Packaging Guidelines

Secondary Packaging

(Food / Near Food)

Dated: September 2016
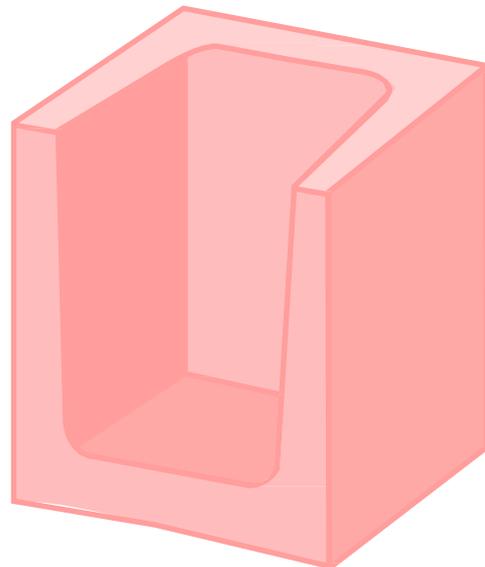
Aims and contents

- The packaging guidelines are essential as they govern all the optical and physical properties which are relevant for secondary packaging for food / near food products
- The aim is to perfect the flow of goods across all parts of the process chain
- In order to guarantee this, the packaging guidelines equally address both the logistical requirements for efficient and safe commissioning and the functional market requirements for the trouble-free handling of goods and optimal saleability
- These requirements are fundamentally regulated in these guidelines
- This may mean that the logistical requirements and the functional requirements have conflicting goals The packaging guidelines offer guidance and possible solutions in this respect
- The existing requirements (e.g. QA) must still be followed and applied
- Brand requirements are included in the tray manuals and printing manuals, as well as the packaging specifications for each of the own brands

Definitions and scope

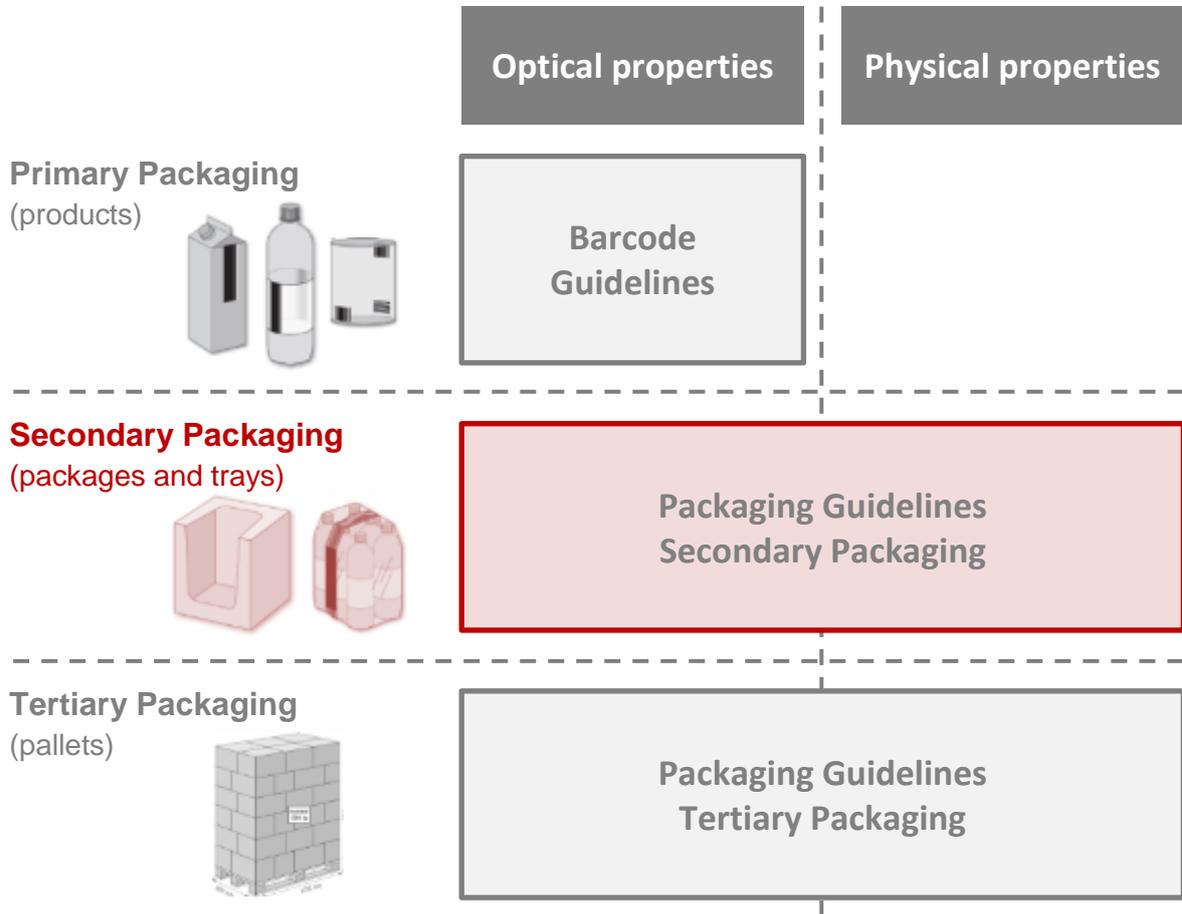|	Optical properties	Physical properties
Primary Packaging (products)	Barcode Guidelines	
Secondary Packaging (packages and trays)	Packaging Guidelines Secondary Packaging	
Tertiary Packaging (pallets)	Packaging Guidelines Tertiary Packaging	

Contents

1 Logistical requirements

1.1 Safety, stability and the ability to stack [1]

Secondary packaging must protect the goods against any form of mechanical or physical strain and ensure the ability to transport and store the goods throughout the whole flow of goods process, from warehousing through to the marketplace. If the market and logistical requirements for secondary packaging conflict, the market requirements must take priority over the logistical requirements because the handling is so much more complex overall than in a warehouse, due to the variety of markets. In addition to this, the requirements relating to economic and cost factors are to be evaluated throughout the whole supply chain.

All of the following points are important for creating efficient processes in a conventional warehouse, but they are essential in an automated warehouse

- Secondary packaging should enclose the consumer units so that nothing can be removed or fall out of the sealed packaging
- Secondary packaging should protect users from possible dangers
- Robust edges which do not buckle guarantee stability and packaging which can also be stacked on top of each other
- The stability of the secondary packaging should relate to the overall weight of the sales packaging
- Packaging which stacks well (including on mixed pallets and roller containers) Cardboard packaging with stacking corners is preferred
- Ideally, a shipping carton will have a U-shaped top with a carded décolleté area
- A slip lid should be used to prevent products from falling out and the height of the side wall must be at least 30% of the height of the product and no less than 40 mm as a rule for trays containing products such as tinned foods, for example
- Packaging should be easy to grasp, for example because it has openings which make lifting and carrying possible
- Please refer to the style guide or the packaging specifications for the specific regulations concerning the respective own brands

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[1] Source: Product and packaging requirements for the Rewe Markt GmbH automated warehouses, recommended action for the efficient handling of transport packaging in logistics and GS1 "Shelf Ready Packaging"

1.2 Adhesives and perforation [2]

- Secondary packaging should be sufficiently bonded together so that it withstands the tensile forces and compression forces applied by materials handling equipment and during the order picking and depalletising processes
- At the same time, the bonding should not be designed so that it is too strong to guarantee that the secondary packaging can be easily disposed of in the marketplace (see Section 2.5)
- There should be adhesive points for bonding the upper and lower parts of the secondary packaging if required due to weight and fragility. Lifting and pulling must be possible without the two parts separating from each other during the order picking process. At the same time, adhesive tapes or similar items may not be used
- The adhesive must not continue to stick after the secondary packaging has been opened
- Tear tapes and perforations are only permitted after consulting the relevant category manager. In this situation, a perforation must be designed so that it does not accidentally open during automated depalletising and order picking and does not rip at the edges after the box has been opened in the marketplace.

1.3 Weight [3]

- The weight limits stipulated by the respective trade associations apply as the maximum weight for the secondary packaging
- According to prevailing opinion, the weight of an individual secondary packaging unit should not exceed 15 kg

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[2] Source: Product and packaging requirements for the Rewe Markt GmbH automated warehouses, recommended action for the efficient handling of transport packaging in logistics and "Verpackungsanforderungen in der Handelslogistik" (Packaging Requirements in Commercial Logistics") by EHI

[3] Source: GS1 "Shelf Ready Packaging"

1.4   Dimensions [4]

- The dimensions for the secondary packaging should always comply with the ISO module dimensions
- At the same time, the whole of the secondary packaging should be utilised so there is no instability (e.g. because the goods inside have not been packed tightly enough)
- The quality of the layer pattern depends on the dimensions of the secondary packaging
- The length/ width/ height ratio should be carefully selected (largest surface = resting surface) so that the secondary packaging can be ideally geared towards the materials handling equipment
- The height / width ratio should not exceed 1.8
- The footprint (length x width) of the secondary packaging
- will follow one of the following module dimensions:
  1,200 x 800 mm
  800 x 600 mm
  600 x 400 mm
  600 x 200 mm
  600 x 100 mm
  400 x 300 mm
  400 x 200 mm
  400 x 150 mm
  300 x 200 mm
  300 x 100 mm
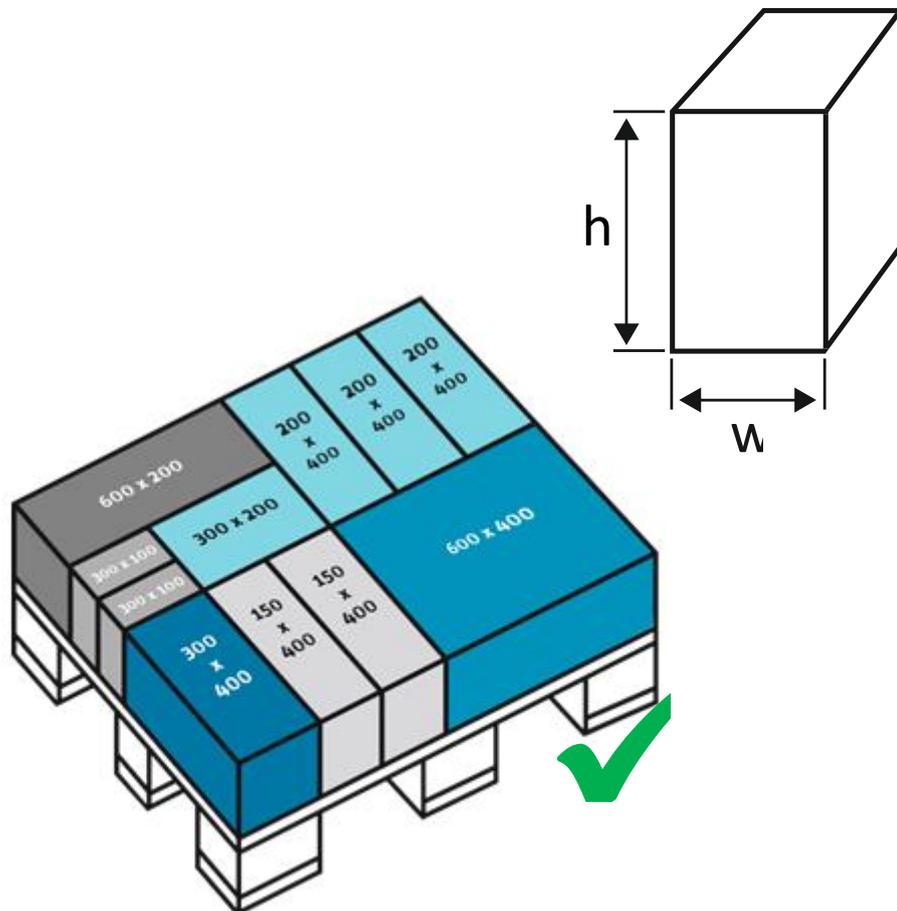 200 x 200 mm
  200 x 150 mm

Figure 1: Module dimensions

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[4] Source: Product and packaging requirements for the Rewe Markt GmbH automated warehouses, and "Verpackungsanforderungen in der Handelslogistik" (Packaging Requirements in Commercial Logistics") by EHI

1.5 Base, cover, handles and grips [5]

- The base must be strong enough, may not sag and must be uniformly flat
- Secondary packaging must have a cover if the contents of the opened packaging are not inherently stable enough to be stacked upon
- The cover must be fixed adequately so that the whole secondary packaging can be hoisted (e.g. when there is automated depalletising). Sticking or adhesive bonding should be used for fixing and not retaining straps or adhesive tape
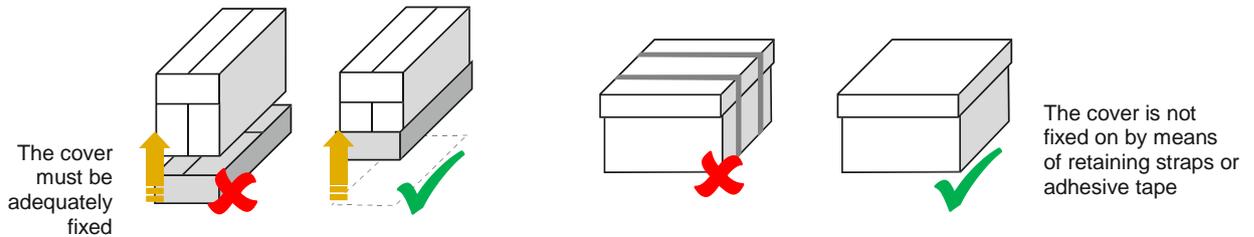

The cover must be adequately fixed

The cover is not fixed on by means of retaining straps or adhesive tape

Figure 2: cardboard cover

- Protruding handles or grips such as those sometimes used for washing powder packaging are disruptive and cannot be handled in an automated manner
- Automated handling is possible if the grip is integrated into the packaging or if it fits tightly against the packaging when not in use
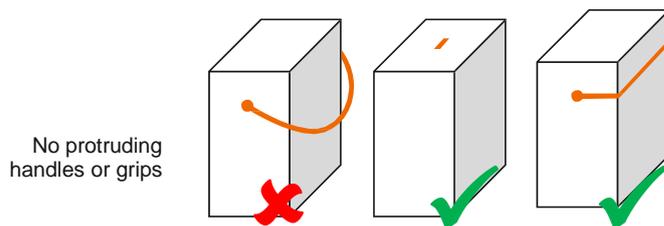

No protruding handles or grips

Figure 3: handles and grips

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[5] Source: Product and packaging requirements for the Rewe Markt GmbH automated warehouses, and "Verpackungsanforderungen in der Handelslogistik" (Packaging Requirements in Commercial Logistics") by EHI

2   Functional requirements

2.1   Easy identification [6]

- Fast and correct identification is an important feature during the various work stages throughout the supply chain:
  – Order picking the pallets
  – Restocking the shelves in the stores
  – Purchasing the goods
- Retail-friendly shelf ready packaging must include the following items in order to meet requirements concerning the identification of the goods:
  – Product group, brand and design which is easily identifiable, even for inexperienced workers
  – Logistical data, barcodes and the best before date must be available on at least two sides of the secondary packaging (adjacent to each other if possible) to ensure that incoming goods can be received without any problems
  – It is an advantage if the product can be seen through the packaging or if there is an image of the product on the packaging
  – Labelling must be positioned between 8 mm and 100 mm maximum from the edge of the container or packaging

Figure 4:easy identification

Insufficient labelling - the contents of the box cannot be identified without
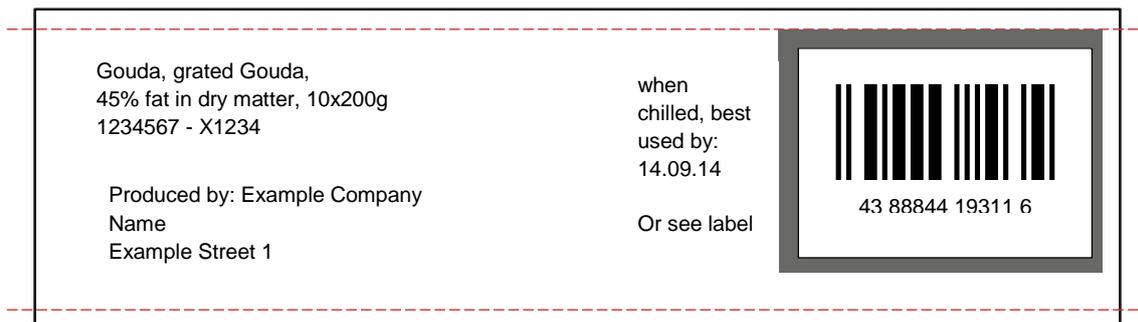
Labelling all around the secondary packaging - the contents can be quickly identified

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[6] Source: GS1 "Shelf Ready Packaging"

- The following elements must be included on the label:
  - Product name (incl. additives and features, e.g. "SORTED")
  - Full name of the foodstuff (previously: product description)
  - Quantity (packaging unit x packaging size)
  - Storage information (use the primary packaging information if this provides storage information)
  - National product number (NAN) + vendor code
  - Sender
  - Best before date (with temperature information where necessary) + BBD imprint
    According to the German regulation on the provision of food information (LMIV), the best before date must be indicated on the box if it is a sealed box.
  - Box GTIN (EAN 13)
  - Barcode on the box GTIN: the 13-digit number with the following specifications always applies to the shipping carton
    - The minimum size is SC3 – SC5
    - The minimum quality is 3B
    - The barcode must be on a white background
    - There should be at least 3 mm clearance to the right and left of each side
    - The quality of the printing standard is regarded as a guaranteed product quality

| Gouda, grated Gouda,
45% fat in dry matter, 10x200g
1234567 - X1234

Produced by: Example Company
Name
Example Street 1 | when chilled, best used by: 14.09.14

Or see label | 43 88844 19311 6 |

Produced for: REWE Markt GmbH – D- 50603 Cologne

Figure 5: Good example of labelling on box

- Font size: The font size for printed text must be at least 12 pt and it must be a clear, sans-serif standard font (for example, Helvetica or Futura medium)
- Positioning: The labels are positioned on at least two sides of the secondary packaging (adjacent to each other if possible), (exception: display sides which are still visible to the customers whilst on the shelf and after the secondary packaging has been opened)
- The labelling is to be provided on the back of the shipping carton. If there is a lack of space, for example, if the crosspiece is not high enough, the necessary labelling can be positioned on the left-hand side panel of the shipping carton.
  Important: one long side and one short side of the shipping carton should always remain free of the above necessary labelling
- Hazardous goods indicators are to be placed on the back panel, in the middle

2.2 Easy opening

- Secondary packaging must always be easy to open at the POS, however, sufficient rigidity must also be guaranteed (see Section **1.1**)[7]
- It must also be ensured that secondary packaging will not open during the automated order picking
- Tear tapes and perforations are only permitted after consulting the relevant category manager. In this situation, a perforation must be designed so that it does not accidentally open during automated depalletising and order picking and cannot be damaged at the front (e.g. by ripping around the edges or tearing etc.) after the box has been opened in the marketplace.
- The following requirements are to be observed, among others:
  - Instructions for opening the outer packaging should be visible and easy to understand, for example, with pictograms
  - Secondary packaging should be able to be opened quickly and reliably, without force and with a single movement of the hand if possible (e.g. by means of a slip lid with fixed adhesive points)
  - Tools should not be used to open the packaging, otherwise there is a risk of damaging the products
  - Secondary packaging should be able to be used as a tray after opening, if possible
  - Shrink-wrap film should only be used after consulting with relevant category manager. If shrink-wrap film is required, there should be a predetermined breaking point or perforation

A tool is needed to open the secondary packaging

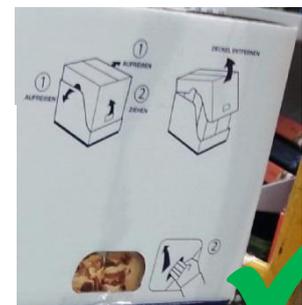The secondary packaging can be opened with a few simple movements. Instructions are easy to understand

Figure 6: secondary packaging can be opened easily

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[7] Source: GS1 "Shelf Ready Packaging"

2.3 Easy removal [8]

- This item is often closely linked with the "easy opening" functional requirement. The following items must also be addressed so that the goods can be quickly and easily stacked on the shelves:
    - The products must be correctly arranged in the secondary packaging so that the front of the products can be seen on the shelf
    - The side and back panels should be as high as possible and the crosspiece at the front should be sufficiently low. For trays, e.g. of tinned food, the height of the side wall must amount to at least 30% of the height of the product and usually be at least 40 mm
    - **Secondary packaging must always be designed to ensure that the product can be seen as clearly as possible without the likelihood of the product falling out**
    - The materials used for the secondary packaging must be sufficiently strong and have reinforced edges if necessary to ensure that the secondary packaging can be safely stored away after opening
    - The base of the secondary packaging must hold the products firmly so that the products remain in their intended position both during opening and when tidying the tray
    - The stability of the outer packaging must be guaranteed even in damp conditions (especially for refrigerated dairy products)

Not firm enough

Reinforced edges

Figure 7: stability of secondary packaging

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[8] Source: GS1 "Shelf Ready Packaging"

2.4 Easy shopping [9]

▪ The following requirements must be met:
  - The product, brand and variety must be more visible
  - The product must be easy to remove from the tray and return to the tray
  - If individual products have already been sold, the remaining units must remain standing in the tray and still be visible to the consumers. At the same time, an attractive overall appearance must be ensured, for example, by using self-adhesive internal shelves or holes for inserting the product etc. so that it is more stable
  - If there is an elevated crosspiece, the customer must be able to easily remove the product without damaging the shipping carton, regardless of the positioning on the shelf
  - Information which is not relevant to the consumer must not be placed on the side which is visible to the consumer
▪ Consumers must always be able to see and extract the products easily but they must also be positioned so that they are stable enough (e.g. by means of deep, well-perforated sections)

If a product is difficult to extract at the top, this will result in damage at the front

Easy to remove at the top whilst providing adequate support for the products

Fixing the products by inserting them into holes

Figure 8: Fixing and extracting products

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[9] Source: GS1 "Shelf Ready Packaging"

2.5 Easy disposal [10]

- Easy disposal is important so that the aisles remain free and unrestricted
- The following requirements are to be observed in this respect:
    - Secondary packaging must be easy to fold up, remove and dispose of without the need for tools
    - At the same time, it must be robust enough to protect the contained products and to prevent the packaging from becoming distorted during the order picking
    - Only one packaging material should be used if possible
    - Do not use adhesive tape, staples or similar items
    - If it is necessary to use several packaging materials, these must be easy to undo (whilst simultaneously ensuring the logistics can be managed without any problems)
    - Reusable packaging materials, for example by recycling or thermal utilisation

A variety of packaging materials make disposal more difficult
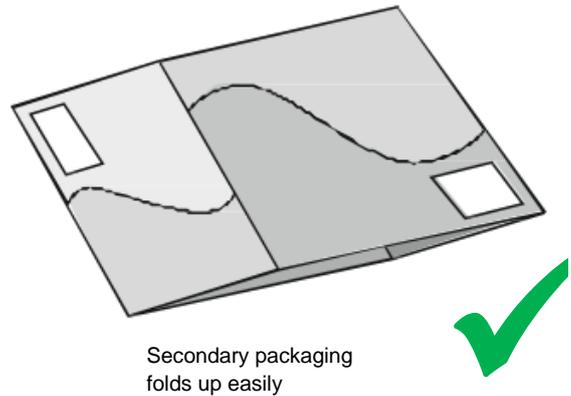
Secondary packaging folds up easily

Figure 9:easy disposal

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[10] Source: GS1 "Shelf Ready Packaging"

3 Secondary packaging that is always suitable [11]

- The following types of secondary packaging (usually packaging made of solid or corrugated cardboard) are considered to be ideal packaging solutions for a broad spectrum of consumer goods:
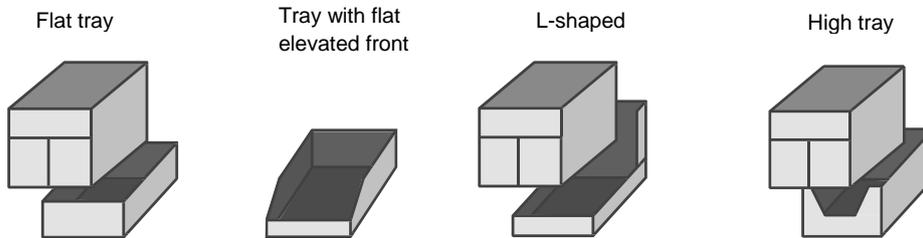
| Flat tray | Tray with flat elevated front | L-shaped | High tray |

Figure 10:suitable secondary packaging

- Trays with a flat, elevated front and L-shaped trays must guarantee both adequate stability and that the goods are fixed in place
- A slip lid is always favoured as protection during transportation
- All basic types can be used with either a u-shaped hood or slip lid, depending on the features of the product
- If there are two parts to the packaging, it must be ensured that the upper and lower parts have both been secured in a manner which will permit risk-free manual handling.
- If the stackable properties mean that the lid can remain in use in the sales area, it must be designed so that the colour matches the base. The lid does not need to be coloured.
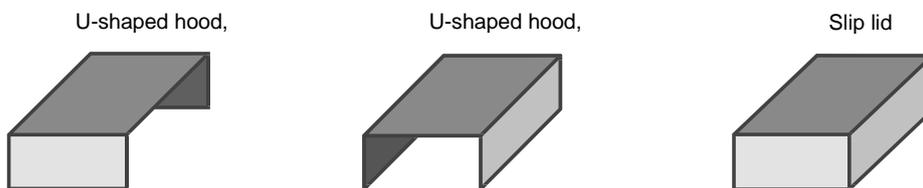
| U-shaped hood, | U-shaped hood, | Slip lid |

Figure 11: slip lid

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[11] Source: GS1 "Shelf Ready Packaging"

4 The features included in ideal secondary packaging

Based on FEFCO type 02, description 0209 is the ideal shipping carton:
- modular
- 4 enclosed sides
- large opening at the front and at the top
- angular shape
- stacking rim
- glued together with enough adhesive points and enough adhesive
- stable enough for stacking in the marketplace

Shipping cartons for packaging must fulfil the following material requirements:
- Surface: coated paper, kraftliner, white inside and outside
- Flute type and strength are specifically defined according to product type and need to be coordinated with the category manager

Lacquered cartons
- Lacquered boxes are preferred because they prevent colour abrasion from the cardboard packaging and provide additional stability. The category manager will make the final decision.
- If lacquered boxes are used, the type of lacquer is specifically defined to suit the type of product and is described in the packaging specifications for the respective own brand products.
  - Non-refrigerated items: all side areas of the shipping carton are to be lacquered
  - Chilled products: all side areas and the base of the shipping carton must be coated in water-repellent lacquer
  - Frozen products: no lacquer coating
- For the basic strategy of the own brand the own brand buyer gives on demand of the CM/EK a price indication between lacquered and non-lacquered boxes. The strategic business (SGE) will make the final decision concerning the lacquer coating of the own brand.

Flute grades – recommended designs for the corrugated cardboard
The flutes can be manufactured in different sizes. In order to determine the flute grade, the height (h) and pitch (p) need to be measured.
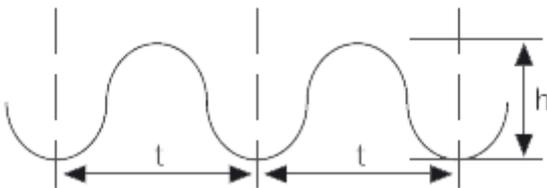

Figure 12: flute pitch and height

The flute pitch (p) is the measurement between the top of two arches and the flute height (h) is the measurement from the base of the arch to the top. The following flute grades are differentiated according to their dimensions:

- For shelf boxes
  - Single wall
    - E-flute (ultra fine or micro-corrugated material, p: 3.0-3.5 mm, h: 1.0-1.8 mm)
    - F-flute (small flute, p: 1.9-2.6 mm, h: 0.6-0.9 mm)
    - G-flute (small flute, p: 1.8 mm, h: 0.55 mm – non-standardised dimensions)
  - Double wall
    - EE-flute (double row of ultra fine and micro-corrugated material, p: 3.0-3.5 mm, h: 2.0-3.4 mm)
- For shipping cartons
  - Single wall
    - C-flute (medium flute, p: 6.8-7.9 mm, h: 3.1-3.9 mm)
    - B-flute (fine flute, p: 5.5-6.5 mm, h: 2.2-3.0 mm)
  - Double wall
    - EB-flute (ultra fine or micro-corrugated and fine flute, p: 5.5-6.5 mm, h: 4.1-5.7 mm)
    - BC-flute (fine and medium flute, t: 6.5-7.9 mm, h: 5.3-6.9 mm)

The recommendation refers to the use of corrugated board packaging for the German food retail trade.

5   Specific requirements for an SBU: for example Penny Markt GmbH -
Carton materials for wine, sparkling wine and spirits

5.1   Printed cartons

This section applies to the range of goods placed on the shelf in the box

5.1.1   Type of box

- *Cartons for discount shops with handle holes at the top,*
- *at least 180 g, GD2 outer layer, 100-120 g B-flute, 135-140 g inner layer (other values may apply to special shaped bottles or heavy bottles. The box must be approved by the CM.)*
- *Cartons made with B-flutes. E-flutes are not generally used due to stability (fine flutes, flute pitch between 5.5 and 6.5 mm, flute height between 2.2 and 3.0 mm)*
- *Minimum opening for the handle hole:*
  - *Burgundy, Bordeaux, renana 1 l bottles: 12.5 x 15 cm (pack of 6)*
  - *Burgundy, Bordeaux, renana 0.75 l bottles: 13 x 10 cm (pack of 6)*
  - *0.2l and 0.25l bottles of sparkling wine: 6.5 x 18.5 mm (pack of 24)*
- *Trays of 12 bottles (0.25l wine) are open at the top and have a coloured slip lid*

5.1.2   Printing process

In principle, there is freedom of choice concerning the printing procedure (offset or flexo printing) within the framework of the following specifications:
- *Offset printing with at least 60 l/cm screen (152 lpi) or flexo printing with at least 54l/cm screen (138 lpi)*
- *At least 4 colours and mineral oil-free printing ink*
- *Photorealistic pictures of bottles*
- *Printing on coated paper*
- *Gloss coating on the outside*
- *White inside*

5.1.3 Design

- *Background design with at least 2 colours from components of the bottle design*
- *Roller labelling for wine/ sparkling wine on the narrow side panel (either laser beam printing or label) with black text on a white background and a 5 cm minimum font height. The bottling month / bottling year is listed in chronological order - the following example is for February 2014:*

Figure 13: example of wine box

Labelling on the narrow side panel of the box

**6 x 1.0 L – Z 5730
NA N 0329010**
German wine
Bottled by:Zimmennann-G raeff &
Müller
1)-56856 Zel\/Mosel

- *Product name on the lid of the box*
- *Product information (provided by CM or ZEM) printed on a white background as follows:*
  6 x 0.75L - Inventory control system no. XXXXX
  National product number XXXXXXX
  Name of the food
  Bottled by/ distributer: Information corresponds to the label on the back of the bottle
  On spirits: "Produced by: Name of supplier / company and address"
  on the right-hand side: Box GTIN with barcode

The CM/ buyer will decide on compliance with the above specifications based on whether or not the store intends to display the product in the box.

5.2   4-colour printing not required for transport carton

This section applies to all products that have been unpacked, i.e. they have not been displayed on the shelf in the box.

5.2.1   Type of box

- *Transport carton*
- *Outer layer at least 180 g, 100- 120 g B-flute materials, 135-140 g inner layer*
  Other values may apply to special shaped bottles or heavy bottles. The box must be approved by the CM.
- *Cartons made with B-flutes are used. E-flutes are not generally used because of stability (fine flutes, flute pitch between 5.5 and 6.5 mm, flute height between 2.2 and 3.0 mm)*

5.2.2   Design

- Product information is included on a label or has been printed on (see example on the right; alternatively, the roller label can be printed on the first line above the product information)
- *Roller labelling for wine/sparkling wine on the narrow side panel if possible (with either laser beam printing or a label). Labelling with black text on a white background and a 5 cm minimum font height. The bottling month I bottling year is listed in chronological order - the following example is for February 2014*

Figure 14: transport carton design

- *Print or stick on product information (provided by CM or ZEM) as follows so that it can be read:*
    Product name (min. 2x the size of the national product number (NAN) over the entire width of the data field)
    6 x 0.75L - inventory control system no. XXXXX
    National product number XXXXXXX
    Name of the food
    Bottled by I distribution:
    - on WINE and SPARKLING WINE: Information corresponds to the label on the back of the bottle
    - on SPIRITS: "Produced by: Name of supplier / company and address"
    Next to it on the right: Box GTIN with barcode

    The CM/ buyer will decide on compliance with the above specifications for unprinted boxes based on whether or not the store intends to display the product in the box.

Legal notice