



Logistics Handbook for Suppliers

Guidelines for Packaging and Shipping Outsourced Items

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1 Purpose and Area of Application

This logistics handbook applies to deliveries to the following LuK plants:

- Bühl main plant
- Bühl Bussmatten
- Sasbach
- Sheffield
- Szombathely
- Chevilly
- Kaltennordheim

The following guidelines apply to deliveries of:

- Production parts (incl. subcontracting)
- Trade goods

They do not apply to:

- Steel and wire coils
- Operating supplies
- Prototypes

This logistics handbook is to be taken as an agreement supplementing the framework contract.

The following guidelines, by means of

- ideal containers and packaging design
- standardized dimensions
- uniform content quantities for packaging
- correct and complete labeling of packaging

are intended to result in a trouble-free flow of materials between the suppliers and LuK and to avoid unnecessary repacking work.

2 Packaging Requirements

2.1 General Packaging Requirements

Ecological, economical, and qualitative criteria are to be factored in when designing packaging.

For a parts shipment to satisfy quality requirements, the parts must be free from damage, corrosion, and contamination in accordance with the drawing requirements and further applicable specifications.

The following principles are to be observed with respect to ecological design:

- Packaging may not be larger or costlier than necessary.
- Only recyclable packaging materials may be used that are labeled with standardized (DIN 6120) symbols or others recognized by the waste management industry.
For this reason, compounds are not permissible.
- If the cost and quality of reusable packaging is equivalent to that of disposable packaging, reusable packaging is to be preferred.
- Reusable packaging that is poolable is to be preferred over varieties that cannot be pooled. It is therefore preferable to design inserts (bubble packs, dividers, trays, etc.) as disposable packaging.

2.2 Corrosion Protection

Suppliers must take appropriate measures to protect outsourced items that are subject to corrosion.

Provided that no other corrosion protection periods have been prescribed in the product drawing and further applicable specifications, the following minimum corrosion protection periods for unopened packaging upon delivery are to be guaranteed:

- 6 months for intercontinental deliveries
- 3 months for continental deliveries

Assuming marginal conditions common to the industry, normal climatic factors during transport (to the receiving plant) and storage need to be considered when designing corrosion protection. In the process, it is necessary to observe the corresponding parameters from the Technical Delivery Conditions and drawings. Furthermore, the "prohibited materials" standard S 132030-2 must be adhered to.

2.3 Cleanliness

Parts sensitive to residual dirt may only come into direct contact with suitable packaging materials. These are to be selected in accordance with the requisite cleanliness categories; however, corrugated cardboard is never admissible for this.

Should no cleanliness category be explicitly prescribed, only abrasion-resistant packaging materials may be used (such as, for instance, solid fiber board laminated on both sides using at least 45 g/m² of soda paper).

2.4 ESD

For electrostatic-sensitive devices (ESD), it is necessary to observe the corresponding VDE or DIN standards.

3 Packaging Design

3.1 Dimensions and Weights

- Basic format: 1,200 mm x 800 mm
- Max. admissible overall weight per small load carrier or box: 12 kg
- Max. admissible overall weight per loading unit: 1,000 kg
- Max. overall height of the loading unit:
 - homogeneous small load carrier loading unit 750 mm
 - other loading units 1,000 mm

3.2 Admissible Packaging Materials

Material	Admissible materials	Inadmissible materials
Compounds	- none	- all
Plastic in general	- labeled as per DIN 6120	- PVC, Styrofoam
Plastic packaging materials - foils, pouches, and bags - protective and insulating caps - tubes - flocked inserts	- PE - PE - PE, PP, PS - PE, PP, PS, PET, ABS	
Cardboard packaging and paper	- labeled with RESY symbol	- wax paper - paraffin paper - bituminous paper - oiled paper
Strapping materials	- PP, PET	- steel - polyamide - polyester
Corrosion protection paper	- only VCI paper that can be verified as being recyclable with paper / cardboard	
Wood	- solid wood (labeled for high-temperature treatment and IPPC) - plywood, base plate, OSB	- impregnated, lacquered, or coated wood - solid wood treated with methyl bromide (BT)
Fill materials	- corrugated cardboard - paper	- Styrofoam or chips made from plant-based material

3.3 Disposable Packaging Design

Only four-way pallets that are forkliftable on the narrow end may be used for disposable packaging.

The loading units have to withstand being stacked 2-high without becoming deformed or otherwise damaged and must be labeled accordingly on all 4 sides with respect to stackability and the admissible superimposed load.

Due to the increased risk of injury, boxes are not to be sealed with metal clamps, but instead with tape.

Generally, boxes must be lined with a PE bag in order to allow them to be repacked in small load carriers.

3.4 Reusable Packaging Design

The use of LuK standard load carriers, illustrated at the following link, is preferable for designing reusable packaging:

<http://www.luk.de/content.luk.de/de/supplier/logistik/logistics.jsp>

Special load carriers, such as, for example, a supplier's own containers or LuK's own special containers are to be a last resort and may only be used in justified exceptional cases and after consultation with the responsible LuK packaging technician.

3.5 Using Packaging Materials

3.5.1 Acquiring Disposable Packaging Materials

As a rule, LuK does not make disposable packaging materials available to the supplier. However, after being cleared by the purchasing department responsible for our packaging materials, suppliers may procure LuK-specific disposable packaging materials from our packaging material manufacturers at their own expense.

3.5.2 Acquiring Reusable Packaging Materials

3.5.2.1 Basic Information

Except when otherwise arranged, LuK will provide the supplier with poolable, LuK-specific, reusable packaging materials that are for a defined inventory of products. In this regard, the supplier will receive a circulating inventory based on future delivery schedules for 7 calendar days (incl. transit inventories).

Reusable packaging needed by the supplier for internal production processes must be directly procured by the supplier.

3.5.2.2 Poolable Load Carriers

The regulations of the European Pallet Association (<http://www.epal-pallets.org>) shall be applicable for Euro pallets and Euro mesh box pallets.

Load carriers not in line with the standard will be rejected and scrapped.

The expenses incurred from this will be charged to the responsible party.

3.5.2.3 LuK-Specific Reusable Packaging Materials

LuK-specific reusable packaging materials are to be procured exclusively through LuK.

3.5.2.4 Supplier-Specific Reusable Packaging Materials

Supplier-specific reusable packaging materials are to be procured exclusively through the supplier. The costs for purchasing supplier-specific reusable packaging materials are to be billed according to the parts price and listed in a separate offer.

The amount of the circulating inventory required for LuK is to be agreed upon amicably between the supplier and LuK.

3.5.3 Using Reusable Packaging Materials

3.5.3.1 Managing Empties

LuK coordinates returnable packaging accounts with the suppliers for all reusable packaging materials.

Returnable packaging account statements with activity and balance information will be sent to the supplier on a monthly basis.

Complaints must be made within 14 calendar days by submitting corresponding evidence to the returnable packaging department responsible.

If the account is not checked within this period of time, the account balance will count as accepted and will serve as the basis for charges made for replacing reusable packaging materials.

Therefore, when the supplier receives empties, he has to register a complaint with the responsible empties managing clerk immediately after determining any errors (difference in quantity, damage, dirty condition) and supply the packing slip, photographic evidence, and a brief description. The subsequent procedure is to be agreed upon together with the LuK empties managing clerk on a case by case basis.

Where necessary, LuK will order the containers to be inventoried to compare the book inventory balance with the inventory that is actually available.

The supplier will be obligated to count the empties and required to report the results by the due date. If the supplier does not submit an inventory report, the provision of supplies and any replacements will be based on the unadjusted book inventory balances.

3.5.3.2 Providing Packaging Materials

The supplier must request any reusable packaging materials he requires from the responsible contact persons in a timely manner (at least 7 calendar days inside Germany, otherwise 14, before they are needed).

You can find the form to use for this and the contact persons via the following link:

<http://www.luk.de/content.luk.de/de/supplier/logistik/logistics.jsp>

The empties are delivered by LuK to the supplier, provided that no special arrangements have been made.

3.5.3.3 Storage, Repair, and Procuring Replacements

After accepting empties from the freight carrier, the supplier is responsible for proper storage that is protected from the weather.

LuK will repair or scrap any damaged load carriers and take care of procuring replacements. The responsible party shall bear the costs for this.

3.5.3.4 Cleaning

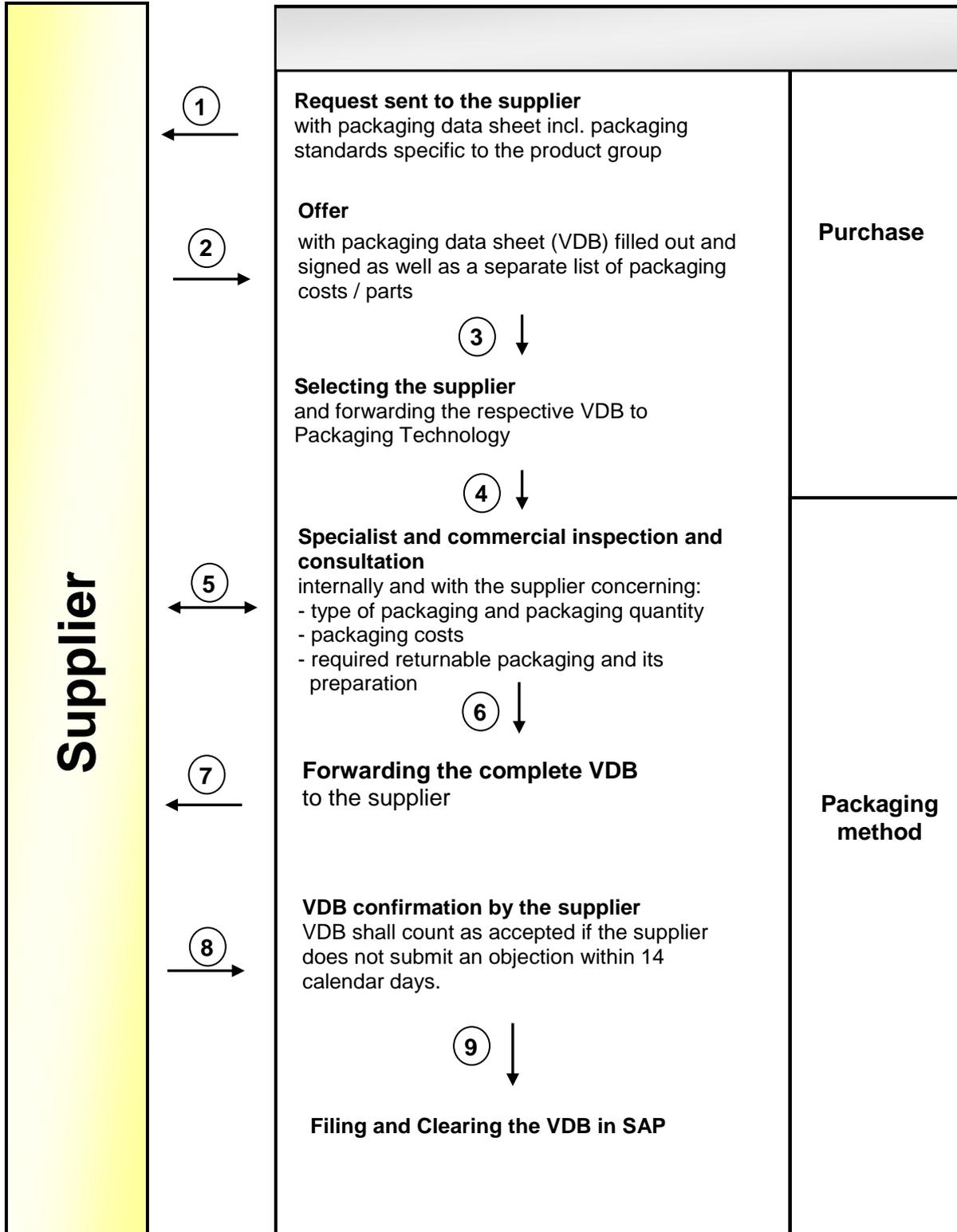
Generally, the cleaning of reusable packaging materials provided to the supplier will only involve the removal of coarse debris.

It will be up to the supplier to conduct more extensive cleaning should this be necessary due to the residual dirt requirements of the product being packaged.

Reusable packaging materials that can no longer be cleaned may not be recirculated.

No additional marking or taping may be done on reusable packaging materials, nor may they be diverted from their intended use or soiled more than would be expected from normal wear and tear. All labels must be removed.

3.6 Process of Determining Packaging



It is necessary to agree at an early date on the packaging for each product to ensure that a shipment will satisfy quality requirements. The agreement reached will depend on the procedure described above and has to be concluded before the first serial delivery.

A pertinent draft of the packaging data sheet with the packaging standards specific to the product group will be provided to the supplier on request after making a purchase. These generally stipulate the use of reusable packaging.

Under certain circumstances, it may make economic sense to use disposable packaging instead (e.g. when the product has a short life span), or it may be necessary as backup packaging if there is a shortage of empties.

Therefore, disposable packaging must always be offered alongside reusable packaging for reasons of cost effectiveness and as backup packaging. When designing disposable packaging, it must be borne in mind that repacking in reusable packaging needs to be possible with a minimum of effort. It is essential for disposable packaging to meet all other requirements set for reusable packaging (packaging quantity, inner packaging, etc.) as well.

The packaging standards specific to the product group that have been sent to the supplier do not release him from the obligation to ensure that the shipment satisfies quality requirements. Therefore, the supplier needs to verify whether it satisfies both the general packaging requirements and the parts-specific requirements.

If they are fulfilled, the supplier needs to add the missing information concerning the reusable packaging to the draft of the packaging data sheet. Otherwise, he has to suggest and justify appropriate reusable packaging deviating from the packaging standards.

Based on this, he must define disposable packaging suitable for repacking and enter the corresponding data in the correct section of the draft of the packaging data sheet.

You can find a sample packaging data sheet with instructions for filling it out and contact partners via the following link:

<http://www.luk.de/content.luk.de/de/supplier/logistik/logistics.jsp>

The supplier then has to return the draft of the packaging data sheet in EXCEL format back to Purchasing along with the offer.

After LuK has inspected the suggested packaging and it has been approved internally / externally, the agreed-upon packaging will be documented in a packaging data sheet incorporating the comprehensive change index and sent to the supplier.

This is to be reviewed by the supplier, who shall reply to the sender **within 14 calendar days** to confirm or disagree. If the supplier does not respond during this period of time, the packaging data sheet shall be deemed to be accepted!

Clearing the packaging, however, does **not** release the supplier from his responsibility with respect to the delivery made to the receiving plant needing to satisfy quality requirements.

Any deviations from the agreed-upon packaging shall only be admissible for justified exceptional cases and after being cleared in writing by Packaging Technology.

The use of alternative packaging also needs to be cleared in writing by Packaging Technology.

4 Shipping Guidelines

4.1 Palletizing

The following must be duly considered when palletizing small load carriers or boxes:

- Pallets need to be stackable.
- Packages at the bottom must be secured to prevent slippage.
- Do not load small load carriers and boxes together on one pallet.
- Fill up empty spaces only as needed with empty small load carriers or boxes.

Moreover, bear the following in mind with mixed deliveries:

- Different types of small load carriers or boxes are admissible on the same pallet.
- Large packages must be loaded at the bottom of the pallet and small packages at the top.

Small load carriers loaded on a pallet are to be secured by

- a pallet end cover
- double strapping lengthwise with plastic straps.

Boxes loaded on a pallet are to be secured by

- shrink wrapping or
- edge protectors plus strapping with plastic straps (twice or four times).

4.2 Mixed Deliveries

Deliveries are to be conveyed by the supplier to the freight carrier in a logistically optimized fashion. This may well entail combining several packing pieces with different part numbers at the bottom of a single pallet.

Here care must be taken to ensure that:

- identical material is not distributed among several mixed pallets
- identical material is not distributed among several mixed layers
- identical material is packed together in a single mixed layer.

Mixed deliveries are generally not admissible in large load carriers.

4.3 Batch

It is admissible to fill up a container with batches from different suppliers.

The supplier is obligated to supply documentation concerning which batches are contained in a shipment.

Not included in this regulation are material numbers where a single batch label is explicitly required. In such cases, the shipment must involve only one batch.



4.4 Transport

When delivering small load carriers or boxes with delivery volumes:

- less than ½ layer:
 - by parcel service
 - max. 25 kg per package
 - small load carriers are to be packed in boxes
- ½ layer or more:
 - on a pallet with a shipping company

LuK-specific delivery and transport guidelines must be observed for deliveries FCA place of departure. You can find these via the following link:

<http://www.luk.de/content.luk.de/de/supplier/logistik/logistics.jsp>

Where necessary, different regulations will be arranged for special shipping processes.

5 Labeling the Delivery

5.1 Basic Information on Labeling

Labeling must be clear and distinct:

- Old labels are to be removed or rendered unrecognizable.
- Labels must be affixed to the side and visible.
- Labels must be adhered in such a way that they do not fall off and, where necessary, secured with weather-resistant strips or residue-free adhesive tape strips/dots. The adhesive strips/dots may not cover up any tag information. Adhesive dots on small load carriers are permitted to be no larger than a maximum diameter of 30 mm.

Where required, it must be affixed as follows:



- Empty small load carriers are to be labeled accordingly.
- Mixed deliveries are to be labeled as such.

Furthermore, the following is to be observed:

- The form and contents of the label depend on the packing level. The fields labeled with "M" in the following table all need to be indicated accordingly, whereby specific field contents and definitions may need to be observed.
- Any existing label surfaces or pouches are to be used, provided they are not inconsistent with other stipulations.
- It is not permitted to apply tape to reusable packaging materials.

5.2 Labeling the Delivery Unit

Each delivery unit must be labeled with a material tag in accordance with VDA 4902 version 4 or ODETTE.

As a rule, the label must be affixed on the narrow end of the container.

The container must be loaded so that the material tag is located on the right side of the vehicle (in the direction of travel).

Field name	Field no. as per VDA recommendation 4902, version 4	Must / Can	Field contents
Goods recipient (short)	1.1	M	
Unloading point	2.1	M	
Packing slip no.	3	M	
Supplier address (short)	4	M	
Net weight	5	M	
Gross weight	6	M	
Number of packing pieces	7	C	
Customer part no.	8	M	Material number (13 or 15 digits, e.g. 048054038-0000)
Fill quantity	9.1	M	
Description of delivery, service	10	M	Abbr. material designation (e.g. L-09129-0002-00 balancing weight)
Hazardous materials	11.4	C	
Supplier no.	12	M	
Date	13	M	Production or delivery date
Alteration status construction	14	M	LuK alteration index from drawing (e.g. "AA")
Batch no.	16	C	
Description form	18	M	



5.3 Labeling Packages

Each package (small load carrier or box) must be marked with a small load carrier label in accordance with VDA 4902 version 4 or ODETTE.

Field name	Field no. as per VDA recommendation 4902, version 4	Must / Can	Field contents
Goods recipient (short)	1.1	C	
Unloading point	2.1	C	
Packing slip no.	3	C	
Supplier address (short)	4	-	
Net weight	5	-	
Gross weight	6	-	
Number of packing pieces	7	-	
Customer part no.	8	M	as on material tag
Fill quantity	9.1	M	
Description of delivery, service	10	M	as on material tag
Hazardous materials	11.4	-	
Supplier no.	12	M	
Date	13	M	as on material tag
Alteration status construction	14	M	as on material tag
Batch no.	16	C	
Description form	18	-	



5.4 Labeling Primary Packaging

All primary packaging (e.g. bags in small load carriers or boxes) must at least be labeled with the supplier's own tag, although no barcode is necessary.

Field name	Field no. as per VDA recommendation 4902, version 4	Must / Can	Field contents
Goods recipient (short)	1.1	-	
Unloading point	2.1	-	
Packing slip no.	3	C	
Supplier address (short)	4	M	supplier name sufficient
Net weight	5	-	
Gross weight	6	-	
Number of packing pieces	7	-	
Customer part no.	8	M	as on material tag
Fill quantity	9.1	M	
Description of delivery, service	10	C	as on material tag
Hazardous materials	11.4		
Supplier no.	12	-	
Date	13	M	as on material tag
Alteration status construction	14	M	as on material tag
Batch no.	16	C	
Description form	18	-	

6 Shipping Documents

6.1 General Information

Deliveries are to be conveyed to the freight carrier with shipping documents that are filled out properly and completely.

When using a shipping company, the packing slips or EDI issue slips must be handed over accompanied by the bill of lading and may not be affixed to the merchandise.

With Incoterm CPT/DAP, the supplier must ensure that his freight carrier passes on the packing slips or the EDI issue slips together with the bill of lading and delivers them to LuK.

We reserve the right to refuse to accept deliveries without proper shipping documents!

The requisite shipping documents are:

- Bill of lading
- EDI issue slips, or the packing slips if there is no EDI packing slip
- Any customs documents with customs invoice
- Initial sample test report for initial samples, initial samples after process alteration, as well as subsequent samples
- Other documents required for the order

6.2 Delivery Note

As a rule, the packing slip data are to be delivered electronically (EDI packing slip).

Electronic delivery is performed using SupplyOn. The form and contents are to be in line with SupplyOn.

Initial sample deliveries are exempt from this.

The packing slip must contain:

- Packing slip number
- Order number
- Supplier number
- One material number per packing slip (13 or 15 digits, e.g. 048054038-0000)
- Abbr. material designation (e.g. L-09129-0002-00 balancing weight)
- LuK alteration index (e.g. "AA")
- Total delivery quantity
- Number, type, and quantity per packing piece
- Gross and net weights
- Volume for bulky materials
- Unloading point
- Note for mixed deliveries

The following apply to the packing slip as well:

- Its form must comply with DIN 4991 and its contents with VDA 4913.
- In addition, the packing slip number is to be given as a barcode using format code 39.
- Mixed deliveries, initial samples, initial samples after process alteration, as well as subsequent samples are to be clearly marked.
- Reusable packaging materials (full and empty) are to be listed, with the packaging material number, quantity, and designation indicated.
The corresponding data are found on the packaging data sheet.

6.3 Bill of Lading

The delivery conditions arranged with us in accordance with the current version Incoterms are to invariably be indicated on the bill of lading and the shipment contract.

7 Logistics Claims

Disruptions in the logistics process at LuK that are caused by the supplier constitute grounds for lodging a logistics claim. For example, this may include:

- Not observing the agreed-upon packaging (e.g. deviating from the packing quantity)
- Shipments without agreed-upon packaging
- Using containers not satisfying quality requirements (dirty, wet, damaged)

If the stipulations described in this handbook are not followed, LuK reserves the right to refuse to accept the delivery or, if applicable, to repack the merchandise.

Any extra costs incurred by this (e.g. for repacking, conveyor belt stoppage, defective containers, etc.) will be charged to the supplier at the amount of the expense by lodging a logistics claim.