Netherlands Institute
for Sustainable Packaging
part of **verpact**

Background document

Recycle Check Metal Packaging 2026



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Background document Recycle Check for Metal Packaging 2026
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The Recycle Checks are updated annually. Check the website of the Netherlands Institute for Sustainable Packaging (KIDV) for the latest version.

For questions about a Recycle Check, please contact the KIDV.

The KIDV would like to thank the trade organisations, material and packaging manufacturers, manufacturers and importers of packaged products and sorters and recyclers for contributing to this Recycle Check. The KIDV has created this document with the utmost care and attention. Should the document nevertheless be incomplete or contain any inaccuracies, please let us know.

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Netherlands Institute
for Sustainable Packaging
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Part I:
Basic information

1. Introduction

The Recycle Checks (published since 2019) enable companies to relatively easily and quickly assess whether packaging is easily recyclable. In recent years, Recycle Checks have been published for rigid plastic packaging, flexible plastic packaging and packaging made of paper and cardboard, glass, metal, and beverage cartons.

The Recycle Checks are based on the current system of collecting, sorting and recycling packaging materials in the Netherlands. The processes examined are those used to process the largest tonnages of household waste stream: what happens to packaging after a consumer disposes of it at home and how is this (household) waste processed in the sorting and recycling plants? Local initiatives, market developments or innovations may affect the recyclability of packaging. The KIDV monitors these developments and changes in the market as closely as possible. The Recycle Checks are updated in close conference with the relevant chain parties if and when new developments apply to the majority of the packaging released on the Dutch market.

The Recycle Checks apply to packaging that is discarded as waste by households, offices, shops and the catering industry. The Recycle Checks are also used for packaging collected through the system for returnable packaging for which consumers have paid a deposit.

In the Netherlands, municipalities themselves determine how residents should dispose of their waste. Glass and paper/cardboard are separated at source. So-called PMD packaging (plastic, metal, beverage cartons) can be collected using source or post-collection separation.
With separation at the source, residents are asked to perform the initial sorting step themselves by discarding PMD separately in a bin or bag. Everything else is residual waste. Post-collection separation means that residents dispose of all their waste in the same bin or bag. After being collected by the municipal waste collection service, a specialist organisation further sorts the waste to separate material with recycling potential. Milieu Centraal's Waste Separation Tool is a handy tool to check in what bin each type of waste must be deposited.

1.1 The Recycle Check.

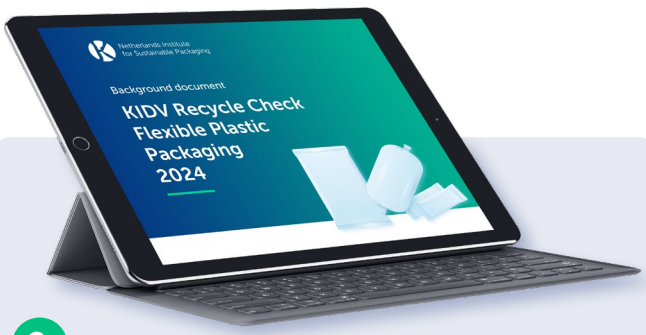
The Recycle Check consists of two parts:



1

The online Recycle Check checklist serves to assess the recyclability of the packaging (optimal recyclable, reasonable recyclable, limited recyclable, non-recyclable). The contents of the Recycle Check were updated in September 2025.

Optimal | Reasonable | Limited | Non-recyclable



2

The **background document**, consisting of two parts:

Part I: basic information about how to use the Recycle Check, definitions and concepts and information on determining disposable units. This part is the same for all documents.

Part II: material-specific information about collection, sorting, and recycling processes, as well as instructions on how to assess certain properties of packaging components. The background document can also be used as a source of reference with guidelines to improve the recyclability of packaging. The documents are available for the following materials:

- Flexible plastic
- Rigid plastic
- Paper / cardboard
- Glass
- Metal
- Beverage cartons

Part II starts on page 24.

The KIDV website also features **tools** to help you do the Recycle Check, such as Guidance on the Use of Recyclate, and guidance around determining colour. Also take a look at the **Packaging Glossary** for a list of the most frequently used terms and their definitions. These documents may be updated throughout the year.

1.2 Legislation.

The Recycle Check and accompanying documents take into account, wherever applicable, the European and national legislation in force at the time of publication. On 22 January 2025, the new packaging regulation, the Packaging and Packaging Waste Regulation (PPWR), was published. The specifics of this still need to be elaborated further, and it is expected that they will be announced in 2027. If the PPWR gives reason to do so, the Recycle Check will be adjusted. Further information about the PPWR is available on the **Verpact website**. This information will be updated throughout the year.

Essential Requirements

When placing packaging on the Dutch market, it must, at the time of writing, comply with the so-called **Essential Requirements** from the Packaging Management Decree ('Besluit Beheer Verpakkingen'). Please monitor the website for updates on this legislation.

The Essential Requirements stipulate that the environmental impact of packaging must be minimal. This is recorded in a product file, which must also include an explanation of how material can be recovered. The **KIDV Recycle Check** answers several of the questions from the associated standard. Use the results of the Recycle Check, as well as related specifications and other explanatory information, and add them to the product file.

The PPWR will also ask for such information, so it would be smart to start working on it ahead of time, so as to comply with current legislation and be well prepared for future legislation.

1.3 Food safety.

Food packaging may contain various chemical substances. When such packaging comes into contact with a product, substances from the packaging can migrate into the food. This may pose risks to human health. Some substances are prohibited (e.g. almost all PFAS), while other substances can be used under certain conditions (e.g. BPA). The KIDV offers various tools to support producers and importers of packaging and packaged products in assessing their packaging materials in this area. Please see the **food safety dossier** for more information.

1.4 Exceptions.

A number of product-packaging combinations may not be collected with household packaging waste because they can seriously disrupt the process, or cause unsafe situations. In this case, consumers can dispose of the packaging by an alternative route. The Recycle Check will then not apply.
There are two reasons why packaging should be collected separately:

- Packaging material creates problems in the process
- The product that was packaged in the packaging creates problems in the process

Packaging materials that cause problems

Most material streams contain packaging materials that may disrupt the sorting and recycling process, including the following:

- **EPS (polystyrene)** is difficult to process during the sorting and recycling stages, as the small static plastic spheres cause a lot of nuisance. Small EPS packaging such as cups and trays must be placed in the residual waste. Larger EPS crates and buffer material should be taken to a municipal recycling facility. The material can then be processed further by a recycler.
- **Wooden packaging:** there is no separate collection system for wooden packaging materials, such as wine boxes. Small wooden packaging can be disposed of with residual waste, and larger pieces should be taken to a municipal recycling facility.
- **Plastic (fruit) nets** often get stuck in the systems during the sorting of plastics. This causes them to disrupt and contaminate sorting systems. These nets must, therefore, be placed in the residual waste.
- **Ceramic, stone, and porcelain** are often deposited in bottle banks by consumers, which is not where they belong. These materials are not glass and are not collected as a separate stream in the Netherlands, but they go with the residual waste.
- **Bio-degradable** disposable units containing compostable plastics can have a major impact on recyclability, even if they end up in the mixed stream. The **Yes/No** lists for the separation of plastic, metal and beverage cartons at source state that compostable plastic packaging must not be disposed of with plastic, metal, and beverage carton waste, For more information, read the KIDV fact sheets on **bio-based** and **bio-degradable** packaging.

Product inside the packaging that causes problems

Small chemical waste consists of a list of hazardous substances that are released in small quantities from households, such as certain cleaning products, alcohol and medicines. Properly emptied packaging for medicines and small chemical waste may be disposed of with household packaging waste, but if the packaging is not completely empty, it and its contents must be disposed of separately via the recycling facility or pharmacy. This does not apply to empty buckets or packaging that once contained silicone, paint, latex, and cement; these should be disposed of with residual waste.

Clearly indicate on the packaging where the product may or may not be disposed of, so consumers do not dispose of the residual product via residual waste or flush it down the drain.

Example

An empty glass jar of skin cream or perfume bottle is not considered to be small chemical waste and may be disposed of in the bottle bank, while a jar that contains or contained a remnant of medication (e.g. antibiotics) does constitute small chemical waste and must be taken to a recycling facility or pharmacy.



Figure 1. Glass bottle containing medication

Milieu Centraal's Waste Separation Tool helps consumers figure out what bin to deposit the different kinds of packaging into. On www.recycleklaar.nl, you can check whether or not your packaging can be disposed of in the plastic, metal, and beverage carton (PMD) waste stream.

2. Recyclability and fee modulation

2.1 Definition of recyclability

The recyclability of packaging is partly determined by whether and to what extent it can be collected, sorted, recycled and reused. In addition, there are recycling targets for the various materials. While these are two different things, they are still related.

- **Recyclability** concerns the extent to which packaging or a disposable unit can be processed by the current system of collecting, sorting, and recycling, and how the raw material can be reused. Packaging can be non-recyclable, limited recyclable, reasonable recyclable or optimal recyclable. It is an assessment of the disposable unit that looks at how likely it is that the packaging will have an optimal passage through the recycling process, looking at the specific design of that disposable unit. As a basis for that assessment, the KIDV uses the definition given in the box below.
- **The recycling target** is a legal target that concerns the amount of material that must be collected, sorted and recycled after it has been placed on the market. For most materials, a larger percentage of packaging – of what has been placed on the market in the Netherlands – must be recycled each year.

Packaging must meet four basic criteria to be deemed to be recyclable:

1. The disposable unit must be made in such a way that it can be collected or picked up by approved waste collectors.
2. The disposable unit must be sorted and/or bundled into pre-defined streams for recycling processes.
3. During the recycling process, the material* is processed on an industrial scale** and is reclaimed into a raw material.
4. Recovered raw material has a uniform composition*** and is used to produce new packaging or products.

The extent to which these four basic criteria are met can be assessed using the Recycle Checks. A Recycle Check assesses whether the disposable unit is optimal, reasonable, limited or non-recyclable (see paragraph 2.2).

* *Depending on the material of the main component in the disposable unit, the amount of target material that can be recovered has to be above a certain minimum for the recycling process to make packaging highly recyclable, which is determined for each Recycle Check.*

** *Industrial scale means that more than half of the disposable units entering the market end up at recyclers and there is sufficient recycling capacity to recycle the sorted material within Europe.*

*** *Uniform composition means that the recyclate offers predictable and consistent quality as a new raw material and is used in a new product or packaging.*

The aim of the Recycle Checks is to help companies make their packaging (more) circular. The vision set out by the Ellen MacArthur Foundation serves as the basis for this endeavour:

> *'A circular economy is one that is restorative and regenerative by design and aims to keep products, components and materials at their highest utility and value at all times'*
>
> MacArthur, 2015

This commitment to circularity underpins the definition of recyclability developed by the KIDV, as mentioned above.

2.2 Categories of recyclability

In the checklist, we distinguish between optimal recyclable, reasonable and limited recyclable, or even non-recyclable packaging. The lowest score has the greatest weighting in determining the overall score. The coloured borders designate the following categories:

Non-recyclable
This qualification is used for packaging that contains a disruptor, i.e. materials that severely disrupt the recycling process and lead to the material stream being rejected.

Limited recyclable
Packaging that cannot be easily recycled because it, for example, ends up in the mixed stream (a mixture of various kinds of materials) after sorting. The material remaining after recycling has limited applications, because it contains components that (severely) disrupt recycling and are difficult to remove.

Reasonable recyclable
Packaging that requires an additional processing step before it can be classified as 'highly recyclable'. While this type of packaging does end up with the recycler as a homogeneous stream, there is something in its composition that somewhat affects the quality of the recyclate or the effectiveness of the process*.

Optimal recyclable
All properties of this type of packaging are optimally suited for recycling, making it 'highly recyclable' according to the aforementioned definition from the Recycle Check.

2.3 Fee modulation (for plastic packaging)

Are you required to pay a waste management contribution to Verpact? If you are, make sure you check whether your packaging qualifies for a **modulated fee**.

In 2024, Verpact introduced Fee Modulation 2.0, which incentivises highly recyclable **plastic packaging** and the use of recyclate. This applies to all packaging containing more than 50% plastic by weight that does not qualify for other fee reductions. A distinction is made between rigid packaging and flexible packaging, each of which has its own starting fee.

Plastic Fee Modulation 2.0 differs from its predecessor (in force since 1 January 2019) in that it also rewards minor improvements. There are four conditions that each entitle parties to a discount of 10 cents on the starting fee, and since 2025, a 20-cent discount for the use of post-consumer recyclate. One of the conditions is that packaging must have a 'highly recyclable' rating in the Recycle Check.

Innovative materials
Producers of innovative materials must be able to demonstrate that these materials can be collected and sorted in sufficient quantities and that they are compatible with existing industrial recycling processes or that new processes are available on an industrial scale. To coordinate innovative materials with fee modulation, the innovation trajectory for the plastic chain is in place. Verpact stimulates innovation in plastic packaging through a special programme within the Plastic Fee Modulation Regulation, which provides scope for new materials or production processes/techniques. The aim of this programme is to improve the recyclability, circularity and sustainability of plastic packaging and thus contribute to the objectives of Verpact's Plastics Guide. Please see **Verpact's website** for more information.

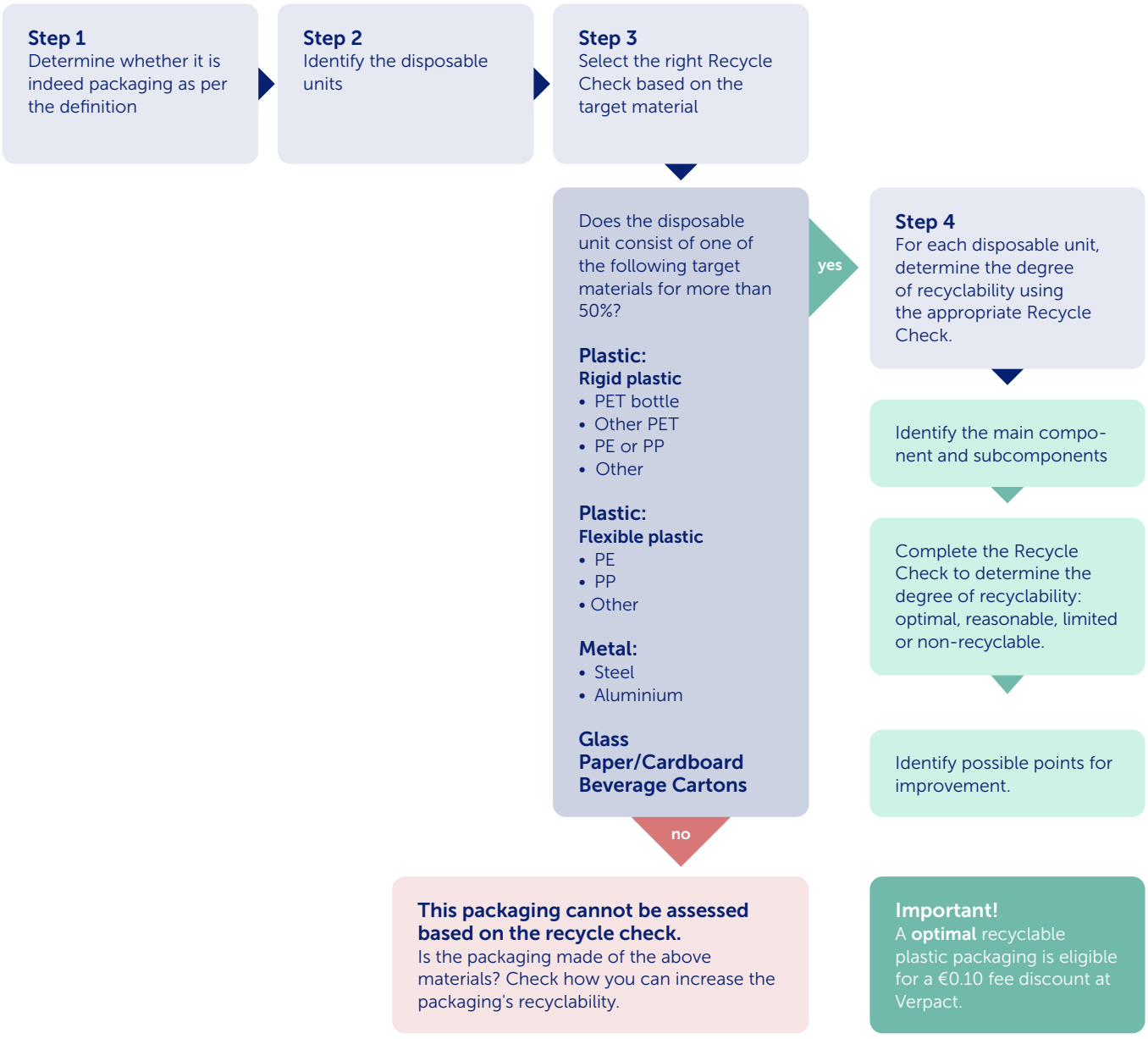
* The ideal composition of this stream varies per material and is explained for each material separately.

3. Select the right Recycle Check

The Recycle Checks were developed specifically to assess the recyclability of packaging. Packaging often consists of several different components, which may or may not be made of different materials, which users discard at different times. This affects the packaging's overall recyclability. The Recycle Checks first split packaging up into its constituent disposable units and then into a main component and subcomponents. To determine which Recycle Check(s) should be completed, it is important to first determine which disposable units the packaging consists of, and then to categorise these units by material. This section explains these terms and details the steps for choosing the right Recycle Check.

A preview of these steps is provided in the figure below, and they are further explained in the paragraphs below:

Figure 2. Select the right Recycle Check



Step 1. Determine whether it is indeed packaging

Recycle Checks can only return a reliable outcome for **packaging**. Therefore, it must first be verified that the object to be assessed meets the definition of packaging. The KIDV uses the following definition for that:

Packaging:
All products, made of materials of any kind, that can be used to contain, protect, ship, deliver and offer other products, ranging from raw materials to finished products, along the entire pathway from producer to user or consumer, including disposable items used for this purpose.

For the full definition of 'packaging', see Verpact's **policy document**. If in doubt about whether something does indeed constitute packaging, consult the (non-exhaustive) **Packaging Catalogue** on Verpact's website.

Step 2. Identify the disposable units

Most packaging is discarded in its entirety after use and is therefore considered a **single disposable unit**. Packaging that is not discarded in its entirety but as several separate components consists of **multiple disposable units**.

Whether different components or materials go through the sorting and recycling process together or separately can have a significant impact on recyclability. In practice, a single piece of packaging can consist of highly recyclable, moderately recyclable and poorly recyclable disposable units at the same time.

The KIDV goes by the principle that each packaging consists of a single disposable unit, unless:
- it consists of several unconnected components.
- part of the packaging must be permanently and completely removed in order to use the product.
- it features components, such as a lid, that can be detached by applying slight mechanical force

For some packaging, it is not always immediately clear whether it concerns one or more disposable units. A test is then required to determine how many units the packaging consists of. Some examples are elaborated below.

Packaging consisting of a single disposable unit

Table 1. **Single disposable unit**

Packaging that consists of a single piece of one material.	 Single disposable unit	***Example 1:*** *A cardboard box that is clean and dry can be disposed of with waste paper.*

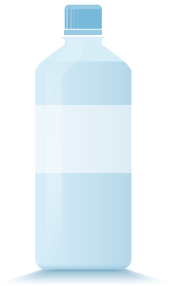
Packaging with fixed closure.



Single disposable unit

Example 2:
Glass packaging with a bracket closure are considered a single disposable unit because the bracket permanently connects the main component and lid. Even plastic bottles and beverage cartons currently often come with a permanently attached cap.

Packaging with bonded labels.



Single disposable unit

Example 3:
Labels glued to the packaging are considered subcomponents, and are not a separate disposable unit. Caps are not a separate disposable unit either, as they are generally screwed back on, and are, moreover, often attached to the bottle these days.

Packaging with multiple disposable units

There are several categories of packaging that consist of multiple disposable units. To clarify this, some examples are detailed below. Step 3 will further explain how to then choose the appropriate Recycle Check for each disposable unit.

Table 2. Multiple disposable units

Packaging consisting of several unconnected components.

The components are disposed of at different times.



Thirteen disposable units

Example 1:
A cardboard carrier tray that holds 6 small bottles. The cardboard tray and bottles each belong in a different waste stream. The crown caps on the bottles also constitute separate disposable units. So, what we have here are 13 disposable units made of 3 different materials.



Five disposable units

Example 2:
Cardboard box containing four bars, each wrapped individually in plastic wrappers. Users will take a bar from the box at different times/in different places. Therefore, the wrappers and the box are discarded at different times and places, and should be assessed separately with a Recycle Check.

Packaging with a component that must be permanently and completely removed in order to use the product

It should be possible to remove this part completely without tools (such as scissors) and without leaving any material residue.



Multiple disposable units

Example 3:
A cardboard sleeve around a plastic container. The sleeve has to be removed to open the container and access the product.



Multiple disposable units

Example 4:
A (champagne) bottle with a cork and a muselet (a wire cage that goes over the cork). These are three disposable units (bottle, cork and muselet) that go in different waste streams.

Further evaluation

There is also packaging that consists of multiple parts, which sometimes form separate disposable units and sometimes not. Further evaluation is needed to determine which disposal units the packaging consists of. A couple of examples are elaborated below.

Packaging with a component that does not necessarily have to be removed at all or not completely to be able to use the product.



Single disposable unit

Example 1:
Plastic flask with a paper sleeve that is, for example, held in place by the tapered design of the flask. The sleeve is not glued to the flask and does not need to be removed to be able to use the product. Packaging and sleeve make up a single disposable unit together, whereby the sleeve must be considered to be a label.

Short self-assessment

Sleeve detachment test

Some units of packaging feature a sleeve that is supposed to come off entirely when the packaging is compressed. This includes plastic cups with a perforated cardboard sleeve that is designed to detach when the cup is compressed. There is a protocol to test whether cup and sleeve indeed detach from each other and behave like individual disposable units. Called the Pollution and Compression Protocol, this protocol is available on the **protocols page** of the KIDV website.

Cardboard sleeve
If plastic packaging comes with a cardboard sleeve around it that consumers do not undo, but which has been shown to come loose during collection and sorting, the sleeve and packaging behave as individual disposable units. It must then be taken into account that in this case the cardboard sleeve will end up in the wrong sorting stream and must be considered non-recyclable.

The packaging features components, such as a lid, that can be detached by applying slight mechanical force.

There are types of packaging that have components, such as lids, that come off during the collection and sorting process, causing them to be processed as individual units during the sorting step.



Multiple disposable units

Example 1:
Margarine tub with a rigid lid. The lid comes off easily when subjected to minor mechanical force, meaning that it is an individual disposable unit in the packaging sorting process, even if the tub and the lid were originally discarded together.



Multiple disposable units

Example 2:
Cardboard tube with plastic cap. This lid comes off easily after being subject to minor mechanical force, becoming an individual disposable unit in the sorting process, even if the tube and the cap were originally placed in a bag or bin together as one whole.

Short self-assessment

Simple lid detachment test

You can test whether a lid detaches when slight mechanical force is applied by squeezing the empty packaging with the lid on. If the lid pops off completely, it is deemed an individual disposable unit.

Packaging with components such as a release liner



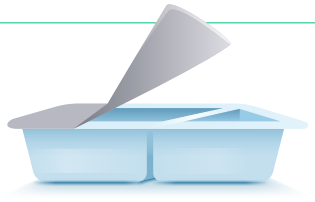
Multiple disposable units

Example 1:
Pouches/containers with ingredients in a ready-to-eat salad. These various individual components are separate disposable units and are discarded individually after use.



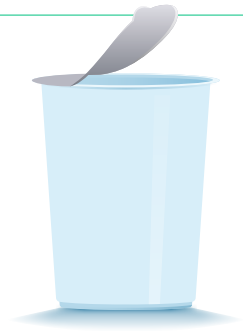
Multiple disposable units

Example 2:
A tamper-evident seal on the neck of a jar or bottle with a diameter of up to 40mm. The product cannot be used properly if the seal is not completely removed first. Used means that the product cannot be poured, spooned or dispensed, depending on the intended use of the container. Cap and bottle together make up one disposable unit, while the seal is a separate disposable unit.



Multiple disposable units

Example 3:
Plastic tray with release liner that must be completely removed to be able to use the tray's dispensing functionality.



Single disposable unit

Example 4:
Cups, trays with a wide neck, and trays where the release liner does not have to be detached completely to be able to use the product are also considered single disposable units. The liner can even be used to reseal the packaging.

Short self-assessment

Simple release liner detachment test

You can test whether a release liner detaches when slight mechanical force is applied by grabbing the open, empty packaging by the release liner and shaking it. If the foil comes off easily, it is deemed an individual disposable unit. At the start of the test, at least 25% of the release liner must still be attached to the rest of the packaging.

If there is doubt as to whether packaging consists of one or multiple disposable units, and the above examples do not provide clarity, please contact us using the **KIDV Q&A**.

Step 3. Categorise the disposable unit or units

The Recycle Check involves completing an individual checklist for each disposable unit. For each unit, determine the most common overarching and, if applicable, specific **material type** (see list below) to categorise the unit. The type of material that makes up at least 50% of the unit's weight determines what category the unit falls into. This is also referred to as the **target material**, see Section 4.

If none of the types of material make up more than 50% of the disposable unit, the disposable unit cannot be assessed using a Recycle Check. The packaging should then be adapted (see also paragraph 1.2 on legislation in this document).

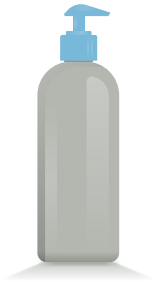
The types of material:

- **Rigid plastic**
  - PET bottle
  - Other PET (incl. PET trays)
  - PE or PP
  - Other rigid plastic
- **Flexible plastic**
  - PE
  - PP
  - Other flexible plastic
- **Metal**
  - Steel
  - Aluminium
- **Glass**
- **Paper/cardboard**
- **Beverage cartons**

To illustrate this, some examples are detailed below.

Example 1:
A hand soap container. The soap comes in a luxurious metal bottle with a plastic pump. The pump cannot be easily removed from the bottle. It is determined that the bottle and the pump make up one disposable unit, as explained in step 2. Only one checklist needs to be completed in this case, choosing steel packaging because more than 50% of the disposable unit is made of steel.

Figure 3. Hand soap container



Example 2:
A granola bar wrapper. The bars come in individual wrappers and are packaged with four in a box. According to the explanation in Step 2, it is determined that this packaging consists of five disposable units: the box and the four wrappers. To assess the packaging, a checklist must be completed for each disposable unit. In this case, choose a checklist for the cardboard box and a checklist for the flexible plastic wrappers. For several of the same disposable units, such as four identical wrappers, one checklist is sufficient.

Figure 4. Multi-packaging



In case of doubt as to what category a disposable unit falls into, please contact us using the KIDV Q&A.

Step 4. Determine the degree of recyclability

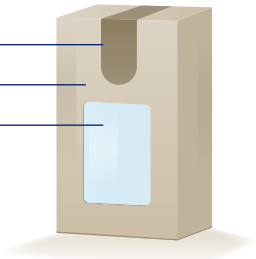
After choosing the appropriate Recycle Check to assess the recyclability of the disposable unit, the next step is to identify the **main component** and any **subcomponents**.

The main component of packaging is that which holds the product, and usually the component that makes up most of the packaging's weight. Besides its main component, a disposable unit often also has one or more subcomponents. These are added components, such as labels and closures, which are processed along with the main component in the recycling process.

The table on the next page shows some examples of how to identify the main component and subcomponents. More information on each material type is available in the material-specific background documents.

Table 3. **Determining main and subcomponents**

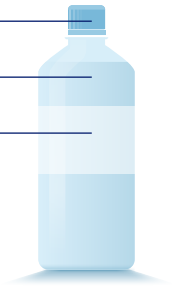
Subcomponent = tape
MAIN COMPONENT = box
Subcomponent = window



Single disposable unit

Example 1
Box (main component) with window and tape label (subcomponents).

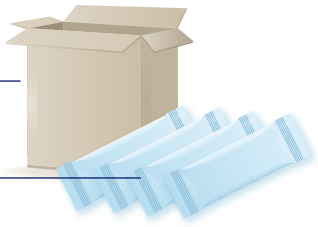
Subcomponent = closure
MAIN COMPONENT = bottle
Subcomponent = label



Single disposable unit

Example 2:
Flask (main component) with cap and label (subcomponents).

MAIN COMPONENT = box
MAIN COMPONENT = wrappers



Five disposable units

Example 3:
Box (main component) with 4 granola bar wrappers (also main components).

If there is any doubt about the difference between the main component and subcomponents of the disposable unit, and the above examples do not provide clarity, please contact us using the KIDV Q&A.

4. Target material and secondary material

What is the target material?

The target material is the material that will ultimately be recycled into a new raw material. Typically, this is the **most common material** in the disposable unit, often the material of the **main component**.

Exceptions: if a subcomponent (such as a heavy steel cap) is heavier than the main component, the subcomponent is the target material.

If a subcomponent **is of exactly the same material** as the main component (e.g. paper label on a cardboard box or PE cap on a PE bottle), this counts towards the target material. Properties such as colour, additives and printing of these subcomponents must be taken into account in the assessment.

When does packaging have sufficient target material?

The target material must constitute at least 70% of the total weight of the disposable unit:

Target material weight / Total weight of the disposable unit x 100% ≥ 70

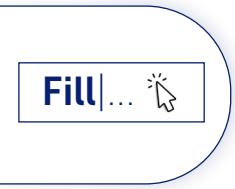
Secondary stream

Materials that are **not the target material** form the **secondary stream**.
These can affect the processability of the target material, but can also be recycled themselves if properly coordinated (design for recycling).

Example: returnable bottles made of PET with caps and labels made of PE or PP. The caps can be easily separated from the PET and can themselves be easily recycled as a secondary stream.

In **Part II**, you will find the material-specific information that goes with the checklist. See Section 6 of Part I for more tips and tools for sustainable packaging.

5. Manual for the checklist



Step 1: Creating packaging

Open the Recycle Check dashboard, add the packaging and fill in some information about the packaging being assessed and click 'Save' at the bottom of the page.



Step 2: Creating the disposable units of the packaging

Click the play button that says 'Edit packaging'. Click the green button for an explanation of how to identify disposable units. Next, add the disposable unit or units that make up the product-packaging combination. Each disposable unit of the packaging must be assessed separately.

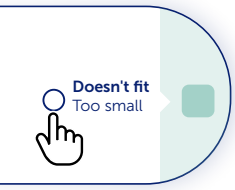
Step 3: Completing the checklist

Go through the corresponding checklist for each disposable unit by clicking the 'Start checklist' button. Upon opening the checklist, general information is provided that can be clicked away after reading. The questions include links to additional explanations for each material in the background document.



Step 4: The final score

Once all checklist questions have been answered, the 'Complete' button at the bottom of the list leads to the summary page, which gives you the final recyclability score for the disposable unit. The heading 'Final Score' shows how many questions from the checklist have already been answered. For example, if it says 8/10, then the checklist consists of ten questions and eight have been answered. As soon as the full list has been filled in, the box with the tick turns the colour that matches the checklist outcome (**optimal**, **reasonable**, **limited** or **non-recyclable**). If the packaging consists of multiple disposable units, proceed with the next checklist.



Important: data are saved locally while you are completing the Recycle Check. If you close the checklist when you are halfway through completing it, you can continue from the same computer at a later time; the previously entered details will still be there. You can only complete the list on another computer if you download the entire portfolio (see step 5).



Step 5: Saving and sharing results

The summary page offers the option to export the results to a PDF file using the 'Download PDF' button. If the packaging assessed consists of multiple disposable units, the checklists for all units of each packaging are included in one PDF export.

Tip: An empty Recycle Check can be downloaded by entering the packaging and adding a disposable unit, while not starting the checklist. When downloading a PDF, the checklist will be displayed as an empty list.

In addition, there is the option to download the entire portfolio, consisting of all completed checklists, so that, for example, a colleague can upload the entire set on their computer. You can do this by clicking the 'Export packaging' button in the top-right corner of the dashboard. This will download a .json file. An entire set can then be imported by clicking 'Import packaging' and uploading the .json file here.

Some checklists use this symbol to mark questions as complex. This means that it is more difficult to determine the right score in one go (**optimal**, **reasonable**, **limited** or **non-recyclable**). In these cases, you can usually perform a test to see whether your packaging qualifies for a higher level of recyclability. For example, it may be necessary to perform a test in order to answer one of these questions. Two scores are possible for these types of questions. The Recycle Check automatically ticks the lowest score. After a positive test result, the higher score may be ticked. However, it is important to have proof of a positive test result on hand. Where possible, references to available protocols are provided; in some cases, such protocols have yet to be developed. For updates on this, see the KIDV's **protocols page**.

Tip: Answer all questions first and determine if a test can improve the final score. Some criteria later in the checklist mean that a positive test result will not result in an improvement in the final score of the check. For example, when a test has to do with a disposable unit's sortability and it does not score optimally on recyclability to begin with. Of course, it may still be wise to perform the test to gain more knowledge about this particular aspect.

If you want to up your sustainable packaging game, the KIDV's **7 tips** will get you off to a good start. This section will further explain what other information and tools the KIDV has available to help you get started with sustainability.

6.1 Disposal Guide

The **Disposal Guide** makes it easier for consumers to dispose of packaging waste the right way. Research shows that there is strong support among consumers for separate collection, but they need to know which bin to put their waste into. Disposal Guide logos on packaging encourage consumers to put the packaging into the right waste stream after use so that it can be optimally processed and recycled. The logos are available
from the KIDV on request.

6.2 E-learnings and training

Sustainable packaging is so much more than just changing or reducing the amount of packaging material. To provide guidance on this, the KIDV has developed a number of e-learnings:

- **Packaging recycling in the Netherlands**
  Using real-life examples, the KIDV provides insight into the collection, sorting and recycling of different kinds of packaging. This e-learning module covers every packaging material: rigid and flexible plastic, glass, metal, and paper and cardboard.

- **Plastic packaging sorting and recycling processes**
  To add further depth to the 'Packaging recycling in the Netherlands' e-learning module, the KIDV has developed this more technical module. This module further explains the basic techniques used to sort and recycle plastic packaging, going into things such as the influence of packaging design on the various sorting and recycling processes.

- **Five perspectives on sustainable packaging**
  When developing successful sustainable packaging, several aspects must be taken into account. Consider the packaging process and logistics, for example, as well as customers' purchasing and disposal behaviour and the company's packaging and sustainability strategy. The **Five perspectives on sustainable packaging® KIDV model®** covers the main approaches. This model allows you to zoom in on issues of importance in specific situations from any angle, with background information, tips and examples that can help you on your way. In this e-learning module, the KIDV shows people how to use the model, using real-life examples and assignments that apply specifically to their own packaging practices.

- **R-strategies**
  The next step is turning the opportunities and threats into actual actions, such as redesigning your packaging. The so-called R-strategies are strategies that can be applied to make packaging or a product-packaging combination more sustainable. This e-learning module goes into the specifics of using the R-strategies through real-life examples and assignments.

Training programmes

In addition to the e-learnings, the KIDV offers **training programmes**, with packaging experts introducing participants to both the theory and practice of sustainable packaging. This kind of training adds value in that it lets participants practise using the theory under the guidance of a packaging expert. There are also opportunities to ask in-depth questions and to network with other businesses. The knowledge and skills gained during this training can subsequently be harnessed in formulating your own packaging sustainability strategy and applying practical tools in your own practices.

6.3 Further information

The KIDV website features fact sheets, publications, and tools on various topics in the sustainable packaging domain. A few of them are presented below.

Fact sheets

- When can a company put an environmental claim on its packaging and when is it being made falsely and potentially misleading to consumers? The KIDV has prepared the **Environmental Claims Fact Sheet** on this subject, describing the legal frameworks for these claims, using some common examples.

- Bio-based and bio-degradable packaging materials can often help reduce CO_2 emissions and reduce demand for fossil resources. At the same time, whether these materials are a good alternative also depends on the product being packaged. For more information on these materials, their potential and the issues involved, see the **Bio-Degradable Packaging and Bio-Based Plastic Packaging Fact Sheet**.

- The KIDV's **Symbols on Packaging Fact Sheet** provides an overview of logos that consumers may find on packaging, as well as their origin and meaning and whether their use is mandatory or voluntary.

- The KIDV has put together a comparison of the use of **Disposal Guide logos on packaging in different European countries**. This overview makes it clear to companies which logos are used in those countries, whether that is voluntary or mandatory, and where companies can find information about the regulations that apply there. The KIDV also manages the **Dutch Disposal Guide**.

Dossiers

Take a look at the KIDV's dossiers to gain insight into the latest developments, get practical examples and read about focus points in making packaging sustainable. The dossiers are specific to sectors or industries and to relevant topics around sustainable packaging, such as chemical recycling and reusable packaging. Click **here** for the dossiers.

- What legislation (directly) affects the design of packaging and the reuse or disposal of packaging waste after use? The KIDV has plotted information on laws and regulations on a **clear timeline**. The timeline contains background information and links to the specific legislation itself.

- Manufacturers and/or importers that place packaging on the Dutch market are responsible for ensuring that their packaging complies with the so-called '**essential requirements**'. These pertain to the composition and nature of the packaging to minimise their volume and weight and ensure they are suitable for reuse and recovery of the materials.

- Packaging affects consumer behaviour when they purchase, use and discard products and their packaging. Sustainable packaging can, therefore, also contribute to sustainable consumer behaviour. Read more about **consumer behaviour** here.

- How consumers interact with packaging also partly determines the sustainability of packaging. Based on scientific research on consumer behaviour, the KIDV has compiled an overview of key insights. The **Sustainable Consumer Behaviour Tool** is a set of three tools that companies can use - particularly for food packaging - to look at sustainable packaging from a consumer perspective.

Reuse

To reduce the environmental impact of packaging, **reuse** can be an effective strategy. Unlike single-use packaging, the energy it takes to produce the packaging is distributed over the number of use cycles, which can greatly reduce the environmental impact of producing the packaging per use cycle.

This reduction does need to account for additional steps relative to single-use packaging, such as cleaning and transportation. A saving in environmental impact (and costs) when switching to glass packaging reuse depends on this, as do the return rate, the life of the packaging and transportation distances. Scale can also have a significant effect, particularly on costs, as it allows investments in (cleaning) equipment and more efficient processes to be recovered more quickly. To determine whether switching to reusable packaging could be an attractive option, the KIDV has developed a **Calculation Tool**.

Sustainable Packaging Compass

The KIDV has developed the **Sustainable Packaging Compass** as a tool to provide insight into the recyclability, circularity and environmental impact of packaging. This does not only indicate whether the packaging is recyclable, but also to what extent the packaging is circular. The tool also gives an indication as to the packaging's environmental impact.

Companies can harness these insights to compare different units of packaging and types of packaging, assessing their scores on various aspects of sustainability. They can then use this information to set sustainable packaging objectives and quantify the effects of packaging optimisation. There is also the opportunity to get an indication of possible fee modulation for rigid and flexible plastics.

State of Sustainable Packaging

This KIDV publication offers a strategic perspective on the collaboration and innovations needed when it comes to sustainable packaging, identifying social and economic obstacles that stand in the way of sustainable packaging.

More information

If you have more questions about the Recycle Check or about making packaging more sustainable, contact the KIDV through our **Q&A**. For more information about making packaging sustainable, go to our **website** or sign up for the KIDV newsletter **here**.



Netherlands Institute
for Sustainable Packaging
part of **verpact**

Part II: Recycle Check for Metal Packaging 2026

1. Introduction

Part II of this document provides background information to support the Recycle Check for metal packaging. It provides additional information on collection, sorting and recycling. All matters that are the same for all materials are covered in Part I: The basic information is the same in each background document. It includes things such as the definition of recyclability, how to choose and use the Recycle Check correctly and how to make packaging more sustainable.

2. Collection and sorting

In Part I, you will find all the definitions that are important for conducting a Recycle Check. The following are some definitions that are specific to metal packaging. For definitions of all the terms used in this document, see the **Packaging glossary** on the KIDV website.

2.1 Definition of metal packaging

This Recycle Check is intended only for metal packaging made of steel and/or aluminium. See Part I, Section 3 for more information about what constitutes packaging. Metal objects may be made of other alloys and contain harmful substances (a battery, for example). Examples of steel packaging include tin cans (made of coated steel, commonly called tin) and steel drums. Examples of aluminium packaging include oven dishes with ready meals and beverage cans. Packaging made of other metals, such as copper and zinc, can **not** be assessed using this Recycle Check.

Due to the nature of the collection system for (packaging) waste in the Netherlands, metal objects and packaging made of metals other than aluminium or steel often end up as scrap. Therefore, it is always important for consumers to pay close attention to whether an item can be disposed of with regular waste, or should be discarded along with small chemical waste. This is where producers and importers of packaged products in the Netherlands can help by clearly indicating how a consumer can properly dispose of the packaging, as well as the products themselves.

2.2 Collection and recycling routes for metal packaging

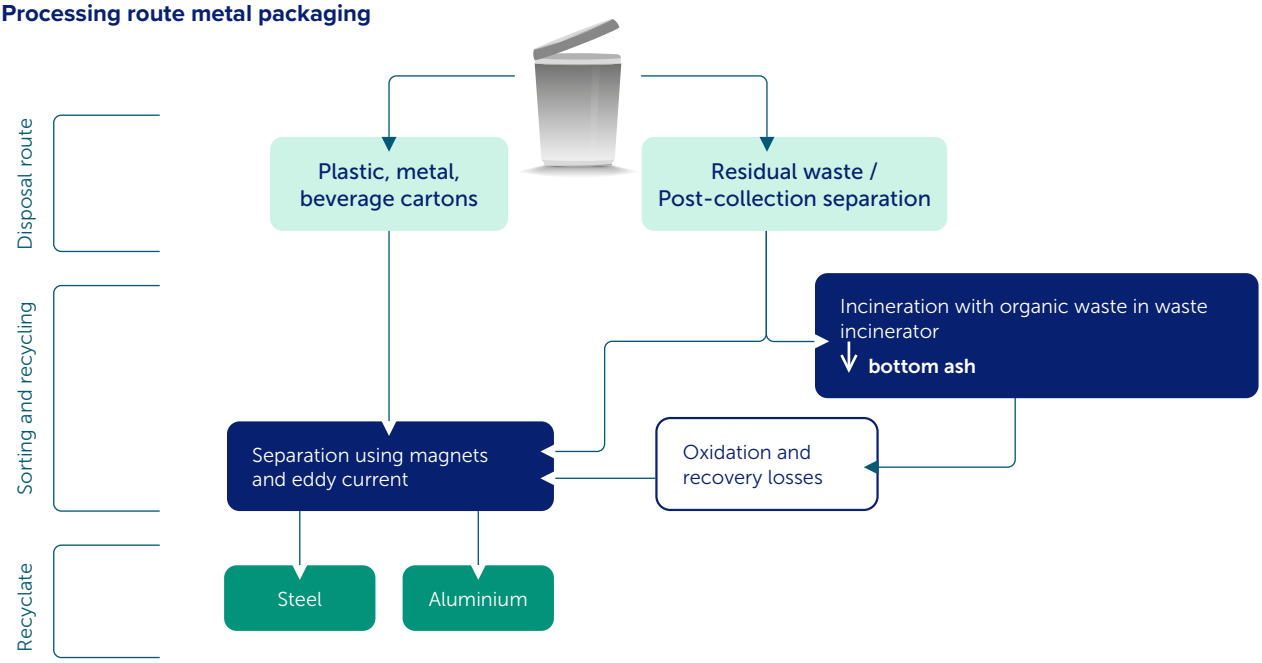
During the sorting, collection and recycling of metal packaging, a distinction is made between ferrous metals and non-ferrous metals. Ferrous metals, such as steel, are magnetic and can be sorted with magnets. Non-ferrous metals, such as aluminium, are non-magnetic by nature and can be sorted using a so-called 'eddy current sorting method' (ECS; also referred to as Foucault current separator - see the **KIDV glossary**).

Collecting and sorting

There are different routes for collection, sorting and recycling metal packaging, depending on factors such as the type of metal used. In practice, only packaging made of steel and aluminium are actively sorted separately. Other metals used in packaging (for example, lead as a wine bottle closure) can also be separated using the ECS. As a result, they often end up in the aluminium fraction, where they form an interference flow during aluminium recycling.

How metal packaging is collected and sorted in the current Dutch waste system is shown in a diagram in the figure below. The different routes are explained further after that.

Figure 1. Processing route metal packaging



Plastic, metal, beverage carton (PMD) route
Metal packaging discarded in the plastic, metal, and beverage carton waste stream is subsequently separated from the plastic and beverage carton fraction using magnets and eddy current methods, before being recycled as two separate streams (steel and aluminium).

Post-separation route
Post-collection separation is when packaging waste can be disposed of along with residual waste. After this, two routes are possible, depending on the technical capabilities of the individual post-collection separator, as not all companies have access to the same sorting and separation methods. Metal packaging can be:

1) separated directly from the stream using magnets and/or eddy current methods to subsequently be recycled separately.
2) incinerated along with organic waste in a waste incineration plant. The material that remains after incineration is called 'bottom ash'. Metals can still be recovered from bottom ash using magnets and/or the eddy current method, albeit that this involves two kinds of losses, compared to direct separation;
   - Oxidation losses* and
   - Recovery losses**
     The losses that occur when recovering metals from bottom ash are higher for aluminium than for steel. In 2023, measured losses were 36% for aluminium and 6% for steel. The most current losses are reported in Verpact's annual monitoring.

* *Oxidation losses occur because metals oxidise during incineration, as they react with oxygen. It depends on each metal how significant the oxidation is. Metal that is oxidised can no longer be recycled.*
** *Recovery losses are metal particles that are so small that they can no longer be recovered using magnets or Eddy Current techniques. This concerns particles smaller than 0.5 mm.*

Recycling

Regardless of whether metal packaging is sorted from the stream of plastic, metal, and beverage carton waste or via post-collection separation, it is always ultimately submitted for recycling in two separate streams, i.e. steel and aluminium. If there is no sorting step, as is the case with the residual waste route, these metals end up in the waste incinerator and follow the same processing as in the post-separation route.

- **Steel (ferrous)**
  Sorted steel is taken to a smelting plant, where it is melted down into new steel at a temperature of 1,400 to 1,500 degrees Celsius. Adding scrap when producing new steel can help cut down energy use by as much as 65%, because the furnaces require less energy to melt scrap compared to new steel. Due to the high temperatures involved, most impurities, such as microorganisms and pathogens (bacteria, viruses, fungi, etc.), are incinerated, making the new steel suitable for use that involves direct contact with food.
- **Aluminium (non-ferrous)**
  After sorting, aluminium is taken to a smelting plant, where it is melted down into new aluminium at a temperature of approx. 700 degrees Celsius. Adding recycled aluminium when producing new aluminium can help cut down energy use by as much as 95 per cent, because the furnaces require less energy to melt recycled aluminium compared to new aluminium. Due to the high temperatures involved, impurities such as food residue, ink, paper, adhesives and plastic parts are incinerated. Certain impurity thresholds (e.g. for paper and plastics) apply for smelting, depending on what method is used. Due to the high temperatures involved, most impurities, such as microorganisms and pathogens (bacteria, viruses, fungi, etc.), are incinerated, making the new aluminium suitable for use that involves direct contact with food.

Pyrolysis

Pyrolysis is an interesting and proven technology that can be used to recover aluminium from packaging waste. This technology makes it possible to recover sorted aluminium fractions in a clean, oxide-free way. The high loss rates involved in recovering aluminium from the bottom ash left by films and laminates do not apply here. However, pyrolysis can only be used with aluminium sorted out by means of the eddy current method.

With aluminium packaging, pyrolysis is used as a technology for removing impurities from aluminium (such as food residues, inks and plastics) with a low-oxygen reaction, leaving a pure aluminium fraction. This process utilises the calorific value of non-aluminium components, and since it does not use oxygen, there is no oxidation. When processing packaging made of aluminium in combination with other materials and components (plastic film, paper layers, printing inks, glue, etc.), this produces a fairly clean, pure end product. For aluminium foil and laminates in particular, the returns are much higher than for the route via recovery from bottom ash in waste incinerators.

Figure 2 & 3. Aluminium packaging before and after pyrolysis





Pyrolysis is currently used only for part of the post-collection separation capacity in the Netherlands. There are no pyrolysis facilities in the Netherlands yet, so we will have to depend on facilities abroad for now. There are currently two plants in Europe that apply pyrolysis to aluminium packaging on an industrial scale.

3. Recyclability focus points

This section describes the extent to which the main component of packaging is recyclable.

3.1 Target material

In addition to the main component, packaging often also consists of subcomponents, such as caps, labels, tags, release liners and sleeves. During the sorting process, the recycler aims to sort out the main component, which is made of the **target material** that the recycler wants to recover (see also Part 1, Section 3).

Metal recyclers have set up their process to recycle as much steel and aluminium as possible. All non-metallic parts are sorted out if possible. Although these subcomponents may be disposed of with the packaging along with the waste, it is not the main goal of recyclers to ensure that this residual stream can be further processed. None of the non-metallic subcomponents are recycled, but are removed if possible (such as a label) and otherwise burned in the smelters.

Tip: To close the steel and aluminium cycles as much as possible, it is necessary to use as much recycled metal as possible for new packaging and to reduce the use of primary materials.
For some applications, only primary metal can be used. In that case, it is necessary to have a design that guarantees full recycling or reuse.

3.2 Disruptors

In the following, we will describe how various disruptors affect metal recycling.

Heavy metals

Despite the rare, limited use of heavy metals in packaging, this topic is still part of this Recycle Check. Heavy metals, such as lead, cadmium, mercury and hexavalent chromium, are disruptors. In excessive quantities, they are problematic in the recycling process, especially the steel recycling process. Heavy metals also affect the properties of the new steel and aluminium. Some heavy metal applications are linked to packaging, such as RFID tags and smart labels, This may contain copper or cadmium.

An exception applies to coatings made of tin and chromium, which are used to prevent corrosion of packaging (of liquid products such as soup or soft drinks). These do not disrupt the recycling process, nor do they have an adverse impact on the new metal.

In 1994, a maximum limit was introduced for heavy metals in packaging sold in the Netherlands and Europe. For further details, see the so-called **essential requirements** for packaging. Within Europe, legislation and regulations are being developed to curtail the use of certain heavy metals. Laws and regulations continue to focus on keeping such metals out of packaging as much as possible. The KIDV has compiled a **factsheet** on heavy metals that provides further details.

Combination of aluminium and steel

Metal packaging generally consists either of aluminium or of steel, including tinplate: steel coated with tin but some types of packaging are made of a combination of the two, such as steel beverage cans with aluminium lids, although such packaging is hardly in use in Europe anymore. This is a sub-optimal combination for recycling purposes, and although these types of packaging can be processed via the steel packaging recycling stream, it means the aluminium is generally lost during the resmelting of the steel. The aluminium has added value in the steel melting process because it helps deoxidise the new steel (removing oxygen to achieve a higher level of quality). While there is some degree of energy recovery during this process, the aluminium is eventually lost in the smelting process and cannot be used for a new application. Therefore, no new aluminium products or packaging can be made from it, which means that aluminium packaging with a steel component is considered poorly recyclable.

Only packaging (or individual subcomponents such as a metal lid on a glass jar) made solely of steel or aluminium can be fully recycled into new steel or aluminium.

3.3 Rigid or flexible aluminium packaging

The thickness of the aluminium plays a significant part in the recycling of aluminium packaging: There is a clear difference between the potential material losses of flexible and rigid (also called pre-formed) aluminium packaging during sorting and recycling. Flexible aluminium packaging includes foil, whether or not combined with other materials in a laminate, such as soup packaging or packaging for ground coffee. It is important that the unit consists of at least 50% aluminium.

Semi-rigid and rigid packaging is packaging that has been shaped through production methods and largely retains its shape until the disposal phase. Examples include beverage and squash cans, lids, and oven dishes.

During the production of packaging, aluminium is rolled. During the rolling process, the choice for flexible or rigid packaging is already taken into account.

There are several routes for collecting, sorting and recycling aluminium packaging (Section 2.2). With source separation (plastic, metal, and beverage cartons) and post-collection separation using eddy current methods, aluminium packaging does not end up in waste incinerators (bottom ash route). Material thickness is then not important, as all thicknesses can be processed effectively.

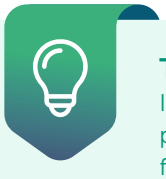
In the bottom ash route, thickness does matter, determining the extent to which oxidation losses will occur. On average, about 36% of material losses occur during incineration, due to oxidation (average 16%) and recovery losses from bottom ash (average 20%)[1]. These losses are greater with flexible, thin aluminium, such as in the film used on yoghurt cups.

Pre-formed aluminium packaging, such as a beverage can, lid, or tray, is generally thicker, so there is less loss during incineration. With flexible aluminium, proportionally more material is oxidised in the waste incineration plant, namely from 10-20% for thicker aluminium packaging up to 40-50% for thin and especially composite aluminium foils[2].

In the plastic, metal, and beverage carton waste route, it is highly likely that wind shifters will sort flexible aluminium along with flexible plastics. If the aluminium is combined with flexible plastics, some plastics processors send the leftover aluminium to a metal processor, while others send it to an incinerator. The potential for pyrolysis recycling of aluminium packaging, rather than recovery via bottom ash, is being explored. This is detailed further in Section 2.2.

3.4 Aerosols

Aerosols or spray cans are used as packaging for deodorant, hairspray, shaving cream, whipped cream, penetrating oil or paint, among other things. Pressurised aerosol cans (as opposed to packaging with an atomiser) contain propellants, to allow the contents to be sprayed under pressure. These propellants, usually hydrocarbons such as butane or propane, do not detrimentally affect recycling itself, but can interfere with collection, sorting and recycling processes in various ways.



TIP

If not all propellants have left the packaging, it may explode when exposed to pressure or heat, as most propellants are highly flammable. Explosions can be hazardous to people working at sorting and recycling facilities and to the people involved in transporting, storing and processing the waste, when the waste catches fire. Although such packaging is not prohibited, it is best to clearly instruct consumers to use the product and propellant in its entirety and dispose of the packaging properly. All non-metallic parts of an aerosol can, such as the plastic nozzle, are lost in the recycling process of steel or aluminium.

According to Milieu Centraal's Waste Separation Guidance, aerosols are residual waste. Municipal authorities may, however, decide not to take this advice and require that (empty) aerosols be disposed of with plastic, metal, and beverage carton waste.

[1] Packaging Waste Fund Packaging Monitoring (2023)

[2] Wageningen Food & Biobased Research Potentie voor de recycling van aluminium verpakkingen eind 2020 (Potential for the recycling of aluminium packaging, late 2020 (2020)

3.5 Coatings

A coating is a thin layer of material applied to a base material. The coating serves to add new properties that are lacking in the base material.

PVC and PVdC

PVC (polyvinyl chloride) and PVdC (polyvinyl dichloride) can be used in coatings on cans and in caps, crown caps and lids. PVC and PVdC can also be used in sealing rings to create an airtight seal. When the metal is remelted, PVC and PVdC can release gases that are not only harmful to humans and the environment but also to the recycling facility itself. These gases are removed by flue gas cleaning.

The Framework Agreement on Packaging 2013-2022 contains provisions on phasing out the use of PVC, and more and more industries are highlighting their intention to reduce the use of PVC and PVdC and even to eliminate it altogether in Sector Plans for Sustainable Packaging.

Coatings for steel packaging

Steel packaging often needs to be coated in order to protect the packaged product. Commonly used coatings include tin, chromium, and plastic coatings.

Tin coating

The most traditional coating for steel packaging is a tin coating, which consists of a thin layer of tin applied to the outside of the steel. Often, this layer of tin has to be lacquered to prevent migration between the product and the tin. In the recycling process, the (plastic) lacquer layer makes it difficult to separate the tin from the steel, causing the tin to be lost. This has no further negative effects on the processing of steel.
Tin is a scarce raw material and, over time, shortages will occur. Much research is being conducted on alternatives and on how to recover tin in the recycling process as efficiently as possible. To recover tin, a step has to be added to the recycling process. This is expensive and therefore currently quite rare.

Chromium coating

Chromium coating is an alternative to tin coating. Chromium coatings are considerably thinner than tin coatings. There is a special technology for vaporising chromium, which means much less material is needed. However, using chromium coatings requires new production lines, which is expensive and makes it more difficult to switch from tin to chromium coatings.

Polymer coating

Another option is to apply a polymer coating to the steel, eliminating the need for tin or chromium. Compared to chrome coating, plastic coating does require more material, about 3 to 4% of the packaging weight. The polymer layer is no longer separable and recoverable, but the process does not negatively affect the recycling of steel.

No coating

In some cases, steel used to package moisture-free products may not need to be coated at all. Uncoated steel is called 'blackplate'. No other materials need to be added to blackplate (neither metal nor plastic), which may improve its environmental impact. It is important, however, that the product to be packaged not be wet or moist, as this could cause the steel to rust.

4. Additional sources of information

- KIDV Packaging Glossary
- KIDV packaging policy and legislation
- KIDV Disposal Guide

Checks and guidelines (this list is not exhaustive)

- Steel for Packaging EUROPE (formerly APEAL - the Association of European Producers of steel for packaging).
- RAVN - Recycling Aluminium Verpakkingen Nederland
  Potentie voor de recycling van aluminium verpakkingen eind 2020 (Dutch only)

Other sources

- **Interviews with experts from:**
  - Tata Steel
  - HVC Group
  - Metaalhandel de Horne B.V.
  - Afvalfonds Verpakkingen
  - RAVN - Recycling Aluminium Verpakkingen Nederland
  - MVN – Metalen Verpakkingen Nederland
- Report on Discontinuing the use of PVC as a packaging material
  Netherlands Institute for Sustainable Packaging (KIDV), 2022
- **Potentie voor de recycling van aluminiumverpakkingen eind 2020**
  Wageningen University & research, E.U. Thoden van Velzen, I.W. Smeding
- European Aluminium
- European Aluminium Foil Association
- Netherlands Aerosol Association (NAV)



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