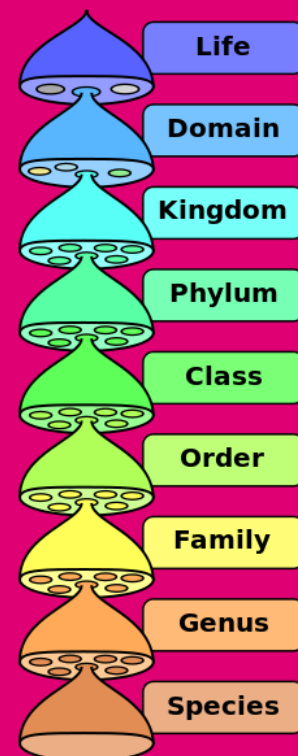


## Technical Blueprint GPC Distribution Set



### Functional description

### How to implement Horticulture GPC?

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**Revision page**

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Concept version 0.2	Text corrections resulting from the GS1 Review	GS1 Netherlands	September 2015
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## 1. Management Summary

This document is intended to guide you in implementing the Global Product Classification (GPC) reference data for the Horticultural industry. Much like the Linnaeus Technical Blueprint and all the code lists that Floricode distributes for our sector, the GPC set conforms to the general rules and processes of all other distribution sets of Floricode.

The GPC dataset itself is developed and maintained by GS1 under the Global Standards Management Process (GSMP) and published on their global website. GS1 publishes two versions per year of GPC, together with a Delta Sheet showing the changes per version. The publication format is different from the Floricode format.

Furthermore the GS1 publication has no link to the 'Linnaeus-world'.

For bringing together both worlds it was decided to distribute the GPC reference data in the formats of Floricode as is customary in our industry and include in the distribution set a file which links the information between Linnaeus codes and GPC.

An extra file was included for conversion between the different coloring schemes used at the time of Registration. These schemes include the ones from "The International Union for the Protection of New Varieties of Plants" (UPOV), from "the Royal Horticultural Society" (RHS), from the "Vereniging van Bloemenveilingen in Nederland" (VBN) now maintained by Floricode as well as the well-known coloring scheme "the computer-color-alphabet" called RGB. This was a spin-off developed during the building of GPC system for Horticulture. The color dataset is also included in an Excel format, since that allows color-examples as cell background colors.

Both Floricode and GS1 have validated this document and the corresponding distribution set of files. If you feel something is missing or needs correction, or if you have any questions regarding this material, please feel free to contact Floricode, who will be the Local Standards Manager for this document and the accompanying files.

## 2. Introduction

### 2.1 General

The **GS1 Global Product Classification (GPC)** for the horticultural industry is based on the botanical structure of horticultural products (just like the Linnaeus system for most VBN codes). Botanical taxonomy is the most common and widely accepted way to classify living organisms. Botanists around the world already agree on the division in Genus and Species, based on the work of the Swedish botanist Carolus Linnaeus. This is supported by modern DNA research. Taxonomy is also used in commercial processes and therefore an important addition to the GS1 GPC standards.

For this reason GPC for the horticultural industry is built around the concept of genus and species. For every application all genus-species combinations can be linked to exactly one GPC brick code.

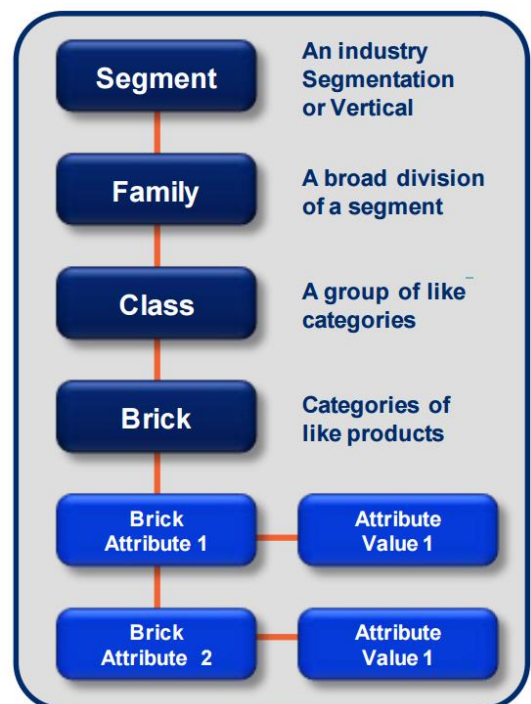
At the right side in *Figure 1* you can find all the levels within the **general GPC structure**. The first three levels (segment, family and class) will guide you to find a brick for your product. The brick is the central concept of the GS1 classification system.

You can learn more about GPC in general at the global website of GS1 in a document called “GPC, Development & Implementation”.<sup>1</sup>

The **GS1 Global Product Classification (GPC)** is a system that gives both sides of trading partner relationship a common language for grouping products in the same way. It ensures that products are classified correctly and uniformly, everywhere in the world. The business objectives of GPC are to:

- Support buying programs by allowing buyers to pre-select groups of applicable products
- Provide a common language for category management, thus speeding up reaction to consumer needs
- Be a key enabler of the Global Data Synchronisation Network
- Be a Pivotal classification system between the information exchange parties

GPC is a rules-based, four-tier classification system for grouping products. The four tiers are Segment, Family, Class, and Brick (with Attribute types and Attribute values). A Brick identifies a category incorporating products (Global Trade Item Numbers (GTINs)) that serve a common purpose, are of a similar form and material, and share the same set of category attributes.



**Figure 1 : General GPC Structure**

<sup>1</sup> GS1 GPC guidance: : [http://www.gs1.org/docs/gpc/GPC\\_Development\\_Implementation.pdf](http://www.gs1.org/docs/gpc/GPC_Development_Implementation.pdf)



Level	Length	Syntax	Example
Segment codes	8	Two digit code ( <i>here 10</i> ) followed by six zeros	10000000
Family codes	8	Two digit code ( <i>20</i> ) preceded by Segment code and followed by four zeros	10200000
Class codes	8	Two digit code ( <i>30</i> ) preceded by Segment and Family codes and followed by two zeros	10203000
Brick codes	8	Starts with a "1"	10000123
Attribute Type codes	8	Starts with a "2"	20000123
Attribute Value codes	8	Starts with a "3"	30000123

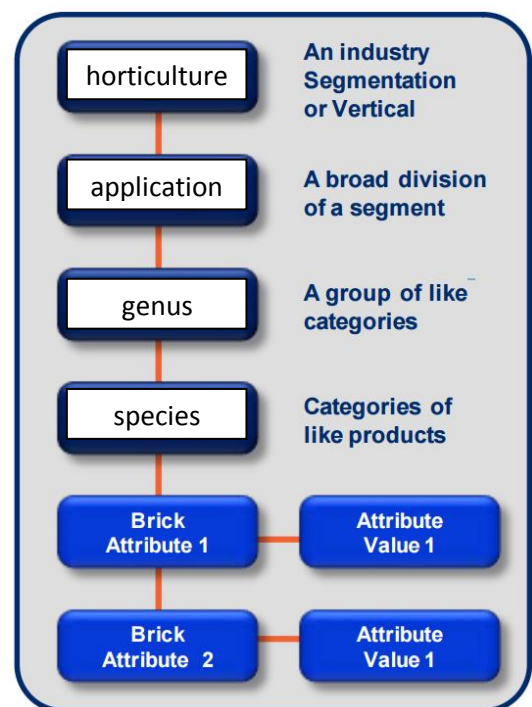
**Table 1 : GPC coding**

## 2.2 GPC for Horticulture

You can see the **Horticulture GPC hierarchy** in *Figure 2*. As you may notice the first four levels are implemented in such a way that they represent, in a simple way, the Linnaeus data model as defined in the Linnaeus Technical Blueprint that can be found at the Floricode website <sup>2</sup>

Please keep in mind the following facts:

- Since there are so many genus – species combinations, a lot of combinations that only have a limited worldwide turnover, are linked to so-called 'catch-all' GPC Bricks, much like the current group codes '...other..' of the VBN. So only the most important combinations with respect to their worldwide turnover have their own GPC codes.
- All GS1 brick codes within the GS1 classification methodology are unique and thus will define the likewise unique upper levels of that classification hierarchy, consisting of segment, family and class definitions. In other words if you know the brick code you will know the content of the higher levels.



**Figure 2 : GPC structure for Horticulture**

- All 'living' or 'once living' products (*greenware*) are defined in the segment 'horticulture plants' of the GS1 methodology. All 'dead' accessories (*hardware*) like pots, vases etc. are defined in the segment 'Lawn/Garden Supplies', where a great number of tools and accessories were already defined. Of course products defined as 'dead' do not have a Genus and Species.
- When thinking about 'living' products, keep in mind that some product belong to a genus, which is not sub-divided into species. This is for instance the case with almost all product of the genus 'Rosa'.
- In *Figure 2*. you can see that the second level (under the segment horticulture) is called 'application' (Dutch; toepassing). This level is used to distinguish between cut flowers, cut greens

<sup>2</sup> Linnaeus technical blueprint: [http://www.floricode.com/LinkClick.aspx?fileticket=WtuMagvY\\_BQ%3d&portalid=0](http://www.floricode.com/LinkClick.aspx?fileticket=WtuMagvY_BQ%3d&portalid=0)

and live plants, which closely resembles the normal way in our industry. Some products however do not belong to the definition of “cut-flowers, cut-greens or live plants” and therefore are classified in different GPC families (like seeds, bulbs etc.).

- The third and fourth levels, genus and species, should be familiar for all who work in our industry.
- The lower levels (Brick Attribute and Attribute value) may occur more than once and are comparable with the feature type codes and values (Dutch; kenmerken codes en waardes) known in the Linnaeus code system.

### Complications encountered

A complication for finding a GPC of a product might be that in the registration database of Floricode, some products have not been uniquely linked to any known so-called ‘Crop’ (Dutch ‘Gewas’). Look for instance at product\_id 21172 ‘Rosa large flowered mixed per bunch’, which obviously is not linked to any registration. For those products the only way to know to what genus such a product belongs, is to examine the VBN classification called the ‘group’. For instance product\_id 21172 is classified as belonging to group code 10100105 ‘Rosa large flowered per bunch’. All products within that group belong to the genus of ‘Rosa’, which can be derived from the first character up to the first position with a ‘space’ within the dutch group description. This will result in ‘Rosa’.

Unfortunately this mechanism for linking groups to their Genus does not hold for all the groups. Some groups (for instances 20299900 ‘Other flowering plants’ obviously are linked to several different Generae (plural for Genus) and therefore products in that group might belong to different GPC Bricks.

### 2.3 Linking VBN to GS1 GPC Horticulture

All horticulture products belong in the **Segment** “Horticulture Plants”. No other products than these can be classified in this segment. See the Blue rectangle at the top in *Figure 3*.

GPC- **Family** , the second (yellow) level in the GPC hierarchy, is equivalent to Application within VBN ‘with a twist’. The application in VBN and the first position of the group code is 1 for cut flowers and cut greens, 2 for potted plants and 3 for garden plants. GPC however distinguishes between cut-flowers (1), cut greens (2) and live plants, containing both potted- and garden plants (3). Other GPC families exists for ‘special’ products like bulbs, trees, seeds etc.

The third level of the GPC classification hierarchy, called a **Class** , is that of the Genus (light blue). Because in the Horticultural industry everywhere in the world people are familiar with taxonomy and the Linnaean concept of Genus / Species, GS1 recognized the global use and understanding of this and built the GPC hierarchy around this concept.

The fourth level, also called **Brick** (Dutch: bouwsteen), finally arrives at the Genus-Species combinations referred to previously which is also familiar from the Linnaeus methodology. (green).

Any further characteristics of certain bricks can be defined by **Attribute type and value** pairs (not shown in *Figure 3*), like for instance ‘Horticulture Color’ and the colour value code for ‘Pink’. These attribute-value pairs form the lowest, finest grained classification level of the GPC system. They are much like the feature type codes and values of the Linnaeus data model.

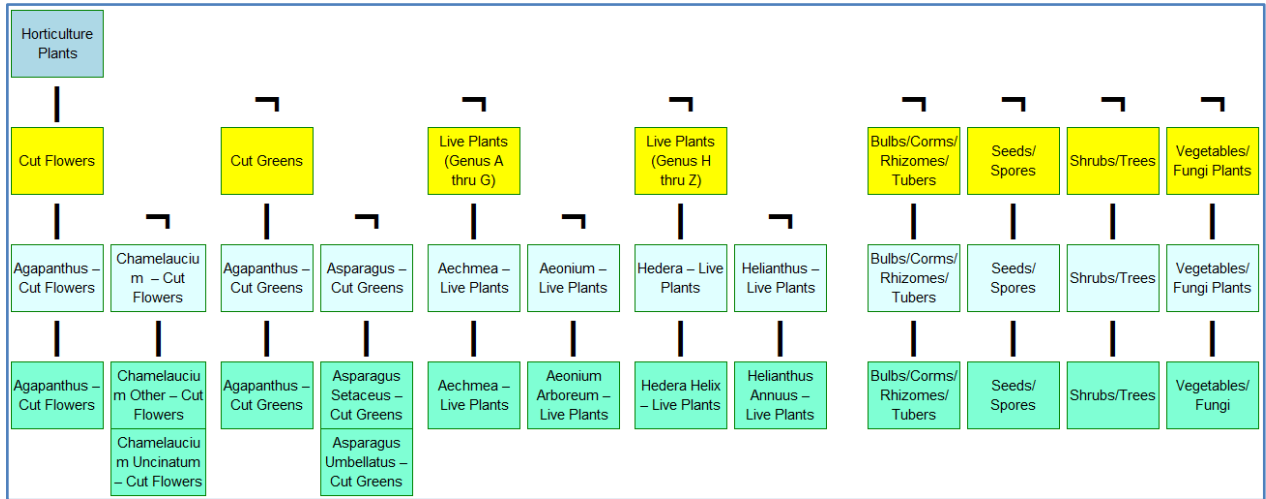


Figure 3 : GPC Horticulture : Visual map

### 3. GPC Data model

All distribution files (code lists) are displayed in *Figure 4* of the data model below. As you may notice the files 36 and 37 form the central part. Basically they define which upper three levels of the GPC code belong to which (36) and which attribute types and values may occur at what brick (37).

For a number of descriptions and definitions as well for the color-names, translations are available through the code lists NAME and NAME\_TYPE. Since there are so many data fields translated any key or link was omitted here.

There is one more code list, COLOR (20), that has no links, simply because they are for help in conversions of color-codes (like in Plantscope/Floricode and botanical distribution set).

For the exact definition of keys and foreign keys please take a look at the corresponding entities descriptions in the next chapter.

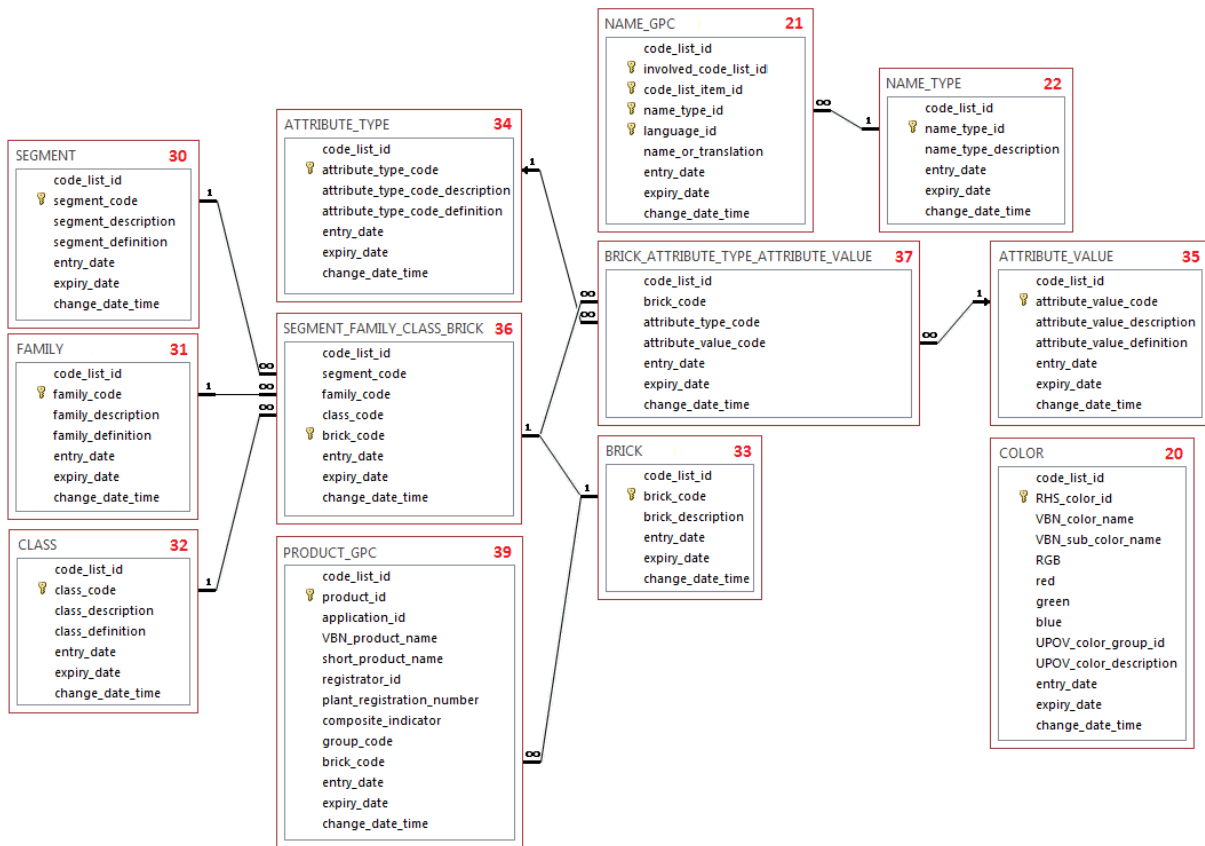


Figure 4 : Data model GPC distribution files (code\_list\_id)

## 4. GPC Code lists

This chapter will describe the code lists used to electronically distribute the fixed GPC reference data.

### 4.1 Common code list aspects

All code lists exhibit the following generic characteristics.

#### 4.1.1 Field names

It is assumed that the lists will also be applied by foreign business partners (growers, traders). The GPC code list will therefore become available in various languages. The names of code lists and fields follow the ISO/IEC 11179 convention.

#### 4.1.2 Update fields

Each item in any code list contains the following fields:

- entry date: the date at which a new item will or has become valid within the industry; this may be a future date.
- expiry date: the last effective date on which an item is still generally useful within the sector. This can indicate a future date or be left blank. An item is still considered “generally useful within the sector” on the expiration date itself.
- change date/time: the date and time at which an item was last updated (entered, changed or expired).

For further explanation about the use of these fields in detecting updates, please refer to 5.1.3 of this document.

#### 4.1.3 Code list description

For each code list, the following information will be given:

- definition of the involved entity type
- description of the relationships with other entity types
- example of a filled-out code list item
- explanation or remark (if any).

For each code list entry the following will be specified:

- field number: field sequence number, starting with 1
- field name: name of the field
- occurrence type: M = mandatory (field needs to be filled) or  
C = conditional (filled under certain conditions)
- format: N = numeric, followed by the number of digits  
AN = alphanumeric, followed by the number of characters
  - ◆ fixed: N2 or AN11
  - ◆ variable: N..3 or AN..35
- key fields: P#: primary key  
F#: foreign key  
PF#: both primary and foreign key
- content: additional remarks on that field pertaining to the content or format.

## 4.2 COLOR

### 4.2.1 Definition

COLOR is an ever present characteristic of any product traded within the horticultural industry and identified with a color code. There exists more than one system for expressing colors. This entity helps in converting between the color-systems that are widely used in horticulture such as the VBN, the RHS code systems and the UPOV color classification and the much used computer/TV coloring system of RGB.

### 4.2.2 Relationships

COLOR has one relevant relationship within this distribution set of entities:

- any horticultural product may have a brick that is linked to a brick attribute type expressing color

Outside this distribution set of entities the Floricode/VBN files and the Floricode/Plantscope Registration database as well as the UPOV codes also use color-coding schemes. This dataset may help in translation between all these schemes. See for more information of those systems the resources of the Floricode organisation.

### 4.2.3 Contents

The code list COLOR has the following contents:

field	field_name	M/C	format	key	contents
1	code_list_id	M	N..3		'20'
2	RHS_color_id	M	AN..6	P#	RHS COLOR identifier
3	VBN_color_name	M	AN..6		VBN COLOR name
4	VBN_sub_color_name	M	AN..12		VBN sub-COLOR name
5	RGB	M	AN11		RGB COLOR code (999-999-999)
6	red	M	N3		R component
7	green	M	N3		G component
8	blue	M	N3		B component
9	UPOV_color_group_id	M	N..2		UPOV COLOR identifier
10	UPOV_color_description	M	AN..50		UPOV COLOR description
11	entry_date	M	N8		ccyymmdd
12	expiry_date	C	N8		ccyymmdd
13	change_date_time	M	N12		ccyymmddhhmm

### Code list 1 : COLOR (20)

#### 4.2.4 Example

20;002C;yellow;light yellow;234-236-151;234;236;151;5;yellow green;19860101;;201507010000

#### 4.2.5 Explanation

- code\_list\_id '20' is for COLOR. This ID allows for the possibility to make an explicit reference to this list from code list NAME (E.G. for translations)
- RHS publishes their own Color Coding Classification System in a book with color cards, each with a specific code. Since they publish new versions very rarely, they decided to add an "N" or an "NN" in front of new codes. For this reason you will find different entry\_dates for codes starting with a numeric, with "N" or with "NN". The last position always is A, B,C or D, denoting

slight nuances in intensity of the color. RHS does not provide names for their codes, since these detailed variations do not translate into normal recognizable color names.<sup>3</sup>

- 3: VBN\_color\_name is a classification system of the Dutch Auction System and used for a very broad color grouping system used (amongst others) for their auctioning systems.
- 4: VBN\_sub\_color\_name is a slightly more granular coloring classification of the VBN, where colors are split in a Dark, Normal or Light variation of the normal VBN Color. Since VBN sub color names are very basic, no translations have been included in this distribution.
- 5: the well-known RGB system for Screens like PC's or Televisions where colors are expressed as Intensities of the colors Red, Green and Blue. This code defines all these three color intensities (expressed in a number of 000 through 255) separated by '-' characters.
- 6,7 and 8: the three color intensities each ranging from 000 through 255 and expressed in three digits with possible leading zeros, for convenience purpose also provided separately.
- 9: UPOV\_color\_group\_id defines a color classification system of "The International Union for the Protection of New Varieties of Plants" (UPOV) often called Color Groups, based on the same RHS coloring system, but slightly more detailed than that of the VBN coloring systems.<sup>4</sup>
- 10: UPOV\_color\_description contains the textual description of the UPOV\_color\_id. For practical purposes these descriptions are included in this entity, although they could have been normalized in a separate entity. The UPOV color description can be translated to Dutch (NL), Spanish (SP), German (DT) and French (FR) using the NAME\_GPC code list.

Note: The color data is also included in an Excel format, since that allows color examples as cell backgrounds.

---

<sup>3</sup> For info on RHS and a color chart see : <http://www.rhsshop.co.uk/category.aspx?id=10000006>

<sup>4</sup> See the ANNEX in the following pdf for UPOV colors: [http://www.upov.int/edocs/tgpdocs/en/tgp\\_14.pdf](http://www.upov.int/edocs/tgpdocs/en/tgp_14.pdf)

### 4.3 NAME\_GPC

#### 4.3.1 Definition

NAME\_GPC is the translation code list for some description and definition fields. Currently the code list has translations for:

code_list_id	Object of translation	Language(s)	name_type_id
20	UPOV color description	Dutch, French, German, Spanish	1
30	Segment descriptions	Dutch	1
31	Family descriptions	Dutch	1
32	Class descriptions	Dutch	1
33	Brick Descriptions incl. common names Genus/Species	Dutch	1
33	Brick Definitions (include)	Dutch, English	5
33	Brick Definitions (exclude)	Dutch, English	6
34	Attribute Type descriptions	Dutch	1
35	Attribute Value descriptions	Dutch	1

**Table 2 : Translations available**

Upon request more content might be translated and included in this GPC distribution set by Floricode. With code\_list\_id and name\_type\_id a link to a code list and a field within that code list can be indicated. Currently Dutch, French, German and Spanish translations for fields with 'descriptions' and Dutch translation for 'including and excluding definitions' are available.

#### 4.3.2 Relationships

- NAME\_GPC has a link to every code list that is included in the involved\_code\_list\_id. name\_type defines for which field a translation is available. language\_id defines what language(s) is (are) available and code\_list\_item\_id defines for which record within the code list this translation is intended.

In order to keep the data model as defined in *Figure 4 : Data model GPC distribution* files easily readable, these relationships have been left out of the data model.

#### 4.3.3 Contents

The code list NAME\_GPC has the following contents:

field	field_name	M/C	format	key	contents
1	code_list_id	M	N..3		'21'
2	involved_code_list_id	M	N..3	P#	
3	code_list_item_id	M	N..8	P#	
4	name_type_id	M	N..2	P#	
5	language_id	M	AN2	P#	
6	name_or_translation	M	AN..1024		
7	entry_date	M	N8		ccyymmdd
8	expiry_date	C	N8		ccyymmdd
9	change_date_time	M	N12		ccyymmddhhmm

#### Code list 2 : NAME\_GPC (21)



#### 4.3.4 Example

21;20;12;1;ES;naranja amarillento claro;19860101;;198601010000

#### 4.3.5 Explanation

- 1: code\_list\_id '21' is for NAME\_GPC. The main reason for this code list is to provide translations or added reference data.
- 2: involved\_code\_list\_id tells you for which code list a translation is available with this record.
- 3: code\_list\_item\_id tells you what the value of the primary key of the given code list is, for which a translation is available in this record. (*In the example the 1 indicates that this translation belongs to UPOV\_color\_description, since name\_type\_id 1 means the description field, for UPOV\_color\_group\_id 12, the item\_id of the UPOV group*).
- 4: name\_type\_id defines what the meaning of this translated text is.
- 5: language\_id defines the language of the translated text. Currently the following languages are presented
- 6: name\_or\_translation holds the actual translated text for the referenced field in the language specified by the language\_id

language_id	language name
DE	German (Duits)
FR	French (Frans)
NL	Dutch (Nederlands)
ES	Spanish (Spaans)
EN	English (Engels)

**Table 3 : Translation Language id's and Names**

## 4.4 NAME\_TYPE

### 4.4.1 Definition

NAME\_TYPE defines the purpose or target of a name in a certain language (translation). Currently name types are available for descriptions and definitions, though not in all code lists, since not every description or definition is currently available. See *Table 2 : Translations available* for what is currently available.

### 4.4.2 Relationships

NAME\_TYPE has one relation to NAME\_GPC.

- One NAME-TYPE can be used in many NAME\_GPC records.
- Many NAME\_GPC records can point to one NAME\_TYPE.

### 4.4.3 Contents

The code list NAME\_TYPE has the following contents:

field	field_name	M/C	format	key	contents
1	code_list_id	M	N..3		'22'
2	name_type_id	M	N..2	P#	
3	name_type_description	M	AN..50		
4	entry_date	M	N8		ccyymmdd
5	expiry_date	C	N8		ccyymmdd
6	change_date_time	M	N12		ccyymmddhhmm

### Code list 3 : NAME\_TYPE (22)

#### 4.4.4 Example

22;5;Definition (Include);20141201;;201412011200

#### 4.4.5 Explanation

- 1: code\_list\_id '22' is for NAME\_TYPE.
- 2: name\_type\_id defines where the translated text is applicable for. Currently that might be for a description, a definition include or a definition exclude expressed as 1, 5 or 6 respectively.
- 3: name\_type\_description contains the meaning of the name type expressed in text.

**Note:** name types 2, 3 and 4 (Alternatieve naam, Afkorting; Korte Omschrijving) are not used for GPC translations. They are marked unused since they already exist in other distribution sets of Floricode.

## 4.5 SEGMENT

### 4.5.1 Definition

SEGMENT is the highest level in the classification hierarchy of GPC. It defines in what industry the products belong. For our industry the relevant segments are “Horticulture” and “Lawn/Garden supplies”.

### 4.5.2 Relationships

SEGMENT has a link to the code list SEGMENT\_FAMILY\_CLASS\_BRICK (“SFCB”) which defines the hierarchy of the classification.

- One segment is linked to one or more records in the code list “SFCB”.

### 4.5.3 Contents

The code list SEGMENT has the following contents:

field	field_name	M/C	format	key	contents
1	code_list_id	M	N..3		'30'
2	segment_code	M	N8	P#	
3	segment_description	M	AN..50		
4	segment_definition	M	AN..1024		
5	entry_date	M	N8		ccyymmdd
6	expiry_date	C	N8		ccyymmdd
7	change_date_time	M	N12		ccyymmddhhmm

### Code list 4 : SEGMENT (30)

#### 4.5.4 Example

30;81000000;Lawn/Garden Supplies;Lawn and Garden supplies;20141201;;201412011200

#### 4.5.5 Explanation

- 1: code\_list\_id '30' is for SEGMENT, the first or highest GPC hierarchy level.
- 2: segment\_code defines the GPC code for a segment within the GPC hierarchy., see for the coding principles *Table 1 : GPC coding*.
- 3: segment\_description contains the textual meaning of the segment.
- 4: segment\_definition contains the definition of this segment.

## 4.6 FAMILY

### 4.6.1 Definition

FAMILY is the second highest level in the classification hierarchy of GPC. It defines a classification level which resembles, but is not quite the same as, the VBN application. See **Fout! Verwijzingsbron niet gevonden.** for the right comparison between the VBN application (or first position of the VBN group code) and the GPC application.

### 4.6.2 Relationships

FAMILY has a link to the code list SEGMENT\_FAMILY\_CLASS\_BRICK (“SFCB”) which defines the hierarchy of the classification.

- One family is linked to one or more records in the code list “SFCB”.

### 4.6.3 Contents

The code list FAMILY has the following contents:

field	field_name	M/C	format	key	contents
1	code_list_id	M	N..3		'31'
2	family_code	M	N8	P#	
3	family_description	M	AN..50		
4	family_definition	M	AN..1024		
5	entry_date	M	N8		ccyymmdd
6	expiry_date	C	N8		ccyymmdd
7	change_date_time	M	N12		ccyymmddhhmm

### Code list 5 : FAMILY (31)

#### 4.6.4 Example

31;93010000;Cut Flowers;Includes products that may be described/observed as flowers cut from growing plants that are used as fresh or dried flowers. These flowers may include some foliage from the same plant such as a stem and/or leaves. Excludes Cut Greens and combinations from more than one GPC family.;20141201;;201412011200

#### 4.6.5 Explanation

- 1: code list '31' is for FAMILY, the second highest GPC hierarchy level.
- 2: family code defines the GPC code for a family within the GPC hierarchy and is used for GPC. See for the coding principles *Table 1 : GPC coding*.
- 3: family description contains the textual meaning of the family.
- 4: family definition contains the definition of this family.

family_code	family_description
81010000	Lawn/Garden Supplies
93010000	Cut Flowers
93020000	Cut Greens
93030000	Live Plants (Genus A thru G)
93040000	Live Plants (Genus H thru Z)
93050000	Bulbs/Corms/Rhizomes/Tubers
93060000	Plants Variety Packs
93070000	Seeds/Spores
93080000	Shrubs/Trees
93090000	Vegetables/Fungi Plants

**Table 4 : All Horticulture GPC families**

## 4.7 CLASS

### 4.7.1 Definition

CLASS is the third highest level in the classification hierarchy of GPC. It defines the Genus and Application of all products on this level..

### 4.7.2 Relationships

CLASS has a link to the code list SEGMENT\_FAMILY\_CLASS\_BRICK (“SFCB”) which defines the hierarchy of the classification.

- One class is linked to one or more records in the code list “SFCB”.

### 4.7.3 Contents

The code list CLASS has the following contents:

field	field_name	M/C	format	key	contents
1	code_list_id	M	N..3		'32'
2	class_code	M	N8	P#	
3	class_description	M	AN..50		
4	class_definition	M	AN..1024		
5	entry_date	M	N8		ccyymmdd
6	expiry_date	C	N8		ccyymmdd
7	change_date_time	M	N12		ccyymmddhhmm

### Code list 6 : CLASS (32)

#### 4.7.4 Example

32;93010300;Alstroemeria - Cut Flowers;Cut flowers specifically of the genus Alstroemeria: also known as inca lily or peruvian lily.;20141201;;201412011200

#### 4.7.5 Explanation

- 1: code\_list\_id '31' is for CLASS, the third highest GPC hierarchy level.
- 2: class\_code defines the GPC code for a class within the GPC hierarchy.and is used for the Genus, see for the coding principles *Table 1 : GPC coding*.
- 3: class\_description contains the textual meaning of the class.
- 4: class\_definition contains the definition of this class.

**Note:** The Class definition also includes **aliases or common names** for the Genus, which might improve recognition of the Genus. However take care with this, since common names might be tricky and confusing. That was the whole idea of Linnaeus to use unique (latin) names.

## 4.8 BRICK

### 4.8.1 Definition

BRICK is the fourth highest level in the classification hierarchy of GPC. It defines the genus-species combination of all products on this level. Some botanical products may not have a species (the genus is not sub-divided into species because this division is not present or not relevant commercially). In those cases the Brick will only contain the Genus.

### 4.8.2 Relationships

BRICK has a link to the code list SEGMENT\_FAMILY\_CLASS\_BRICK ("SFCB") which defines the upper hierarchy of the classification.

- One brick is linked to exactly one record in the code list "SFCB".

### 4.8.3 Contents

The code list BRICK has the following contents:

field	field_name	M/C	format	key	contents
1	code_list_id	M	N..3		'33'
2	brick_code	M	N8	P#	
3	brick_description	M	AN..50		
4	entry_date	M	N8		ccyymmdd
5	expiry_date	C	N8		ccyymmdd
6	change_date_time	M	N12		ccyymmddhhmm

### Code list 7 : BRICK(33)

#### 4.8.4 Example

33;10006474;Cymbidium - Cut Flowers;20141201;;201412011200

#### 4.8.5 Explanation

- 1: code\_list\_id '33' is for BRICK. A brick to many people is 'the' GPC of a product, mainly because all higher levels of the hierarchy can be determined without looking at the product itself and all lower levels of the hierarchy are optional. Brick code are unique, regardless under which higher levels they belong.
- 2: brick\_code defines the GPC code for a brick within the GPC hierarchy, used for the Genus-Species combination, see for the coding principles *Table 1 : GPC coding*.
- 3: brick\_description contains the textual meaning of the brick.

**Note1:** Brick definitions are listed in the NAMES code list, because they consist of two separate definition fields, one for the Include and one for the Exclude definition. Translations of two types of definition field in one code list might be confusing. See *Table 2 : Translations available* for the available fields for Bricks

**Note2:** As with the Genus, for Genus/Species combinations also, **aliases or common names** are provided in the definition fields. The Dutch translation also includes common names in the definitions.

## 4.9 SEGMENT\_FAMILY\_CLASS\_BRICK

### 4.9.1 Definition

SEGMENT\_FAMILY\_CLASS\_BRICK is a code list whose purpose it is to define the upper hierarchic level of the GPC code system. It defines which segments are linked to which families and for each family to which classes and for each class to which bricks it belongs. It is the “flattened” definition of that hierarchy and contains one record for each complete branche of the hierarchy tree. Therefore the total number of Bricks in the Horticulture segment defines the number of records in this code list.

### 4.9.2 Relationships

SEGMENT\_FAMILY\_CLASS\_BRICK (“SFCB”) has links to all upper level hierarchical components of GPC.

- More records of “SFCB” are linked to one record in SEGMENT
- More records of “SFCB” are linked to one record in FAMILY
- More records of “SFCB” are linked to one record in CLASS
- One record in “SFCB” is linked to one record in BRICK
- One record in “SFCB” may be linked to 0 or more records in PRODUCT\_GPC
- One record in “SFCB” is linked to one or more records in

BRICK\_ATTRIBUTE\_TYPE\_ATTRIBUTE\_VALUE (“BATAV”)

### 4.9.3 Contents

The code list SEGMENT\_FAMILY\_CLASS\_BRICK has the following contents:

field	field_name	M/C	format	key	contents
1	code_list_id	M	N..3		'36'
2	segment_code	M	N8	F#	
3	family_code	M	N8	F#	
4	class_code	M	N8	F#	
5	brick_code	M	N8	P#	
6	entry_date	M	N8		ccyymmdd
7	expiry_date	C	N8		ccyymmdd
8	change_date_time	M	N12		ccyymmddhhmm

### Code list 8 : SEGMENT\_FAMILY\_CLASS\_BRICK (36)

#### 4.9.4 Example

36;93000000;93010000;93010300;10006464;20141201;;201412011200

#### 4.9.5 Explanation

- 1: code\_list\_id '36' is for SEGMENT\_FAMILY\_CLASS\_BRICK.
- 2: segment\_code defines a link to SEGMENT
- 3: family\_code defines a link to FAMILY
- 4: class\_code defines a link to CLASS
- 5: brick\_code defines a link to BRICK



## 4.10 ATTRIBUTE\_TYPE

### 4.10.1 Definition

ATTRIBUTE\_TYPE is part of the optional lower level hierarchy, comparable with the Dutch VBN Characteristics\_type or feature type (sorteringskenmerk in Dutch) . It allows users to further define, detail and classify products belonging to one brick on some predefined other characteristics. It may be that some users do not see the necessity for a finer granularity than that of a brick. For other bricks there might not be attributes defined as yet.

### 4.10.2 Relationships

ATTRIBUTE\_TYPE has a link to the code list BRICK\_ATTRIBUTE\_TYPE\_ATTRIBUTE\_VALUE ("BATAV") which defines the lower hierarchy of the classification.

- One ATTRIBUTE\_TYPE record is linked one or more records in the code list "SFCB".

### 4.10.3 Contents

The code list ATTRIBUTE\_TYPE has the following contents:

field	field_name	M/C	format	key	contents
1	code_list_id	M	N..3		'34'
2	attribute_type_code	M	N8	P#	
3	attribute_type_code_description	M	AN..50		
4	attribute_type_code_definition	M	AN..1024		
5	entry_date	M	N8		ccyymmdd
6	expiry_date	C	N8		ccyymmdd
7	change_date_time	M	N12		ccyymmddhhmm

### Code list 9 : ATTRIBUTE\_TYPE (34)

#### 4.10.4 Example

34;20002918;Horticulture Colour;Indicates, with reference to the product branding, labelling or packaging, the descriptive term that is used by the product manufacturer to describe the first general colour impression when you look at the floricultural product as a whole, for cut flowers and flowering plants the colour of the flower, for other products the colour of the leaves.;20141201;;201412011200

#### 4.10.5 Explanation

- 1: code\_list\_id '34' is for ATTRIBUTE\_TYPE.
- 2: attribute\_type\_code defines the GPC code for an attribute type within the GPC hierarchy, used for special characteristics, see for the coding principles *Table 1 : GPC coding*.
- 3: attribute\_type\_code\_description contains the textual meaning of this attribute type code..
- 4: attribute\_type\_code\_definition contains the definition of this attribute type code.

## 4.11 ATTRIBUTE\_VALUE

### 4.11.1 Definition

ATTRIBUTE\_VALUE is part of the optional lower level hierarchy, comparable with the Dutch Linnaeus Characteristics Value (kenmerk waarde in Dutch) . Every attribute type may have multiple values attached to it. (*This is registered in BRICK\_ATTRIBUTE\_TYPE\_ATTRIBUTE\_VALUE.*) Although, for instance, some Plants or Flowers may not be available in all colors, every color is included for every brick. The attributes have, what they call, “generic” pick lists.

### 4.11.2 Relationships

ATTRIBUTE\_VALUE has a link to the code list BRICK\_ATTRIBUTE\_TYPE\_ATTRIBUTE\_VALUE (“BATAV”) which defines the lower hierarchy of the classification.

- One ATTRIBUTE\_VALUE record is linked one or more record in the code list “SFCB”.

### 4.11.3 Contents

The code list ATTRIBUTE\_VALUE has the following contents:

field	field_name	M/C	format	key	contents
1	code_list_id	M	N..3		'35'
2	attribute_value_code	M	N8	P#	
3	attribute_value_description	M	AN..50		
4	attribute_value_definition	M	AN..1024		
5	entry_date	M	N8		ccyymmdd
6	expiry_date	C	N8		ccyymmdd
7	change_date_time	M	N12		ccyymmddhhmm

### Code list 10 : ATTRIBUTE\_VALUE (35)

#### 4.11.4 Example

35;30012100;INDOOR/OUTDOOR;Products can be used both in- and outdoor, as is the case with many patio or balcony products. Often depending on temperature and climatic circumstances;20141201;;201412011200

#### 4.11.5 Explanation

- 1: code\_list\_id '35' is for ATTRIBUTE\_VALUE.
- 2: attribute\_value\_code defines the GPC code for an attribute value within the GPC hierarchy., see for the coding principles *Table 1 : GPC coding.*
- 3: attribute\_value\_description contains the textual meaning of this attribute value code.
- 4: attribute\_value\_definition contains the definition of this attribute value code.

## 4.12 BRICK\_ATTRIBUTE\_TYPE\_ATTRIBUTE\_VALUE

### 4.12.1 Definition

BRICK\_ATTRIBUTE\_TYPE\_ATTRIBUTE\_VALUE is a code list whose purpose is to define the lower hierarchic level of the GPC code system (feature type and feature value or in Dutch “kenmerk en kenmerkwaarde). It defines what Brick is linked to which Attribute types and which values are allowed for the Brick - Attribute Type combination

### 4.12.2 Relationships

BRICK\_ATTRIBUTE\_TYPE\_ATTRIBUTE\_VALUE (“BATAV”) has links to all lower level hierarchical components of GPC and links the Upper GPC levels to the Lower GPC levels.

- One or more “BATAV” records are linked to one brick in “SFCB”
- One “BATAV” record may be linked to 0 or more ATTRIBUTE\_TYPE records.
- One “BATAV” record may be linked to 0 or more ATTRIBUTE\_VALUE records

**Note1:** If a “BATV” record is linked to an ATTRIBUTE\_TYPE, it is at least linked to 1 or more ATTRIBUTE\_VALUE records.

**Note2:** Even though some bricks have no attributes, there still is a record for them in BATAV. The attribute type and attribute value in “BATAV” are empty in those cases.

### 4.12.3 Contents

The code list BRICK\_ATTRIBUTE\_TYPE\_ATTRIBUTE\_VALUE has the following contents:

field	field_name	M/C	format	key	contents
1	code_list_id	M	N..3		'37'
2	brick_code	M	N8	P#	
3	attribute_type_code	C	N8	PF#	
4	attribute_value_code	C	N8	PF#	
5	entry_date	M	N8		ccyymmdd
6	expiry_date	C	N8		ccyymmdd
7	change_date_time	M	N12		ccyymmddhhmm

### Code list 11 : BRICK\_ATTRIBUTE\_TYPE\_ATTRIBUTE\_VALUE (37)

#### 4.12.4 Example

37;10003290;20002052;30002518;20141201;;201412011200

#### 4.12.5 Explanation

- 1: code\_list\_id '37' is for BRICK\_ATTRIBUTE\_TYPE\_ATTRIBUTE\_VALUE.
- 2: brick\_code defines a link to BRICK
- 3: attribute\_type\_code defines a link to ATTRIBUTE\_TYPE
- 4: attribute\_value\_code defines a link to ATTRIBUTE\_VALUE

The example 37;10003290;20002052;30002518;20141201;;201412011200 means that the brick 100003290 : Bulbs/Corms/Rhizomes/Tubers may be defined with feature type 20002052 : Growing Medium and have a feature type value of 30002518 : UNIDENTIFIED

## 4.13 PRODUCT\_GPC

### 4.13.1 Definition

PRODUCT\_GPC is a code list that provides a link between the Linnaeus world of product codes and that of the GPC coding system. The Linnaeus product code from Floricode (formally called VBN code) is well known and broadly in use in the floricultural sector. With this table the user can find the correct GPC code for each individual floricultural product which has a Floricode product code.

### 4.13.2 Relationships

PRODUCT\_GPC has a link to the code list SEGMENT\_FAMILY\_CLASS\_BRICK which defines the higher hierarchy of the classification.

- One PRODUCT\_GPC record is linked to only one record in "BRICK".
- One "BRICK" record is linked to 0 or more records in PRODUCT\_GPC

Note: some Brick codes are not related to any VBN Product, like the bricks for bouquets.

### 4.13.3 Contents

The code list PRODUCT\_GPC has the following contents:

Field	Field_name	M/C	Format	Key	contents
1	code_list_id	M	N..3		'39'
2	product_id	M	N..7	P#	PRODUCT identifier
3	application_id	M	N..2	F#	APPLICATION identifier
4	VBN_product_name	M	AN..105		Product name
5	short_product_name	M	AN..20		Short product name
6	registrator_id	C	N..2	F#	PLANT registrator id
7	plant_registration_number	C	N..7	F#	PLANT registration nr.
8	composite_indicator	M	N1		'0'
9	VBN_group_code	M	N8		VBN Group identifier
10	brick_code	M	N8	F#	Brick code
11	entry_date	M	N8		ccyymmdd
12	expire_date	C	N8		ccyymmdd
13	change_date_time	M	N12		ccyymmddhhmm

### Code list 12 : PRODUCT\_GPC (39)

#### 4.13.4 Example

39;319643;3;Gentiana makinoi 'Blue Magic';GENT M BLUE MAGIC;1;171807;0;31002101;10006631;20100812;;201008121205

#### 4.13.5 Explanation

- 1: code\_list\_id '39' is for PRODUCT.
- 2: product\_id is the Floricode (VBN) product code
- 3: application\_id defines under which application (cut flower, pot plant, garden plant) this product belongs; this refers to the code list APPLICATION in the distribution set of the VBN product codes
- 4: VBN product name: if the product is a plant, as a rule, its name is made up of the concatenation of its genus name, species name (if any) and its cultivar name (if any); in some cases the name may consist of non-botanical elements
- 5: display abbreviation: short name for (clock) display purposes
- 6: ID of the organisation that has registered the plant, for example:

- 1: VKC
- 2: VARB

Together with field 7, this field constitutes a reference to code list *PLANT* in the distribution set of the VBN product codes

- 7: number under which the plant is registered by the registration authority
- 8: indicator telling whether the product is an individual product or a mixed plant; meant to support possible future rules and constraints regarding mixed products, for example:
- 1: individual product
  - 2: mixed plant
- For the meanwhile this indicator is filled with '0'
- 9: existing VBN group code.
- 10: brick\_code defines a link to BRICK, thus forming the link between VBN and GPC code systems.

## 5. Code list distribution

This section will discuss policy matters and IT aspects of the GPC code list distribution.

### 5.1 Distribution policy

With regards to the GPC distribution policy, the following principles apply.

#### 5.1.1 Responsibilities

The contents of GPC code lists is maintained by the involved code list agencies. These organisations are responsible for the correctness, completeness and the mutual consistency of the data.

The code lists will be distributed by Floricode, who will not be responsible for the code lists' contents. It will only provide the technical platform and protocols to obtain the code lists. This implies that Floricode won't perform any intrinsic processing on the data. In practice, the distribution agent's job will be limited to:

- system management and problem solving by distributing the code lists
- ensuring the availability of the distribution platform
- registering users and distributing login-ID's and passwords (if applicable)
- providing support and technical information about the code lists.

#### 5.1.2 A dataset with C-files

A basic principle of all the code lists distribution is that any business partner, at any time, must be able to obtain the complete set of the code lists from the distribution agent along with any future codes and any blocked codes that refer to historic data, as a cohesive unit from the distribution system.

Therefore a set of code list concerns normally code lists starting with the letter F, i.e., the F files, concerning the files with the actual and future valid items and all expired items. In addition to these F files, C files are delivered ("C" standing for "current" and "F" standing for "full"). The C files will contain a selection taken from the F files. The C files will contain the code lists with items for which the entry\_date is filled and the expire\_date is empty. That means that items that become effective in the future also appear in the C file. Items having an expire\_date will be included in the C files ones (mostly with an expire\_date equal with the publication date) and will be removed from the C files at the next publication of the dataset after the expire\_date has passed. Items having an expire\_date are always included in the F files.

#### Notes:

- **At the starting point of the distribution of this dataset with GPC code lists (January 2016) only the C-files will be distributed. The main reason for this is the fact that the product codes are distributed completely (with the C and F files) in another distribution set of Floricode; in that distribution set the actual and historical truth of all items is secured.**
- **GS1 has the policy for GPC codes never to re-use any code previously used and having become obsolete.**

#### 5.1.3 Update detection

Another principle is that new, expired and changed items are to be detected easily within the complete data set, without the involved business partners being bound to the update frequency of the distribution agent. The code list update fields will allow for this (see 4.1.2 *Update fields*).

To establish which codes are new, expired or changed, the code list processing application needs to record the last processing date and decide which items have been changed since that date, following the next procedure:

- new: change\_date\_time is later than the last processing date/time and entry\_date is later than or equal to the change\_date\_time
- expired: change\_date\_time is later than the last processing date/time and expiry\_date is later than or equal to the change\_date\_time

- changed: change\_date\_time is later than the last processing date/time and entry\_date is before the change\_date\_time.

To warrant a proper functioning of this procedure, GS1 and Floricode will ensure that:

- new or expired items will not be entered or become expired retroactively, but only on the change date or later
- changes will not be made retroactively nor announced in advance, but effected on the change date only.
- once expired, items will not be reused.

#### 5.1.4 Definition of new, expired and changed items

To be able to properly process the code lists, it's vital to strictly define the terms 'new', 'expired' and 'changed' items:

- new: an item, the ID of which has not yet been used before
- expired: an item with an existing ID, the expiry date of which has passed
- changed: an item with an existing ID, of which the contents of one or more of its attributes has been changed *in the database of the code list responsible agency*; since not all item attributes in the code list manager's system need to have been included in the distributed code lists, an item may be marked as changed without this being evident from any visible change in the fields of the involved code list item.

These definitions imply that items whose key fields have changed (e.g.: a change in the regulation type of a regulatory feature type) will be notified as being 'expired' (the replaced item) as well as being 'new' (the replacing item). If the change does not involve a key field but an attribute field, the item will go notified as 'changed'. The termination of items does not automatically mean that related items have also reached a deadline.

## 5.2 Distribution technique

With respect to the code list distribution technique, the following principles apply:

### 5.2.1 File format

The code list files will be available as CSV files, compressed in .zip format, using:

- semicolon as field separator
- CR-LF as record separator.

The files will be sorted on primary key. If so desired by the users, the distribution agent may offer the files in other formats, such as HTML, EDI, XML, XLS or any other. It's also conceivable that Floricode will provide a (web)service, providing update detection on behalf of the users, so as to minimize data traffic over the network. In the event, this service will be elaborated by Floricode later.

### 5.2.2 Character set

Since the NAME\_GPC code list will contain translations in languages that may use special (diacritic) characters, the Linnaeus code lists will support the UTF-8 character set (a subset of ISO/IEC 10646 Unicode). It will be up to those processing applications of the business partners, that do not support these characters, to replace special characters by appropriate dummies. In addition, the following rules/guidelines apply:

#### **No semicolons in fields**

To avoid possible conflicts with field separators, no code list field may contain a semicolon; the code list agent will see to this when producing the lists.

#### **Characters in EDI messages**

For the Floricode EDI messages (type EDIFACT), the current, limited UNOA and UNOB character sets will remain in place. Since EDI messages usually contain just codes and no descriptions or text, this restriction does not entail any functional limitation.

### Special characters in product names

Some applications in the supply chain, like most auction clocks, are unable to display diacritic characters. This implies that product names with special characters may not be correctly displayable on a clock front. Floricode has rules allowing a limited set of diacritic characters, meaning that plant names with special characters may occur.

### Characters in codes

The characters in feature type, feature type value and presentation abbreviations (in name) are limited to capitals, numbers and blanks.

#### 5.2.3 Distribution channel

This distribution set can be obtained as follows::

- Via API : <https://api.floricode.com/v2/#>
- via FTP(S): codes.floricode.com

To get access to the code lists a subscription is required. Therefore an application form is available on the website of Floricode <https://www.floricode.com/en-us/floricode/application-forms>

#### 5.3 Distribution set Floricode GPC codes

The code lists described in this document are distributed by Floricode in one distribution set. A distribution set contains one or more code lists. The distribution set with the GPC codes is:

Code owner	Distribution set	Content	Format code lists
Floricode (= FLC)	FLC020101.zip	GPC code lists horticulture	'Linnaeus format' <sup>5</sup>

The content of this distribution set is:

File code	Code list	Code list name	Completeness
20	COLOR	C20_CCYYMMDD	Actual
21	NAME_GPC	C21_CCYYMMDD	Actual
22	NAME_TYPE	C22_CCYYMMDD	Actual
30	SEGMENT	C30_CCYYMMDD	Actual
31	FAMILY	C31_CCYYMMDD	Actual
32	CLASS	C32_CCYYMMDD	Actual
33	BRICK	C33_CCYYMMDD	Actual
34	ATTRIBUTE_TYPE	C34_CCYYMMDD	Actual
35	ATTRIBUTE_VALUE	C35_CCYYMMDD	Actual
36	SEGMENT_FAMILY_CLASS_BRICK	C36_CCYYMMDD	Actual
37	ATTRIBUTE_TYPE_ATTRIBUTE_VALUE	C37_CCYYMMDD	Actual
39	PRODUCT_GPC	C39_CCYYMMDD	Actual

In contrast to the other distributions sets of Floricode this set does not (yet) contain the F (full) files including the records which are expired in the past. Up until now Floricode expects that there is no

<sup>5</sup> For general instructions on implementing the Floricode Code systems please see on their website: <http://www.floricode.com/en-us/distribution/downloadingcodes.aspx>



need in practice for these expired records for these code lists. For the code list PRODUCT Floricode refers to this code list in the distribution set with the Floricode (VBN) product codes; this set does contain the F(full) files.

## 6. Abbreviations

BATAV Brick\_attribute\_type\_attribute\_value code list

CR-LF Carriage Return / Line Feed

CSV Comma Separated Values

DNA Deoxyribonucleic acid

EAN European Article Numbering

EDI Electronic Data Interchange

FTP File Transfer Protocol

GDSN Global Data Synchronisation Network

GPC Global Product Classification

GS1 Global Standards 1, formerly known as EAN

GSMP Global Standards Management Process

GTIN Global Trade Item Number

HTML Hypertext Markup Language

LINNAEUS Code system of the Dutch Horticultural sector, named after the Swedish botanist Carolus Linnaeus, now maintained by **Floricode**

RGB Red Green Blue, coloring system for displays / computers

RHS the Royal Horticultural Society

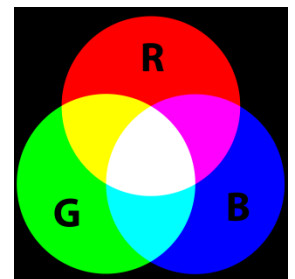
SFCB Segment\_family\_class\_brick code list

UPOV International Union for the Protection of New Varieties of Plants

VBN Vereniging van Bloemenveilingen in Nederland (Recently the code maintenance has been taken over by **Floricode**)

XLS Microsofts Excel file format

XML Extensible Markup Language



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