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GDSN Implementation Guide for Packaging

How to use GDSN to exchange information about packaging in Europe.

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1 Introduction

This document describes the harmonized set of core attributes to exchange packaging information in Europe. This core set is required in all European countries. Per country, there can be additional requirements which are not included in this guideline.

The packaging information is required in most countries for declaration purposes (extended producer responsibility) and is used by recipients in their (sustainability) reports.

This document will be updated when more information will be available on packaging requirements in Europe, the Packaging and Packaging Waste Regulation (PPWR) and its Delegating Acts.

2 Structure of the Guideline

The guideline indicates step by step how to exchange the core packaging information.

For determining what information is required, you can also use a step-by-step approach in line with this guideline. Start with the required information on GTIN level. Then determine the individual packaging elements and its (composite) materials.

3 Minimum Requirements

The minimum set of attributes (core data) contains 13 attributes as indicated in the table below that should be used if applicable.

Level	Class	BMS ID	Name
GTIN	Packaging	2186	Packaging Type Code
Element	PackagingMaterial	7115	Packaging Material Element Code
		2206	Packaging Material Type Code
		2214	Packaging Material Quantity
		2215	Packaging Material Quantity UoM
	PackagingRawMaterialInformation	6306	Packaging Raw Material Code
		6307	Packaging Raw Material Content Percentage
Composite	CompositeMaterialDetail	2237	Composite Packaging Material Type Code
		2238	Composite Packaging Material Quantity
		2239	Composite Packaging Material Quantity UoM
	PackagingRawMaterialInformation	6311	Packaging Raw Material Code
		6312	Packaging Raw Material Content Percentage

3.1 Packaging level

Packaging information is in principle required for all packed products including cases and pallets. In some countries, no information is required for returnable products and/or private label products.

3.1.1 Packaging Type Code (*BMS ID 2186*)

- **GDSN name:** packagingTypeCode
- **Class:** Packaging
- **ADB Definition:** The code for the type of package or container of the product.
- **Instruction:** Code that describes the packaging type of the main packaging element. This is the one that defines the measurement of the package. Used in conjunction with Packaging Material to provide information to the buyer on the type of product packaging.
- **Remark:** Recommendation is to use 1 packaging type code per GTIN. If needed, additional packaging type codes can be used in case important information will get lost, or if required due to (local) regulation. If more than 1 packagingTypeCode is used, packagingLevel must also be specified in some target markets.
- **Example:** BG – bag, PU – tray

<table>
<tr><th>Example where 1 packaging Type Code is used</th><th colspan="2">Example where 2 packaging Type Codes can be used</th></tr>
<tr><td>  </td><td colspan="2"> 
</td></tr>
<tr><td></td><td colspan="2">packagingTypeCode</td></tr>
<tr><td>BO - Bottle</td><td>BX - Box</td><td>CP - Capsule</td></tr>
</table>

3.2 Packaging element

The packaging has a main packaging element (see packagingTypeCode) and can have several additional packaging elements.

Additional packaging elements are parts of the main packaging element that can be separated from it by the consumer (during use and/or offer for disposal) or during the post-consumer treatment process (e.g. recycling).

Each packaging element should be defined separately. A label, tape or sticker is also seen as a separate element.

3.2.1 Packaging Material Element Code (*BMS ID 7115*)

- **GDSN name:** packagingMaterialElementCode
- **Class:** PackagingMaterial
- **ADB Definition:** The code that describes the part or element of the packaging of the product associated to a material or composite material.
- **Instruction:** This attribute is used to specify the different elements of the packaging.
- **Remark:** The main packaging element, which is specified via packagingTypeCode, will be coded as "MAIN_PACKAGING_TYPE". In case a specific code is missing you should use code "OTHER" and reach out to your local GS1 MO.
- **Example:** DIVIDER_PROTECTOR, CORK, LID

3.2.2 Packaging Material Type Code (*BMS ID 2206*)

- **GDSN name:** packagingMaterialTypeCode
- **Class:** PackagingMaterial
- **ADB Definition:** The code for the type of packaging material of the product.
- **Instruction:** This attribute is used to specify the material the individual packaging elements consist of. If the packaging element is made of multiple materials that are combined in such a way that they cannot be separated mechanically, select code 'COMPOSITE' and specify the individual materials using the composite attributes.
- **Remark:** Only if no specific code is available the code "OTHER.." should be used.
- **Example:** METAL_STAINLESS_STEEL, POLYMER_LDPE, GLASS

3.2.3 Packaging Material Quantity (*BMS ID 2214*)

- **GDSN name:** packagingMaterialCompositionQuantity
- **Class:** PackagingMaterial
- **ADB Definition:** The amounts of the different materials that the packaging of the product contains.
- **Instruction:** For each packaging material, enter the weight in GRM or KGM. For composite materials, use the total weight (sum of all materials) and list individual material weights separately in "Composite packaging material – Quantity". This field may only be entered once per instance.
- Example: 1,123 (KGM)

3.2.4 Packaging Raw Material Code (*BMS ID 6306*)

- **GDSN name:** packagingRawMaterialCode
- **Class:** PackagingRawMaterialInformation
- **ADB Definition:** The code describing the type of raw or recycled material the product packaging material is made from.
- **Instruction:** This attribute is used to give information about the source of the material and can be repeated if needed. The information shall be used together with its content percentage (BMS ID 6307).
- **Remark:** In European markets only the codes RECYCLED and BIOLOGICAL_PLASTIC are required.
- **Example:** RECYCLED, BIOLOGICAL_PLASTIC

3.2.5 Packaging Raw Material Content Percentage (*BMS ID 6307*)

- **GDSN name:** packagingRawMaterialContentPercentage
- **Class:** PackagingRawMaterialInformation
- **ADB Definition:** The percentage of the type of raw or recycled material the product packaging material is made from, as specified by the Packaging Raw Material Code.
- **Instruction:** This attribute is used to indicate the percentage of raw or recycled materials the packaging element consists of. This attribute must be used together with Packaging raw material code (BMS ID 6306). For a composite material, use the weighted average of the individual material percentages to determine the composition of the packaging element. The percentages of the individual materials can be specified via the composite attributes.
- **Example:** 40

3.2.6 Examples basic packaging - Consumer Units

Packaging Type	Packaging Elements	Packaging Material
Jar	Main package type	Glass
	Lid	Metal
	Label	Paper

				
BMS ID	**GDSN Attribute**			
2186	packagingTypeCode	JR - jar		
7115	packagingMaterialElementCode	MAIN_PACKAGE_TYPE	LID	LABEL
2206	packagingMaterialTypeCode	GLASS	METAL_STAINLESS_STEEL	PAPER_PAPER
2214	packagingMaterialCompositionQuantity	76, 255 GRM	12,375 GRM	1,75 GRM
6306	packagingRawMaterialCode	N/A	N/A	RECYCLED
6307	packagingRawMaterialContentPercentage	N/A	N/A	50

Packaging Type	Packaging Elements	Packaging Material
Box	Main package type	Paperboard
Capsule	Lid	Aluminium
	Label	Paper

				
BMS ID	**GDSN Attribute**			
2186	packagingTypeCode	BX-Box	CP - Capsule	
7115	packagingMaterialElementCode	MAIN_PACKAGE_TYPE	MAIN_PACKAGE_TYPE	LID
2206	packagingMaterialTypeCode	PAPER_PAPERBOARD	METAL_ALUMINUM	PAPER_PAPER
2214	packagingMaterialCompositionQuantity	15,25 GRM	3 GRM	0,02 GRM
6306	packagingRawMaterialCode	N/A	RECYCLED	N/A
6307	packagingRawMaterialContentPercentage	N/A	80	N/A

3.2.7 Examples packaging - Case and Pallet

Packaging Type	Packaging Elements	Packaging Material
Box	Main package type	Carton
	Label	Paper
	Tape / Strip	PolyPropyleen

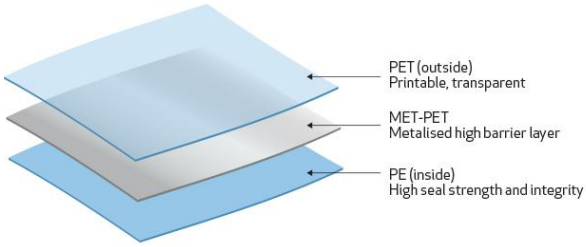
				
BMS ID	**GDSN Attribute**			
2186	packagingTypeCode	BX - Box		
7115	packagingMaterialElementCode	MAIN_PACKAGE_TYPE	STRIP	LABEL
2206	packagingMaterialTypeCode	PAPER_PAPERBOARD	POLYMER_PP	PAPER_PAPER
2214	packagingMaterialCompositionQuantity	225,45 GRM	6,754 GRM	1,25 GRM
6306	packagingRawMaterialCode	N/A	RECYCLED	N/A
6307	packagingRawMaterialContentPercentage	N/A	75	N/A

Packaging Type	Packaging Elements	Packaging Material
PX - PALLET	Main package type	Soft Wood
	Stretchfoil	PolyEthyleen

			
BMS ID	**GDSN Attribute**		
2186	packagingTypeCode	PX - Pallet	
7115	packagingMaterialElementCode	MAIN_PACKAGE_TYPE	FILM
2206	packagingMaterialTypeCode	WOOD_SOFTWOOD	POLYMER_PE
2214	packagingMaterialCompositionQuantity	25,150 KGM	150,75 GRM
6306	packagingRawMaterialCode	N/A	RECYCLED
6307	packagingRawMaterialContentPercentage	N/A	100

3.3 Composite packaging material

We speak of composite material when we are dealing with multiple materials that are combined into one material in such a way that they cannot be separated from each other in a mechanical way. In this case, the code 'COMPOSITE' in the attribute packagingMaterialTypeCode (BMS ID 2206) should be used for the element. The individual materials need to be specified via the dedicated composite material details attributes in this case.



3.3.1 Composite Packaging Material Type Code (*BMS ID 2237*)

- **GDSN name:** packagingMaterialTypeCode
- **Class:** CompositeMaterialDetail
- **Instruction:** This attribute is used to specify the individual materials the composite material of a packaging element consists of.
- **Remark:** When Packaging Material Code (BMS ID 2206) is used with code COMPOSITE, this attribute shall be used. Because it is a COMPOSITE you should include at least 2 materials.
- **Example:** POLYMER_LDPE, PAPER_PAPER

3.3.2 Composite Packaging Material Quantity (*BMS ID 2238*)

- **GDSN name:** packagingMaterialCompositionQuantity
- **Class:** CompositeMaterialDetail
- **Instruction:** This attribute is used to enter the weight in GRM or KGM of each individual material the composite material of a packaging element consist of. This field may only be entered once per instance.
- **Remark:** When Packaging Material Code (BMS ID 2206) is used with code COMPOSITE, this attribute shall be used.
- **Example:** 50,34 (GRM)

3.3.3 Packaging Raw Material Code (*BMS ID 6311*)

- **GDSN name:** packagingRawMaterialCode
- **Class:** PackagingRawMaterialInformation
- **ADB Definition:** The code describing the type of raw or recycled material the product packaging material is made from.
- **Instruction:** This attribute is used to give information about the source of the material and can be repeated if needed. The information shall be used together with its content percentage (BMS ID 6312).
- **Remark:** In European markets only the codes RECYCLED and BIOLOGICAL_PLASTIC are required.
- **Example:** RECYCLED, BIOLOGICAL_PLASTIC

3.3.4 Packaging Raw Material Content Percentage (*BMS ID 6312*)

- **GDSN name:** packagingRawMaterialContentPercentage
- **Class:** PackagingRawMaterialInformation
- **ADB Definition:** The percentage of the type of raw or recycled material the product packaging material is made from, as specified by the Packaging Raw Material Code.
- **Instruction:** This attribute is used to indicate the percentage of raw or recycled content in each individual component of a composite packaging material. The attribute must be used together with the Packaging Raw Material Code (BMS ID 6311).
- **Example:** 40

3.3.5 Example composite materials

Packaging Type	Packaging Material
Bag	Composite material (2 layer)

	BMS ID	GDSN Attribute	Information
Packaging	2186	packagingTypeCode	BG - bag
Element	7115	packagingMaterialElementCode	MAIN_PACKAGE_TYPE
	2206	packagingMaterialTypeCode	COMPOSITE
	2214	packagingMaterialCompositionQuantity	2,94 GRM
	6306	packagingRawMaterialCode	RECYCLED
	6307	packagingRawMaterialContentPercentage	47
Composite Layer 1	2237	packagingMaterialTypeCode	POLYMER_OPP
	2238	packagingMaterialCompositionQuantity	2,64 GRM
	6311	packagingRawMaterialCode	RECYCLED
	6312	packagingRawMaterialContentPercentage	41
Composite Layer 2	2237	packagingMaterialTypeCode	POLYMER_EVOH
	2238	packagingMaterialCompositionQuantity	0,3 GRM
	6311	packagingRawMaterialCode	RECYCLED
	6312	packagingRawMaterialContentPercentage	100

4 Packaging Information of non-GTIN Pallets

This chapter is only relevant for countries that are using non-GTIN pallets.

Non-GTIN pallet information in GDSN is provided on the highest level of packaging hierarchy via specific attributes. Below is an example of a very typical non-GTIN pallet packaging hierarchy consisting of two levels:

1. **Base unit or each**: information about the base unit which is typically a consumer unit,
2. **Case level**: information about the case itself and the non-GTIN pallet.

There are specific non-GTIN pallet attributes in GDSN that can be used to exchange information about non-GTIN pallet's dimensions, weight, layers, children (case) count etc. However, there are no specific non-GTIN pallet attributes to provide information about packaging material of the pallet (e.g. weight of wooden platform, weight and material of wrapping stretch foil etc.). This chapter provides guidance on how such information shall be provided for non-GTIN pallets.

4.1 Class Packaging

Class Packaging in Packaging Information Module shall be used to provide information about packaging materials. When providing information about packaging materials of non-GTIN pallet, this class needs to be repeated (= create a second iteration) on the highest level of packaging hierarchy (most typically the case level):

- One iteration is used to provide packaging material details about the item itself (e.g. case),
- Another iteration is used to provide packaging material details about the non-GTIN pallet.

Attribute platformTypeCode is used to indicate which iteration describes the non-GTIN pallet.

4.1.1 Pallet Type Code (*BMS ID 2181*)

- **GDSN name:** platformTypeCode
- **ADB definition:** The code that indicates the type of pallet that the unit load is delivered on.
- **Instruction:** Use (populate) this attribute in the iteration of class Packaging which contains information about packaging materials of the non-GTIN pallet. **Do not** use (populate) it in the iteration of class Packaging which contains information about packaging materials of the item itself (e.g. case).
- **Remark:** If this attribute is used (populated), all attributes in the same iteration of class Packaging relate to non-GTIN pallet and not to the item itself (e.g. case).
- **Example:** 11 *(Pallet 800 X 1200 mm)*

4.1.2 Packaging Type Code (*BMS ID 2186*)

- **GDSN name:** packagingTypeCode
- **ADB definition:** The code for the type of package or container of the product.
- **Instruction:** In principle this attribute is used to describe the packaging of the GTIN marked unit. **It is not used** in iteration used to provide packaging material information for a non-GTIN pallet.
- **Remark:**
- **Example:** BX *(Box) – for the GTIN marked unit (first iteration)*

4.2 Example

The example in this chapter illustrates how to share packaging material information for case made of 185 grams of corrugated cardboard. These cases are dispatched on a wooden EUR pallet secured by 100 grams of polyethylene stretch wrap. The pallet is not identified by GTIN, therefore all information about it is provided additionally on a case level. Pay attention to the fact that attribute packagingTypeCode is in principle only in the first iteration and **platformTypeCode is only used in the second iteration**.

[1] First iteration of class Packaging: **the case**

[1.1] packagingTypeCode = BX *(Box)*

- [1.1] PackagingMaterialElementCode = MAIN_PACKAGING_TYPE
- [1.1] packagingMaterialTypeCode = PAPER_CORRUGATED *(Corrugated Paper)*
- [1.1] packagingMaterialCompositionQuantity = 185 GRM *(Grams)*

[2] Second iteration of class Packaging: **the non-GTIN pallet**

[2.1] platformTypeCode = 11 (Pallet 800 X 1200 mm)

- [2.1] PackagingMaterialElementCode = MAIN_PACKAGING_TYPE
- [2.1] packagingMaterialTypeCode = WOOD_OTHER *(Wood other)*
- [2.1] packagingMaterialCompositionQuantity = 25 KGM *(Kilograms)*
- [2.2] PackagingMaterialElementCode = FILM
- [2.2] packagingMaterialTypeCode = POLYMER_PE *(Polyethylene PE)*
- [2.2] packagingMaterialCompositionQuantity = 100 GRM *(Grams)*