Evidence of high-quality mechanical recycling under Section 4 (2) for final recipient facilities
   (3) Eligible shares of the packaging type to be documented as per product specification, broken down by fraction number (based on a Germany-wide analysis, if required)
   (4) Recovery ratio recommended for the final recipient facilities, as per certificate and broken down by fraction number (for the packaging type to be documented)
   (5) Subtotals and totals for the volumes of the packaging type that is to be documented and was transferred for high-quality mechanical recycling. Proof used as individual evidence of recovery volumes must be attested by the expert instructed to audit the volume flow report.

2. Evidence of participation volumes for the reference year includes:
   (1) Participation volumes, broken down by packaging type to be documented and party under obligation, including a conclusive indication of individual packaging (EAN, GTIN or internal product code)
   (2) Information about the recyclability of the packaging included in the individual evidence (recyclability as defined under Section 3.2 et seqq. in this minimum standard)
   (3) Total participation volumes covered by the individual evidence, broken down by packaging type
   (4) Note: The sums of specific recovery volumes by packaging type under 1(5) must be equal to or exceed the corresponding volumes under 2 (3).

The following examples serve to clarify the procedure:

Example 1:

A producer of frozen products distributes these goods in large polystyrene (EPS) boxes. It has been determined that the packaging complies with the process-specific criteria under Sections 3.2 and 3.3 of this minimum standard. To fulfil their producer responsibility, the party subject to system participation has agreed that the system will ensure that during the reference year at least the equivalent of the specific EPS participation volume be transferred for high-quality recovery. The system has classified the packaging as recyclable.

Evidence must be produced as follows:

- certificate issued for the EPS recycling plant(s) as the final recipient pursuant to the Verpackungsgesetz, certifying high-quality, mechanical EPS recycling;
- verifiable documentation demonstrating that packaging subject to system participation in a volume in line with the specific participation volume has been collected, as well as verifiable documentation of the corresponding volumes delivered to the certified EPS recycling plant(s).

Example 2:

A producer packages goods in transparent PET-A monolayer trays. All packaging characteristics comply with the process-specific criteria under Sections 3.2 and 3.3, for example labels made from PP have been applied with wash-off adhesives. The participation volume is 600 tonnes p.a. The system has classified the packaging as recyclable. The system has committed to transferring a corresponding volume of PET trays for high-quality mechanical recycling in the reference year. To this end, the system has entered into an agreement with a PET recycling plant that produces PET pellets from these trays and has been certified for the 328-2 fraction with a mechanical recycling rate of 100%.

Evidence must be produced for:

- In the case of the 328-2 fraction, a delivery volume of at least 2,000 tonnes (equivalent to a maximum of 600 tonnes of trays)
- Actual existence of the equivalent in trays
- Transfer for high-quality mechanical recycling (facility certificate)