# Contents

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**Changes**

Renaming from „TST_N09800.01-003_Packaging_Definition-Process-Requirements_Plant Sibiu" to „TST_N09800.01-003_Packaging-Requirements_Plant Sibiu" and updating the TST chapters

**Previous Editions:**

[00] Update Chapter 5 „Plant specific requirements for packaging development and definiton" and add subchapters 5.1 - 5.8
[00] Update CONTACTS @ SCM-PACKAGING PLANT SIBIU

## 1    SCOPE

Plant Specific Requirement - Plant Sibiu, as supplement to TST N09800.01-000_ Packaging Requirements

## 2    APPLICATION

This norm shall apply to activities related to purchasing and supply of production material in Continental plant Sibiu. This norm is part of the currently valid purchasing and logistic agreement between the supplier and Continental Sibiu and states binding requirements for logistic processes and procedures. Except otherwise explicitly laid down in the currently valid purchasing and logistic agreement, the supplier shall undertake to meet the requirements stated in this norm.  In the event that any of the provisions of this norm is ineffective, the other provisions of this norm shall remain in full force and effect. Due to changing framework conditions, it will be necessary to adapt the supply chain requirements from time to time. For the avoidance of doubt, the mutually agreed binding stipulations of the latest concluded Global Supply Chain Concept (GSCC) contract shall apply and prevail.

## 3    REFERENCES

- TST N09800.01-000          Packaging Requirements
- VDA 19.2_09.2010                Technical Cleanliness in assembly
- "Empties Management Sibiu"
- TST N098 02.02 000          Plastic pallets and Test Specification
- „Order Form Empties_EN"
- TST N 098 01.01 000          Packaging Specification Data Sheet
- Definition of Packaging-Loop    (template, part of the SCM SCR process)
- TST N09800.03-000          Requirements on marking of goods"
- General MAT-Label Specification, Version 2.6"
- TST N098 01.13-000          Specification Sheet for Inlays and Trays

All TSTs and Appendices are downloadable at the CA Homepage
"Supply Chain Standards & Manuals @ Continental Automotive":
https://www.continental-automotive.com/en-gl/Passenger-Cars/Company/Supplier-Logistics

## 4 RESPONSIBILITIES

Supply chain procedures and processes are becoming increasingly important in relatioships between Continental and suppliers. This norm aims to standardize and continously improve procurement processes involving Continental and suppliers.

### 4.1 Responsibilities during the development process

Supplier is in charge of proposing a standard series packaging using the template PSDS "Packaging Specification Data Sheet" and shall agree with Continental upon packaging.
Also the supplier is requested to introduce a timeline (as shown in the TST N09800.01-000_Packaging Requirements, Packaging planning procedure) showing following milestones and timelines concerning the packaging concept:
- development                                  - sample approvals and if necessary
- drawing releases                            - final approval (released by Continental Sibiu)

### 4.2 Responsibilities for packaging materials according to the SCR

Continental Sibiu uses following packaging types:
1. **Standardized packaging**
   - KLT/box
   - KLT/box - cover/lid
   - Pallet
   - Pallet cover/lid

2. **Part specific packaging**
   - Dunnage / trays (in KLT)
   - Self-carrying trays

Regarding this classification the following responsibility split is requested:
- In case of **expendable** packaging supplier is responsible for all packing materials
- In case of **returnable** packaging responsibility for

| | | |
|---|---|---|
| Standard Returnable **outer packaging** components: Box/Box cover /Pallet/Pallet cover | responsibility for procurement/acquisition → initial _and_ supplementary purchase | Continental |
| | responsibility for replacement | Continental |
| | responsibility for cleaning before packing of contract products (incl. removal of old labels) | Supplier |
| | responsibility for return of empties → organization and payment depends on agreed INCOTERMS or CA Trade Terms) | Supplier/ Continental |
| Part specific – **Inner packaging:** Dunnage (trays, selfsupporting trays, separators, partition etc.) | responsibility for procurement/acquisition → initial _and_ supplementary purchase → _sufficient_ quantity | Supplier |
| | responsibility for replacement | Supplier |
| | responsibility for cleaning before packing of contract products (incl. removal of old labels) | Supplier |
| | responsibility for return of empties → organization and payment | Supplier |

Figure 4.2-1 Responsibilities for Returnable Packaging

As shown in the table above, part specific returnable packaging components are to be purchased by the Supplier and quoted as *piece price adder*, amortized over the piece price throughout the *lifetime* of the project.

Initial quantity of packaging to be purchased has to be defined regarding Continental's demand/delivery quantities/delivery frequency, internal process times as defined in the Packaging Loop Definition (e.g. production cycle, batch sizes), packing density, sourcing model (consignment or not), transit/ transportation time, safety stock (if contractually agreed) - please refer to definition of returnable packaging loop. Supplementary purchase means purchase before SOP or during serial production in case of demand increases, switch from non-consignment to consignment, relocation of production area etc, replacement in case of natural wear and tear as well as damage and loss. Returnable packaging must be stored protected from weather effects, dust, humidity, damaging, etc.

Continental is entitled to request to the supplier the modification of packaging in case of a quality problem caused by the packaging that can appear during the series productions or ramp-up.

Damaged or lost returnable packaging components will be replaced according to above table. Costs will be charged to the responsible part.

Packaging must be designed and provided to minimize waste disposal and maximize recycling potential and be eco-friendly.

The maximum gross weight per p-pack must not exceed 15Kg.



Outer packaging     Dunnage     $\leq$ 15Kg

## 5 PLANT SPECIFIC REQUIREMENTS FOR PACKAGING DEVELOPMENT AND DEFINITON

In addition to the general requirements described in TST N09800.01-000_Packaging Requirements, Continental Sibiu has the following specific requirements :

### 5.1 Loading Unit and Pallet characteristics

**Material:**
- **Solid wood**, mono-material plastic (only if it's marked with recycling code).
- Moulded presswood pallets are forbidden!
- Maximum gross weight of 600kg per LU
- By using solid wood, the import- and export-regulations of the involved countries have to be considered (IPPC, ISPM No. 15). For every delivery supplier should submit a cerificate for pallets conformity IPPC, ISPM No. 15.
- Pallets must not be damaged, outstanding nails or wood chips are unacceptable!

**Design:**
- Four-way-free-entry block-pallet, with three skids, min. width of skids 90mm
- Usage of a „Full Perimeter Pallet" has to be agreed by the receiving plant, because these pallets cannot be handled with a manual pallet jack.

**Securing the goods:**
- The goods have to be secured against any movement on the transport
- The LU has to be strapped 4 times, 2 times lengthwise and 2 times crosswise.
- Wide plastic straps made of PET or PP have to be used to secure the goods/ (GLT) on the pallet.
- In special cases edge protection support has to be used.

| Name | ESD Plastic Heavy Pallet |  |
| :---: | :---: | :---: |
| SAP Part number | 98-0789-1103-0-00 | |
| Material | ESD PP-L | |
| Outer dimensions | 1200 x 800 x 160 mm | |
| Weight | 20 kg | |
| Name | Wood Pallet (IPPC certified) |  |
| SAP Part number | 98-0701-0000-1-00 | |
| Material | Wood | |
| Outer dimensions | 1200 x 800 x 144 mm | |
| Weight | 25 kg | |
| Name | ESD Plastic-Light-Pallet |  |
| SAP Part number | 98-0348-1285-0-00 | |
| Material | HD-PE | |
| Outer dimensions | 1200 x 800 x 150 mm | |
| Weight | 12 kg | |
| Name | A 1208-1 Pallet Cover |  |
| SAP Part number | 98-6000-0203-0-00 | |
| Material | ESD PE | |
| Outer dimensions | 1200 x 800 x 84 mm | |
| Weight | 5.75 kg | |
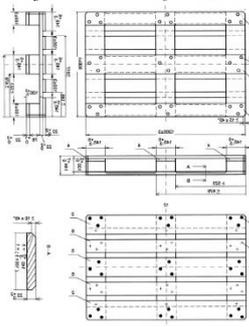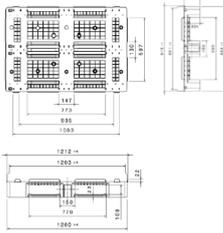
Figure 5.1-1 Standard pallets and pallet cover used in CAS

**Loading unit requirements**:

Usage of pallet is mandatory even in case of small quantity of primary packaging.
Maximum **height** of a loading unit depending on the type of transport (length x width x height):

- **Airfreight:**    1200 x 800 x 1000 mm - Container LD3 will be used for sensitive parts;
- **Truck:**         1200 x 800 x 1100 mm;

Maximum **gross weight** of 600 kg per Loading Unit;
Pallets which cannot be stacked has to be marked by "DO NOT STACK".

**Pyramidal palletization is not allowed!**

Figure 5.1-2: Not acceptable (left) and acceptable (right) loading units (LU)

Regarding returnable type of packaging, the entire loading unit(including pallet and pallet lid) must be wraped in plastic strech foil and secured with minimum 4 plastic straps.

Figure 5.1-3.: Not acceptable (left) and acceptable (right) loading units (LU)

**Mixed loading unit not permited**: only the same primary unit per pallet (only one type of item per handling unit and per pallet). Exceptions to be released by Conti Sibiu packaging development.

**Incomplete boxes** must be placed in the right corner at the top level of the pallet, taken into consideration as reference the entrance of the pallet. The incomplete box must be identified with a *yellow tape* as presented in picture below and marked with „*Incomplete box*" text.



Figure 5.1-4.: Marking and identification of „Incomplete boxes"

### 5.2 Standard Returnable packaging

In general reusable packaging is defined as transport packaging from the supplier to Continental Sibiu and not as a storage packaging. It is not allowed to use Continental owned packaging for internal supplier production processes or for subcontractors.

Supplier is obliged to keep records of the returnable packaging components and cross check with transportation companies and Continental (minimum requirement: maintain a Excel-list of all ingoing and outgoing bookings of empties with date, delivery note, quantity of empties). All returnable packaging is subject to the empties account management process for traceability of packaging materials.

Containers below are used as standard KLT's sent by Continental for returnable concepts.
Also are used to re-pack the materials from cardboard boxes. Materials packed in cardboard boxes must contain an internal ESD bag in order to move the parts efficientively during the repacking process.



Figure 5.2-1.: Standard repacking process

| Container name | **ESD RL-KLT 6047** | |
| --- | --- | --- |
| **SAP Part number** | 98-4500-6047-0-00 | |
| **Exterior dimensions** | 594 x 396 x 147.5 mm | |
| **Inner dimensions** | 544 x 359 x 129.5 mm | |
| **Weight** | 1.8 kg | |
| **Containers/ Loading unit** | 4 container/layer x 6 layers/pallet = 24 KLTs/L.U. | |

| Container name | **ESD RL-KLT 6013** | |
| --- | --- | --- |
| **SAP Part number** | 98-4500-6013-0-00 | |
| **Exterior dimensions** | 594 x 396 x 213mm | |
| **Inner dimensions** | 544 x 359 x 195 mm | |
| **Weight:** | 2.3 kg | |
| **Containers/ Loading unit** | 4 container/layer x 4 layers/pallet = 16 KLTs/L.U. | |

| Container name | **ESD RL-KLT 6080** | |
| --- | --- | --- |
| **SAP Part number** | 98-4500-6080-0-00 | |
| **Exterior dimensions** | 594 x 396 x 280 mm | |
| **Inner dimensions** | 544 x 359 x 262 mm | |
| **Weight:** | 2.7 kg | |
| **Containers/ Loading unit** | 4 container/layer x 3 layers/pallet = 12 KLTs/L.U. | |

| Cover Name | **VDA ESD RL- KLT D61 cover** | |
| --- | --- | --- |
| **SAP Part number** | 98-4500-6461-0-00 | |
| **Dimensions** | 563 x 367 x 22 mm | |

Figure 5.2-2: Description of KLT 60xx and KLT cover

| Container name | ESD RL-KLT 4047 |
|---|---|
| SAP Part number | 98-4500-4047-0-00 |
| Exterior dimensions | 396 x 297 x 147 mm |
| Inner dimensions | 345 x 260 x 129.5 mm |
| Weight | 1.1 kg |
| Containers/ Loading unit | 8 container/layer x 6 layers/pallet = 48 KLTs/L.U. |

| Container name | ESD RL-KLT 4013 |
|---|---|
| SAP Part number | 98-4500-4013-0-00 |
| Exterior dimensions | 396 x 297 x 213.7 mm |
| Inner dimensions | 345 x 260 x 196 mm |
| Weight: | 1.6 kg |
| Containers/ Loading unit | 8 container/layer x 4 layers/pallet = 32 KLTs/L.U. |

| Container name | ESD RL-KLT 4080 |
|---|---|
| SAP Part number | 98-4500-4080-0-00 |
| Exterior dimensions | 396 x 297 x 280 mm |
| Inner dimensions | 345 x 260 x 262 mm |
| Weight: | 1.7 kg |
| Containers/ Loading unit | 8 container/layer x 3 layers/pallet = 24 KLTs/L.U. |

| Cover Name | VDA ESD RL- KLT D41 cover |
|---|---|
| SAP Part number | 98-6000-0030-6-00 |
| Dimensions | 400 x 300 x 32 mm |

Figure 5.2-3: Description of KLT 40xx and KLT cover

### 5.3 Expendable/overseas packaging requirements

In addition to the general requirements described in TST N 098 00.01-000, Continental Sibiu has the following plant specific requirement that apply to the expendable packaging:

- maximum **inner dimensions** in millimeters [mm] of the boxes : **544** (length), **359** (width), **262**(height);
- maximum **exterior dimensions of the trays** in millimeters [mm]: **540** (length), **355** (width);
- the use of an **ESD bag** for the whole box interior (which will contain all parts from box) is **mandatory**;
- use an **ESD separator interlayer** for multiple layers layout (bulk packaging is not allowed);
- remaining space must be filled with an **ESD divider**;
- highly sensitive parts must be protected : **ESD dividers** between it/or usage of **ESD trays**;
- the preffered method for labelling - marking of goods in case of expendable packaging is placing a label holder onto the exterior of the box or a removable peel-off label (see figure 5.3-2).
- Note: All ESD material should be **ESD „Dissipative" (material with surface resistance approx. $10^4 \ \Omega \le R_s < 10^{11} \ \Omega$ according with IEC 61340).**



Figure 5.3-1: Acceptable (left) and not acceptable (right) primary packaging



Figure 5.3-2: Label holder and peel-off label example

### 5.4 Emergency alternative packaging / expendable temporary packaging

Since more and more often supplier parts are unloaded automatically at our assembly lines, it is mostly not possible to use different packaging than the mutually agreed standard series packaging. Therefore, it is necessary to take into consideration that any shortage of packaging material (e.g. due to blocked parts caused by quality problems) might result in a line down.

Our target for standard series packaging regarding all deliveries/projects is returnable packaging. However, for all projects where returnable packaging is defined, a concept for a substitute expendable temporary series packaging has to be agreed upon as back-up with sourcing completion. Therefore a separate PSDS has to be used and approved. Before using any such substitute packaging, supplier shall notify the receiving Continental plant and submit a complaint concerning shortage of returnable packaging.

Delivery of parts in emergency packaging must be advised before to materials requirements planner at Continental Sibiu and to packaging development.

Alternative box used must have same inner dimensions like the KLT agreed during SCR process.

If the alternative cardboard box is not ESD, then an ESD bag must be used in order to avoid contamination.
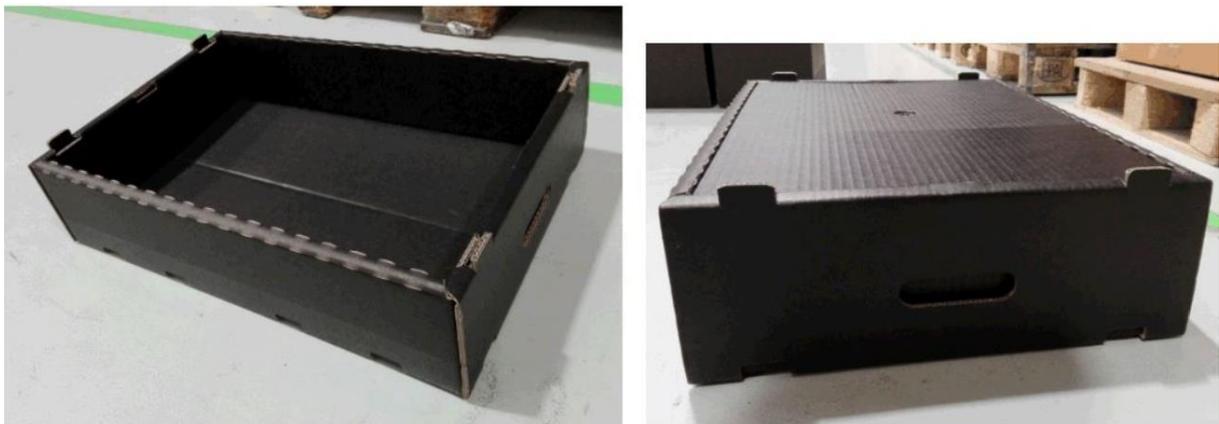


Figure 5.4-1: Example of alternative ESD cardboard box design



ESD bag          Cardboard box

Figure 5.4-2: Example of alternative non ESD cardboard box (with ESD plastic tray and ESD bag)

### 5.5 Inner packaging requirements - trays and interlayers

In addition to the general requirements described in TST N098 01.13-000  Specification Sheet for Inlays and Trays, Continental Sibiu has the following plant specific requirements :

1. **Outer dimensions of tray / interlayer** must be suitable for a KLT presented above (inner usable size 540x 355x variable height mm) provided to supplier as returnable packaging or used internally in Sibiu plant (e.g. for repacking).  Special dimensions can be requested by packaging engineer due to project team specific requests.

2. **ESD protection** is requested according TST N09800.01-000_Packaging Requirements (IES 61340-5-3). The ESD Protective Symbol consists of the reaching hand in the triangle. An arc around the triangle replaces the slash. This "umbrella" means protection and the letter under the triangle indicates the classification of the material according to its electrical resistance defined in the standards mentioned above. The symbol indicates ESD protective material and must appear on every tray or interlayer.



Figure 5.5-1: Example of ESD protection marking

3. **Marking**
   3.1. **Trays marking** is mandatory for both types of packaging – returnable and also expendable. For one-way packaging (expendable) only first point need to be considered.
   - o The recycling mark including the raw material symbol + date of production
   - o Supplier name
   - o Continental project name
   - o Part number of the tray (98.xxxx-xxxx-x-00) is necessary
   - o In case of a returnable tray a notification "RETURNABLE" must be applied as well.



Figure 5.5-2: Example of a recycling mark including
raw material and date of production

   3.2. **Interlayers marking** of the returnables materials is mandatory in order to keep traceability of the packaging materials between both parties (supplier and Continental). Markings consists of:
   - o Part number of the interlayer (98.xxxx-xxxx-x-00) is necessary
   - o „Returnable to (supplier's name)" text must appear also
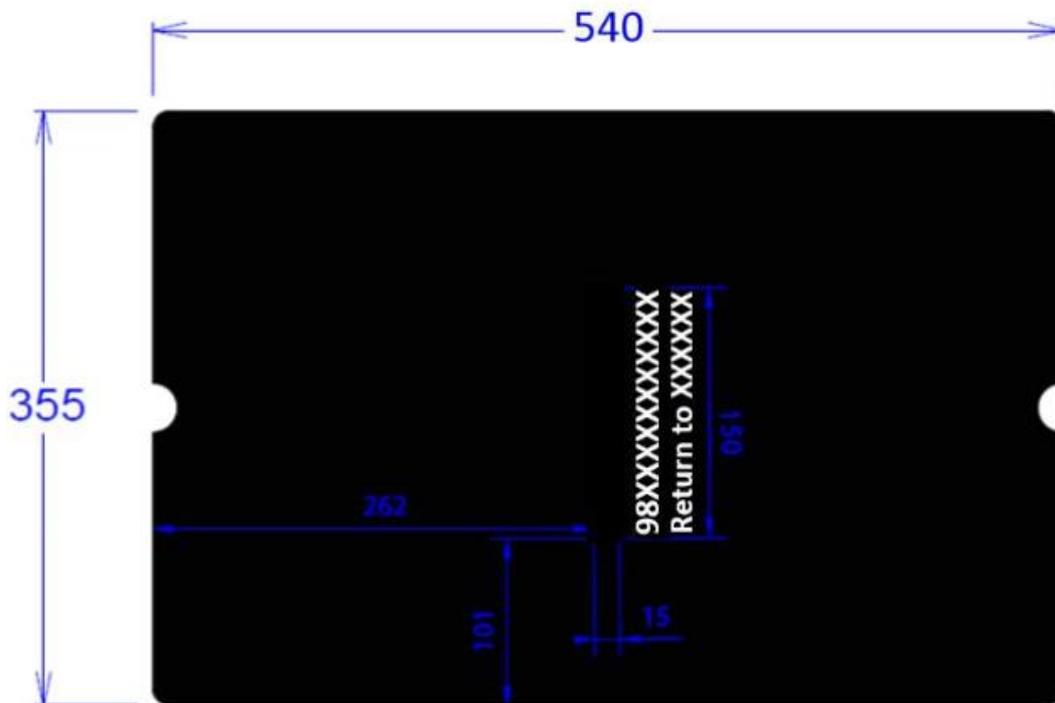
Figure 5.5-3: Example of a marking for returnable interlayer

**4.** Generally the accepted **thickness** for trays material:
- o  Returnable  - **4 mm***
- o  Expendable  - **2 mm***

\*      Returnable self-supporting trays should have 6 mm thickness or more
\*\*     Some deviation can be done for very light and for very heavy materials and <u>must</u> be agreed by packaging engineer
\*\*\*   In case of **<u>automated processes</u>** thickness can increase due to specific equipment supplier request.

## 5.6      Labelling requirements

Smallest packaging unit has to be defined and approved of Continental Sibiu during SCR process. It has to be designed for keeping a label with dimensions which are necessary to generate the content of the MAT-Label.
Labeling is defined in <u>TST N09800.03-000 „Requirements on marking of goods"</u> and <u>„General MAT-Label Specification, Version 2.6".</u>

## 5.7      General packaging requirements for ESD protection

See <u>TST N09800.01-000_Packaging Requirements</u>

## 5.8 Technical cleanliness of packaging materials

See TST N09800.01-000_Packaging Requirements
VDA 19.2_09.2010_Technical Cleanliness in assembly

### Cleaning of returnable packaging

- Cleaning has to be done according to cleanliness requirements as defined in the PSDS. Cleaning process shall be considered in the PSDS.

- The returnable packaging material has to be washable with 60°C and must be stackable.

- Continental Sibiu is sending the carriers in a well clean condition. Further actions to reach the necessary cleanliness level are under the responsibility of the supplier.

- In general packaging (expendable and reusable) has to be stored in conditions that protects them from environmental influences (e.g. moisture, dust)

- Supplier has to respect the cleanliness requirements stated for the specific part (e.g. in specification, drawing or SCR). This degree of cleanliness is valid for the part itself and the packaging.

- Contract product shipments delivered in packaging not meeting the cleanliness requirements will be claimed by our incoming goods department and will result in a negative supplier evaluation.

- Contaminated packaging not meeting the cleanliness requirements shall not be used without appropriate countermeasures (e.g. washing) which will be charged to the Supplier.

- All returnable packaging components (especially trays) have to be built in an appropriate way to support the necessary cleaning process.

## 6 CONTACTS @ SCM-PACKAGING PLANT SIBIU

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