Material Specification
Inbound Material Packaging Requirements

1P128398

Contents

1 **PURPOSE** **4**

2 **SCOPE** **4**

3 **DOCUMENTATION REQUIREMENT** **4**

3.1 Packaging Evaluation 4

4 **DEFINITION AND EXAMPLES OF PPU, TPU, SLU** **5**

5 **LABELING REQUIREMENTS** **6**

5.1 Homogenous TPU and PPU labels 6

5.2 Mixed part label for TPU/SLU 7

6 **PACKAGING REQUIREMENTS** **10**

6.1 General Packaging Requirements 10

6.2 General Cleanliness Requirements 10

6.3 Requirements for Pallet packaging 11

6.4 Requirements for Product Packaging Units (PPU) 12

6.5 Requirements for Cardboard packaging 12

6.6 Requirements for Plastic bags 12

6.7 Requirements for Plugs, Clips, Caps etc. 12

6.8 Requirements for Packaging used inside EPAs (ESD) 13

6.9 Requirements for ESDS material 13

6.10 Boat Transportation 14

6.10.1 Requirements for Boat Transportation 14

6.10.2 Guidelines and examples for Boat Transportation 14

7 **SHIPPING DOCUMENT REQUIREMENTS** **15**

7 REQUIREMENTS - ENVIRONMENTAL IMPACT **19**

8 **REFERENCES 20**

9 **DOCUMENT REVISION & DEFINITIONS 20**

9.1 Revision history 20

9.2 Abbreviations 20

1 Purpose

To provide requirements and examples of how to avoid damage to goods during transportation as a complement (i.e. in addition) to the supplier´s obligations under Incoterms® 2020 [Ref 5] for the purpose of safe and efficient transportation and handling of goods.

2 Scope

Obligations under Incoterms® 2020 always apply, meaning the supplier is at all times responsible to make sure the packaging is fit for purpose in protecting the goods. This document outlines the specific minimum requirements to adhere to in addition to the obligations set forth under Incoterms® 2020.

The document also provides guidance in the form of examples, but these do not supersede the obligations under Incoterms® 2020 and may not be appropriate in all situations. This means that the supplier is responsible for making certain the packaging at all times is fit for purpose (avoiding any damage to goods contained within the packaging including such which can occur as a result of choosing incorrect packaging materials) considering the conditions which can be expected during transit and handling, by means of adequate testing, analysis, experience and expertise. Proving the adequacy of this evaluation into the fitness of the packaging is the supplier's responsibility.

3 Documentation requirement

3.1 Packaging Evaluation

Documentation of the supplier's evaluation of the adequacy of the packaging (as described in the Scope section of this document) may be requested by Inmotion Technologies AB at any time.

4 Definition and examples of PPU, TPU, SLU

The Product Packaging Unit **PPU** (also knows as Small Load Carriers – SLCs) is the smallest handling unit of parts in the packaging. Normally this would be a plastic tote or a cardboard box. These are usually grouped together and shipped as a TPU or shipped as a single unit called an SLU.

The Transport Packaging Unit **TPU** is the packaging unit in the condition in which it is shipped and would normally be a pallet which can contain bulk materials, neatly arranged materials or several PPUs, voidfill, external plastic wrap and PET straps etc.

In cases where the PPU is also the TPU, the packaging unit is usually described as a Simplified Loading Unit **SLU**.

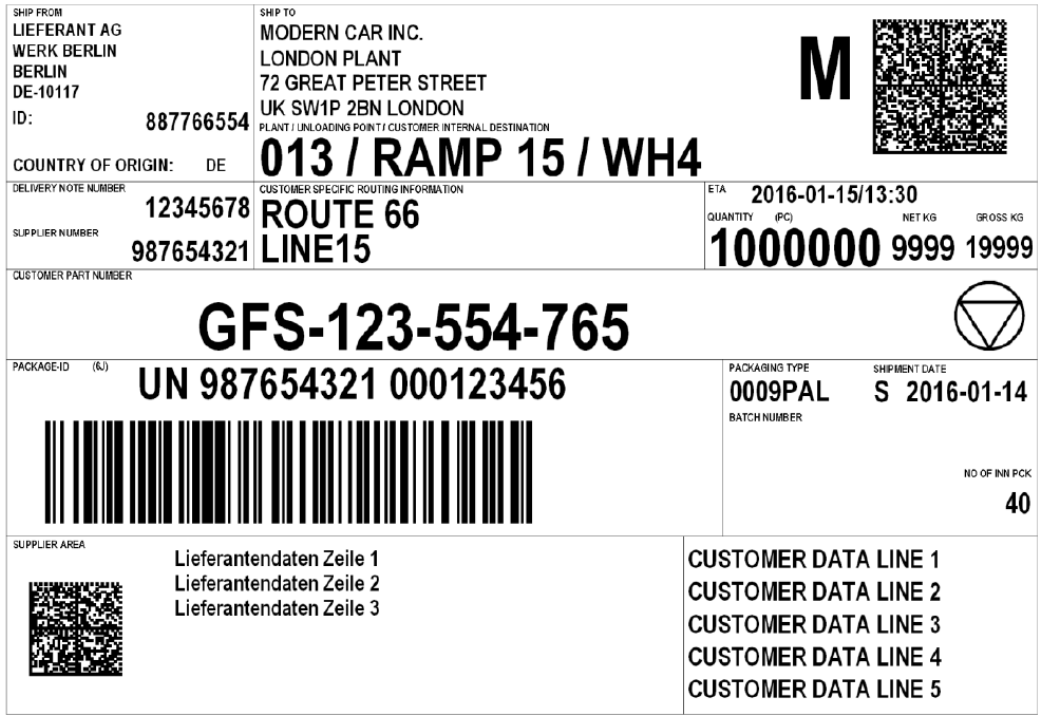
5 Labeling requirements

All consignments must have the delivery note attached to the goods inside a weather proof pouch in a clearly visible place on the outside of one of the TPUs/SLUs. All parts of the consignment must be labeled on the outside with a shipping label of the forwarder in a clearly visible place.

5.1 Homogenous TPU and PPU labels

A TPU contains individual PPUs which all contain the same part number (see section 5.2 for Mixed part labels). The TPU label shall be a VDA 4994 [Ref 6] A5 label sized 210mm x 148 mm (content and example shown below). The Customer and supplier data lines will be blank. The PPUs contained within the TPU shall use the VDA 4992 sized 50x20 mm (content and example shown below). All text on these labels shall be in block (capital) letters using the font Arrial Narrow or Helvetica Condensed.

VDA4992 (TPU/SLU label – ”Master Label for homogenous loading unit”)



VDA4992 (PPU Label)

5.2 Mixed part label for TPU/SLU

The Mixed TPU label shall be a VDA 4994 [Ref 6] A5 label sized 210mm x 148 mm (content and example shown below).
The customer data lines 1-5 shall indicate each individual part number and its quantity. If the number of different part numbers exceed 5 on a single pallet, then the remaining part numbers and quantities shall be listed on a second TPU/SLU label and so on until all part numbers and quantities are accounted for. All text on these labels shall be in block (capital) letters using the font Arrial Narrow or Helvetica Condensed.

Font Size and content definition of VDA Labels			Required fields are marked ("X")	
Data field	Short description	Font Size A5	VDA4994	VDA4992
Ship-from name 1	Name of ship-from	10	X	-
Ship-from post code	Post code of ship-from	10	X	-
Ship-from location	Ship-from's location	10	X	-
Ship-from country	ISO 3166-1 alpha-2 code of the ship-from	10	X	-
Ship-from unique ID	Ship-from ID number	10	-	-
Country of origin	ISO 3166-1 alpha-2 code of the country of origin	10	X	-
Ship-to name 1	Name of ship-to (Inmotion Technologies AB)	12	X	-
Ship-to post code	Ship-to's post code (135 70)	12	X	-
Ship-to location	Ship-to's location (Stockholm)	12	X	-
Ship-to country	ISO 3166-1 alpha-2 code of the ship-to (SE)	12	X	-
Ship-to plant number	Ship-to's plant ID number	30	-	-
Unloading point	Unloading point (where the means of transport is being unloaded)	30	-	-
Customer internal destination	Additional Internal destination at customer's side after unloading (warehouse / storage)	30	-	-
Label type	Type of Label M = Master MIX = Mixed	48	X	-
Supplier number	Supplier number of the ship-from plant (normally 5 digits e.g. 18039)	18	X	X
Delivery note number	Delivery note number, issued by supplier	18	X	-
Customer specific routing	Customer specific routing (1 line / 2 Lines)	36 / 22	-	-
Place of consumption	Place where items are used in production (1 line / 2 Lines)	36 / 22	-	-
ETA - Requested/expected time of arrival	Time of arrival, requested by customer	14	-	-
Quantity	Quantity per loading unit (Master label)	30	X	X
Unit of measure	Abbreviation of the unit of measure	6	X	-
Gross weight	Gross weight of the loading unit or inner packaging item	20	X	-
Net weight	Net weight of the loading unit or inner packaging item	20	X	-
Customer's part number	Part number assigned by customer	36	X	X
Customer's part description	Part description according to customer's nomenclature	10	Only for M label	-

Safety sign	Symbol to mark safety relevant parts	-	-	-
License plate (UUID)	Globally unique package ID of the package / loading unit	24	-	-
Package type code	Type of package code according to receiver's codification	16	-	-
Shipment date	Date and time of scheduled shipment	16	-	-
Expiry date	Best before date	16	X	X
Production date	Date of production	16	-	-
Batch number / lot number	Batch number / lot number	16	X	X
Hardware status	Hardware status	16	-	-
Software status	Software status	16	-	-
Engineering change ID	Engineering change ID	16	-	-
Number of inner package items	Number of inner packages in a loading unit	24	-	-
Supplier specific information	Supplier specific information for supplier's use only	-	-	-
Customer specific information	Only used for mixed labels to describe the contents of the TPU using multiple rows, enter the Inmotion Part number and Quantity separated by a hyphen e.g.: “ 46Y345982A02 – 52 81J213455C09 – 108 ”	14	Only for mixed part label	-

6 Packaging requirements

6.1 General Packaging Requirements

- The Supplier shall guarantee the quality of the delivered part by choosing a suitable packaging solution.
- The packaging solution shall be comprehensive i.e. it shall consider if any extra packaging is needed to protect the part and whether further tests, analysis or other forms of performance evaluations are necessary to ascertain it is fit for purpose.
- The packaging shall be suited for use in the environment and conditions which the packaging can reasonably be expected to encounter.
- The packaging composition must take into consideration and minimize the risks of damage to components in all activities starting from the packaging process at the supplier until unpacking of the goods at the end customer.
- The product being packed and the ambient air has to have a similar temperature upon packing the goods to avoid condensation inside the packaging.
- All packaging materials have to be stored in accordance with the packaging supplier's guidelines (to ensure their proper function upon use).
- The packaging solution as a whole should be suitable for international trade.

6.2 General Cleanliness Requirements

To avoid contamination inside the production area, it is necessary that the packaging solution (including any plugs, clips, caps or other protective packaging materials affixed to the products);

- Does not contain loose packaging materials such as chips, peanuts etc.
- Shall be free from dust, production residues and other contaminations.

Any specific cleanliness requirements such as those expressed on drawings are always in addition to the above requirements.

6.3 Requirements for Pallet packaging

- All wooden packaging must be ISPM15 compliant [Ref 3].

Example 1: *OK, 3 collars, WBP lid*

Example 2: *Not OK! 4 collars (too high), pallet lid of wood (may leak and shed splinters onto goods).*

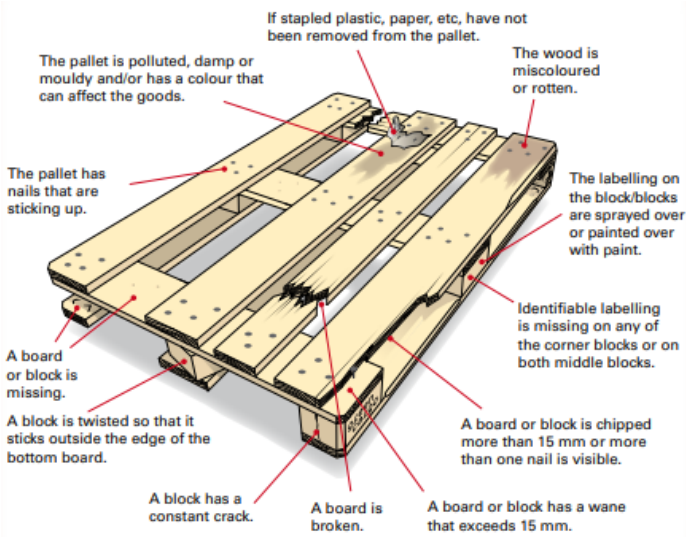
Wooden EUR pallets shall be EPAL Euro Pallet type pallets made of solid wood (chip board, plywood etc. is prohibited) and approximately 600x800x144 mm or 1200x800x144 mm. The max load bearing ability shall be at least 1500 kg. The pallets shall be 4-way pallets i.e. they can be picked up from all 4 sides (like the example to the left).

Wooden EUR pallet collars shall be made of solid wood and 600x800 mm 1200x800 mm collars with a height between 185-195 mm. Thickness shall be approximately 19,5 mm. The collar hinges should be of high quality e.g. galvanized steel of 1,5mm-2mm thickness. The max load bearing ability shall be at least 1000 kg. Collars shall be free of holes (from chipping, branch holes etc.) which exceed 12.5 mm, equivalent to IP2X.

The Pallet lid shall be made of 6-8 mm thick plywood and must cover the pallet in its entirety i.e. there may not be open holes or spaces in the lid. Lids must always be water tight. We recommend pallet lids of WBP (Water and Boil Proof)-plywood material. The lids shall have slats underneath to prevent slipping. Hardboard lids are not accepted. 8-9 mm OSB lids can only be used if explicitly requested by Inmotion Technologies AB and not by request of the supplier.

The pallet as a TPU is not allowed to exceed 1200x800x750 (3 collars) mm or 700 KG unless otherwise explicitly asked for by Inmotion Technologies AB. Pallet collars and lids must be secured by two straps. The straps shall be made of PET with a tensile strength of at least 700 KGs.
PP, PE and steel straps are not permitted.

The following wooden pallet defects are not tolerated (as shown in the image below);



6.4 Requirements for Product Packaging Units (PPU)

- PPUs e.g. cardboard boxes, plastic totes etc. may not exceed 10 KGs of gross weight unless otherwise agreed with Inmotion Technologies AB (including their contents).

- PPUs shall be able to fit snuggly into the EUR pallet indicated by Inmotion Technologies AB in the PFEP document i.e. the dimensions need to be as close to an integer fraction of the inner pallet dimensions as possible to avoid void space inside pallets.

    - For full pallets (approximate inner dimensions 1150x750x180 mm LxWxH) the PPUs shall be a maximum of 735x375x180mm.

    - For half pallets (approximate inner dimensions 750x550x180 mm LxWxH) the PPUs shall be a maximum of 735x275x180mm.

    - Bags lining the inside of PPUs and SLUs must be able to bear the weight of the contents inside the bag i.e. the bag including its contents will be possible to lift out of the PPU or SLU without risk of the bag breaking and spilling the contents.

6.5 Requirements for Cardboard packaging

- All outer TPU, PPU and SLU cardboard packaging materials must be marked in accordance with Commission Decision 97/129/EC [Ref 4] as this regulation has been adopted in a few European countries and failure to adhere to these imposes substantial fines. Inmotion may decide to forward goods to the concerned countries in the same condition as they were delivered and therefore they must uphold these requirements. The symbol is composed of a triangle formed by three arrows, a number inside the triangle, and an abbreviation of the material name under the triangle.

- If cardboard boxes or dividers are cut to size, the cuts shall be clean and the cut edges may not fray.

6.6 Requirements for Plastic bags

- The thickness of plastic bags shall be chosen so the bag can be expected to cope with the intended transport and material handling.
- All bags shall be sealed, but possible to open by hand without the use of tools unless it is required to uphold the quality of the part contained inside the packaging.

6.7 Requirements for Plugs, Clips, Caps etc.

In cases where plugs, clips, caps or other protective packaging materials are affixed to the product (those not specified on the drawing of the part) need to stay in place for the full duration of the transportation and handling up until the point of assembly and shall be easily removable by hand (without the use of tools).

6.8 Requirements for Packaging used inside EPAs (ESD)

In order to be able to bring the packaging inside ESD (Electro Static Discharge) protected areas (EPAs), the following requirements must be met;

- All applicable packaging material inside the TPU, SLU and PPU shall be ESD classified and tested as "Static dissipative" or "Conductive" according to IEC 61340-5-1 section 5.3.4 and 5.3.5.[Ref 1]. This also applies to void fill, cardboard and paper which may be brought into an EPA. To avoid ESD damage, these materials also have to be classified and tested as indicated above.
- All packaging material shall be marked in accordance to IEC 61340-5-3 section 7.2 and traceable according to section 7.2.3 [Ref 2]
- ESD dissipative plastics and foam packaging materials shall be pink in color. ESD conductive plastics and foam packaging materials shall be black in color.
- This ESD requirement is not valid for external wrapping of a parcel or pallet as this is removed upon goods receipt.

6.9 Requirements for ESDS material

In order to protect the ESD Sensitive (ESDS) materials e.g. PCBAs, electronic parts from Electro static discharge, the following requirement must be met:

- Approved shielded ESD bags or black conductive ESD boxes (with applicable conductive inner packaging) shall be used to protect the ESDS material. If a shielded bag will be used, one large bag or individual packed is optional as long as it will not affect the quality of the delivered parts.

6.10 Boat Transportation

6.10.1 Requirements for Boat Transportation

- The environmental conditions posed by shipping goods on the water must always be adequately addressed by the packaging solution. Make sure to consider the requirements posed in sections 3.1 and 6.1 in conjunction with this requirement.
- Any exposed bare metal parts shall not be in direct contact with cardboard, paper or wood.

6.10.2 Guidelines and examples for Boat Transportation

- The goods contained within the packaging can be protected by an air tight barrier to prevent atmospheric exchange between what is contained inside the barrier and the outside environment e.g. ESD pallet bag sealed with ESD tape which contains sufficient amounts of desiccants ("dehydrants") to absorb all excess moisture.
- Additional corrosion protection (apart from what is specified on drawings or other specifications e.g. Storage requirements) must be used of the correct type and amount, placed in the correct place as to effectively protect the quality of the goods. The corrosion protection may not leave residue on the parts (which would entail that the parts have to be cleaned upon arrival) or degrade the quality of the parts in any way. In some instances, VCI paper, VCI bags or similar products may be appropriate.
- Below is an example (not a recommendation) of a standardized test using salt spray and a cyclic climatic test to gauge the suitability for sea freight.

Test specification and Test method

ISO 9227:2022 NSS

Severity

Concentration of NaCl	:	5 %
pH of salt solution	:	6.5 - 7.2
Number of cycles	:	1
Total duration	:	6h

IEC 60068-2-30: Cyclic Climatic test – Modified: Temp. 10° C to 70° C – 93%RH

Severity

Temp. min.	:	10° C
Temp. max.	:	70° C
Humidity	:	93% RH
Number of cycles	:	7
Total duration	:	168h

Procedure

The test objects are installed in the salt mist chamber and sprayed with the salt mist solution for a period of 6 hours.

At the end of the spraying period, the test object is moved to the climatic chamber and stored at a temperature of 10 - 70 ºC ±2 ºC and a relative humidity of 93 % +2 % for a period of 7 days.

7 Shipping document requirements

In order to prevent delays, expenses and other risks due to insufficient documentation, these requirements must be met;

Dangerous or Hazardous goods

- Any dangerous goods supplied to Inmotion Technologies AB must carry sufficient and correct information on labels and other supplied documents.

Customs related information on documents from suppliers in third countries to the European Union

- Applicable freight and customs related documents provided to the forwarder and to Inmotion Technologies AB shall comply with ICS2 (Import Control System 2) and CBAM (Carbon Border Adjustment Mechanism) to prevent any delays or rejections by customs. Any applicable certificates, invoice declarations, supplier declarations or similar documents necessary for customs proceedings or the possible reduction of customs import fees have to be supplied along with each shipment to facilitate the import process. The supplier will provide updated documents and clarifications within 1 working day upon request in case issues arise with regard to the supplied documentation.

Contents of the Delivery note (Mandatory information marked with *. Information which can be part of a packing list is marked X)

DN	PL	Contents
*		Delivery Note number (unique reference)
*		Goods Issue Date
*		Reference to Supplier Invoice number
	X	Reference to Supplier Delivery Note
(*)	X	Reference to Supplier Packing List (if applicable)
*		Supplier Number (Inmotion's allotted number for the specific supplier)
*	X	Seller's legal name and address
*		Buyer's legal name and address
(*)		Ship From / Consignor address (if different from the seller's address)
(*)		Ship To / Consignee address (if different from the seller's address)
*		Consignee EORI number (Inmotion Technologies AB SE-5569686511) & VAT (Inmotion Technologies AB SE556968651101)
*		Delivery Terms in accordance with Incoterms® 2020
*		Delivery Terms Place (As specific as possible)[1]
*	X	Supplier Contact information (Name, e-mail, Phone number)
*		Notify party (Name, e-mail, Phone number)
		Forwarder
		Tracking number
*	X	Itemized list containing
*		- Purchase order number
*		- Purchase order item
		- Supplier Part Number
*	X	- Inmotion Technologies AB Part Number
*	X	- Quantity of the goods
		- Quantity still to be delivered on purchase order item
*		- HS Code
*	X	- Trade / Part number description (ICS2 Compliant) i.e. possible to classify parts according to the appropriate HS code.
		- Inmotion Part number description (if different from HS code description)
*		- Country of origin

[1] E.g. "FCA Ningbo,CN" - these incoterms can be interpreted as either a pickup from the supplier's plant in Ningbo, China or at a terminal in Ningbo. Avoid ambiguity.

*	X	- Net weight per item
*	X	- Unique identifier(s) visible on single or groups of parts (if applicable).
*	X	Type of packaging such as wooden pallet, cartons etc. (could be part of the itemized list as well)
*	X	Packaging Marks
*	X	Total number of packages
*	X	Total Net and Gross Weight)

Contents of Shipping invoice (Mandatory information marked with *)

IN	Contents
*	Invoice number
*	Invoice Issue Date
*	Reference to Delivery Note / Packing List
*	Seller's legal name and address
*	Buyer's legal name and address
	Ship From / Consignor address (if different from the seller's address)
	Ship To / Consignee address (if different from the seller's address)
*	Consignee EORI number (Inmotion Technologies AB) EORI SE-5569686511 & VAT (Inmotion Technologies AB) VAT number SE556968651101
*	Number and type of packages, gross weight and how the packages are marked
*	Itemized list containing;
*	- Purchase order number
*	- Purchase order item
*	- Supplier Part Number
*	- Inmotion Technologies AB Part Number
*	- Supplied quantity
*	- HS Code
*	- Inmotion Part number description (if different from HS code description)
*	- Trade / Part number description (ICS2 Compliant) i.e. possible to classify parts according to the appropriate HS code.
*	- Country of origin
*	- Quantity of the goods
*	- Price per article including currency
*	- Delivery Terms
*	- Delivery Terms Place
*	- Payment Terms
*	Any discounts including what kind of discounts and their value (if applicable).
*	Invoice declaration (if applicable e.g. Statement of origin)
*	Total amount and currency
*	Supplier Number (Inmotion's allotted number for the specific supplier)
*	Supplier Invoice Contact information (Name, e-mail, Phone number)

7 Requirements - Environmental impact

A supplier that is responsible for planning and choosing packing materials for products delivered to Inmotion Technologies AB should do it in such a way that the total environmental impact is minimized.

Composite packaging materials are not permitted to promote recyclability (e.g. foam glued onto cardboard). All packaging materials must be either recyclable or reusable unless otherwise agreed with Inmotion Technologies AB.

8 References

#.	Name	Number/Ref.	Rev
[Ref 1]	International Standard Electrostatics (ESD)	IEC 61340-5-1	
[Ref 2]	International Standard Electrostatics (ESD)	IEC 61340-5-3	
[Ref 3]	Regulation of wood packaging material in international trade - International Plant Protection Convention LINK	ISPM 15	
[Ref 4]	European Commission LINK	Commission Decision 97/129/EC	
[Ref 5]	Incoterms® 2020 LINK	Incoterms® 2020	
[Ref 6]	VDA4994 Specifications LINK	VDA4994	

9 Document Revision & Definitions

9.1 Revision history

Revision No	Revision Change	Date
Rev 5	Maximum size for folding carton or plastic box packaging	March 2019
Rev 6	Adding packaging requirement in section 4.6	2024-01-17
Rev 7	Updated the entire document	2025-09-05

9.2 Abbreviations

Abbreviation	Description
ESD	Electro Static Discharge
ESDS	ESD Sensitive
WBP	Weather and Boil Proof
TPU	Transport Packaging Unit
PPU	Product Packaging Unit
SLU	Simplified Loading Unit
FCA	Free Carrier
VAT	Value Added Tax
EORI	Economic Operators Registration and Identification