

General Packing Instruction

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Revision history

Version	Revisions	Create / modification	
		Date	Name
1	First Issue	14.11.2007	SnRg
1.1	Update	11.04.2023	RdLw

1. Validation

This instruction is part of each Inquiry, each individual purchase order and call off order and is valid for all goods purchased by ads-tec Energy GmbH, regardless of their place of destination, unless no written special agreement has been made. Consequences arising out of nonobservance of this instruction are regulated in section 7.

2. Requirements for the packaging quality

During transport, all packaging is subject to stresses such as impact, vibration, pressure and ambient influence such as moisture, dust and soiling. The packaging must be designed to withstand transport and/or stress. The supplier is responsible for choosing an adequate packing.

In the case of deliveries from and to countries with special export/import conditions for packaging (e.g. wood packaging), the supplier must select a suitable packaging and if applicable provide the shipping documents or certificates corresponding to the applicable law that are required for import.

The supplier is responsible for packaging of the goods. The supplier must ensure that the goods reach their destination in proper quality condition by means of suitable packaging.

The best exterior packaging is useless if there is no interior packaging that is adequate for the product. Interior packaging protects the product, keeps it in place and ensures a distance from the exterior packaging. If several products are packed in one package, the interior packaging also ensures a separation between the individual products.

The interior packaging must also perform the tasks of protecting against dust and soiling or even electrostatic charging.

ads-tec has defined sensitivity key figures (EKZ), which indicate how goods have to be packed. The higher the key figure is, the more sensitive are the goods. The individual sensitivity key figures are defined more closely in section 8.4. If the supplier has no information about the key figures (EKZ) of the goods to be delivered, key figure (EKZ) 6 is at least to be respected, unless the supplier knows that the protection of the goods is insufficient.

When choosing a transport box or container, it is important to pay attention to the right size (content plus padding) and to adequate stability.

If products are very heavy or if they are not suitable for packaging in cardboard boxes due to their size, packaging materials made of wood (crates) or made of wooden components

(wooden brackets) can be used. Adherence to any import regulations or conditions of the destination country (e.g. China, Australia) must be ensured when using wood packaging.

Stable boxes made of solid cardboard (grey cardboard) can also be used depending on the weight, sensitivity and size of the items transported. In most cases, this applies to lightweight, insensitive and relatively small products.

The more sensitive to pressure and impact and the heavier and larger transported items are, the more stable the exterior packaging should be.

Used (second hand) exterior packaging is prohibited.

3. Sealing / securing of loads

The heavier or the larger a shipment is, the stronger the sealing material should be. The seal is also the transportation lock and proof of originality. Self-adhesive packing tapes made of plastic or tapes with incorporated reinforcing threads or fabric, for example, are suitable.

Plastic or metal straps must also be used for heavy consignments.

The size, weight and material of the packaging to be sealed must be considered when choosing the respective method of sealing. The seal must be adequately moisture-proof and must provide sufficient adhesive force and stability. When plastic or metal straps are used, attention must be paid to adequate, tightening force.

It may be necessary to use liners in the area of the straps.

4. Transport on pallets

When a box is transported on a pallet, attention must be paid to adequate fastening on the pallet. It must be ensured that the box is secured to prevent slipping. It can be fastened by strapping and/or also stretch wrapping. The fastening must withstand an acceleration of 3G horizontal and 2G vertical. If several parcels are stacked on a pallet, it must be ensured that heavy parcels constitute the bottom layers and light ones constitute the top layers. Containers must not damage each other (e.g. heavy wooden crate placed on cardboard box). It may be necessary to work with intermediate layers.

The maximum loading weight of a pallet must not be exceeded. The pallet as a whole must be protected from moisture through foil or stretch wrapping.

The supplier must avoid part number being mixed with other part numbers in a packing unit. If the delivery includes multiple delivery addresses at ads-tec, the packing units must additionally be separated according to delivery address.

5. Influence on packaging of the transport method and distance

When choosing packaging, you should also pay attention to the means of transport (truck, rail, aircraft, ship) used for transport and whether the respective carrier has special transport regulations.

It can generally be assumed that a combined transport takes place and several reloadings stress the packages.

Requirements of each carrier in special protection measurements must be observed (e.g. anti-corrosion protection in maritime traffic). The packaging must be suitable for an opening – e.g. for customs purposes – and a reclosing to the original status.

Attention: The protection of the goods through the packaging must be laid out that way, that unloading, separating of parcels for receipt and incoming inspection at ads-tec and professional handling in the stock is possible!

6. Specific delivery instructions

If the general package instruction for a package option is not sufficiently detailed, then ads-tec defines in specific instructions for one or more parts, in which package the material has to be delivered. ads-tec gives notice to the supplier of this specific instruction in the purchase order, in the drawing or any other instruction for execution. The supplier is responsible for the compliance with this packing instruction. Example: Using ads-tec reusable package with special inner packing.

7. Consequences of non-observance

If the supplier does not observe this package instruction and uses for example improper materials (see section 8.1) or exceeds the permitted package sizes or the maximum weight (see section 8.2), so ads-tec carries measures out for the protection of the goods and to minimize damage by unpacking, checking, repacking, relabeling, relocate and the disposal of inadequate packing. The costs of these measures shall be born by the supplier. They are invoiced according to actual expenses amounting to 60.00€ per hour, however the amount is at least 30.00€ per delivery.

The supplier is liable as follows for any damage caused by failure to comply with this packing instruction:

Damage to the goods shall be subject to the legal regulations for liability for defects.

For damage incurred to other legal assets as the goods themselves due to insufficient packing, the supplier is liable as well for simple negligence. The supplier is obligated to make good the damage to ads-tec. The liability for damages does not apply if the supplier does not answer for damage. The supplier bears the burden of proof insofar.

8. Referenced notifications for the general delivery instruction

8.1 Packaging material

8.1.1 Selection of packaging

ads-tec has defined the following categories for packaging and packaging systems and put into a hierarchy that has to be maintained.

- Non-re-usable packaging made of renewable raw materials (e.g. wood, cardboard)
- Non re-usable packaging made of non-renewable raw materials (e.g. plastic)
- Suitable for storage without packaging (re-usable packaging/containers of ads-tec GmbH)
- Re-usable packaging of the supplier

Furthermore the following requirements exist:

- The packaging must adhere to the legally specified cumulative limit value of 100 ppm for lead, cadmium, mercury and chromium VI.
- The packaging dimensions must be appropriate to the dimensions of the packed item and may not exceed the defined measurements named in section 8.2.
- Recyclable materials must be selected for the packaging.

8.1.2 Guidelines for various packaging materials

All of the following guidelines are generally valid.

Should serious arguments justify non-adherence to one of the guidelines from the point of view of the supplier, these arguments must be plausibly presented and approved by ads-tec GmbH in the individual case.

- Paper, paperboard and cardboard

Paper, paperboard and cardboard materials must contain only components made of paper. Coatings are to be avoided in principle. Paper adhesive tape is preferred for sealing boxes in the context of pure-type disposal.

- **Plastics**

The use of packaging made from plastic always requires consultation with ads-tec GmbH.

Re-usable packaging and containers made from plastic must be checked for suitability for re-use prior to use. Only clean re-usable packaging and containers may be used.

Only films made from polyethylene or polypropylene may be used.
- **Wood**

Packaging made from wood (including pallets) must comply with IPPC-Standard ISPM Nr. 15. Other treatment and peeled wood is not allowed.

The use of compressed wood, plywood and treated wood can be permitted after consultation with ads-tec Energy GmbH and written acceptance.

Treated wood and/or wooden packaging must be marked for special disposal in a clearly legible manner.
- **Fillers and insulating materials**

The use of fillers and insulating materials in appropriate amounts is only permissible where necessary to secure the load or protect the product.

Fillers and insulating materials made of paper, paperboard and cardboard as well as air cushions made of PE, for example, are preferred.
- **Securing of loads**

Plastic straps made from polypropylene and steel are permitted for securing loads on pallets or even individual packages in the context of transport protection.

Commercial shrink down and stretch film made from PE or PP can also be used.
- **Marking**

Insofar as technically feasible, all packaging's or packaging aids must include identification of their material in accordance with the packaging directive and/or the European packaging guideline. This marking must be clearly visible on the packaging.

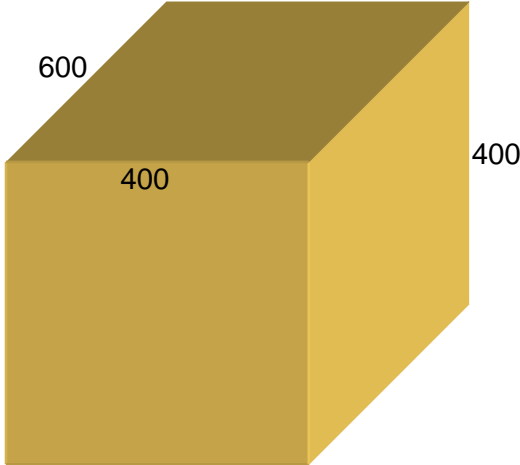
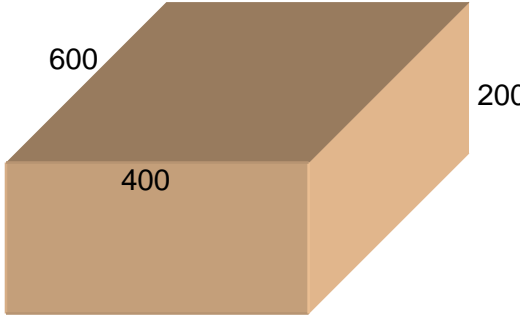
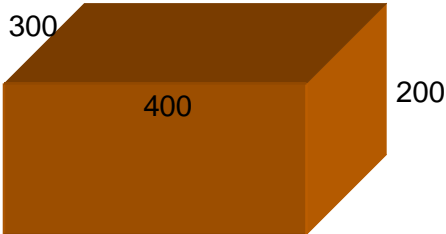
Overview:

Art Type	Zugelassenes Material Permitted material	Nicht zugelassenes Material Non-permitted material
Kartonage Cardboard packaging	Papiere und Pappen frei von papierproduktionsschädlichen Stoffen <i>Comprising papers and cardboard made of materials non-hazardous for paper production</i>	Papiere und Pappen mit wasserunlöslichen Beschichtungen, Klebstoffen, oder unverträgliche Beimengungen Bitumenpapier/-pappe <i>Papers and cardboard with waterproof coatings, adhesives, or incompatible compounds/mixtures</i> Bitumen papier/cardboard
Korrosionsschutzpapier Anti-corrosion paper	VCI-Papiere, die nachweislich gemeinsam mit Papier/Pappe stofflich verwertbar sind. VCI-Folien, die nachweislich gemeinsam mit Kunststofffolien stofflich verwertbar sind. <i>VCI papers, for which there is evidence that its materials can be recycled with paper/cardboard. VCI foils, which are demonstrably material recyclable together with plastic foils.</i> <i>[VCI: volatile corrosion inhibitor; with the inhibitors you have to make sure, that either nitrides or amines, but not both types are used at the same time]</i>	Papier mit unverträglichen Beimengungen, unverträglich imprägniertes oder getränktes Papier (z.B. Bitumen-, Öl-, Wachspapier) <i>Paper with incompatible additives, incompatibly impregnated or soaked paper (e. g. paper made with bitumen, oil, wax)</i>
Kunststoffe (möglichst naturfarben) Plastics (preferably ecru)	Formteile: PE, PP, PS Schutzkappen: PE Folien: PE mit max. 5% bedruckter Fläche (auch Luftpolsterfolien) Schaumstoffe: PE, PP, PS Umreifungsbänder: PP (schwarz) Styropor (Formteile) Sonstige Kunststoffgemische PE, PP, PS Polyamid-Umreifungsbänder PE, PP, PS (blau) Polyester-Umreifungsbänder PE, PP, PS (grün) Molded parts: PE, PP, PS Protective caps: PE Foil/sheeting: PE with max. 5 % printed area (also bubble wrap foil) Foams: PE, PP, PS Tightening belts: PP (black) Polystyrene (molded parts) Other plastic combinations PE, PP, PS	Sonstige Kunststoffgemische Gummiverbindungen Metall-Kunststoff-Verbundfolien unverträglich imprägnierte und VCI-Kunststoff-Folien Metall-Kunststoff-Verbundstoffe PVC-haltige Verpackungsmaterialien Other plastic combinations Rubber compound material Metal and plastic composite foils Incompatibly impregnated and VCI plastic foils

	Polyamide tightening belts (blue) Polyester tightening belts (green)	PE, PP, PS PE, PP, PS	Metal and plastic composite materials Packaging materials containing PVC
Metalle Metals	Stahl, auch verzinkt oder lackiert, Aluminium Steel, even galvanized or painted, aluminium		verzinnete Metalle (z. B. Weißblech) Schwermetallhaltige Metalle Tin-plated metals (e. g. tin plate) Metals containing heavy metal
Holz Wood	ungetränktes Massiv- und Sperrholz, Holzwolle behandelt und gekennzeichnet nach IPPC- Standard ISPM Nr. 15 Non-impregnated solid wood and plywood, wood fiber treated acc. IPPC-Standard ISPM Nr. 15		Spanplatten, beschichtetes oder lackiertes Holz Chip board, coated or painted wood
Textilien Textiles	Zellulosefasern (u.a. Baumwolle, Sisal, Hanf) Cellulose fibres (e. g. cotton, sisal, hemp)		Wachsleinen Oilcloth
Glas Glass	Nur, wenn aus Gründen der chemischen Verträglichkeit mit dem Füllgut unbedingt erforderlich Only if absolutely essential for chemical compatibility with the product being transported		Glaswolle Glass wool
Mineralien Minerals	Aktivton, Perlit, Silikagel, Vermiculit Active clay, perlite, silica gel, vermiculite		Bemerkung: Nicht in Form von Fasern Mineralwolle KMF (künstliche Mineralfasern) Note: Not in fiber form Mineral wool KMF (synthetic mineral fibers)

Tab. 1: Packaging materials

8.2 Max. weights and measurements for packaging and loading devices

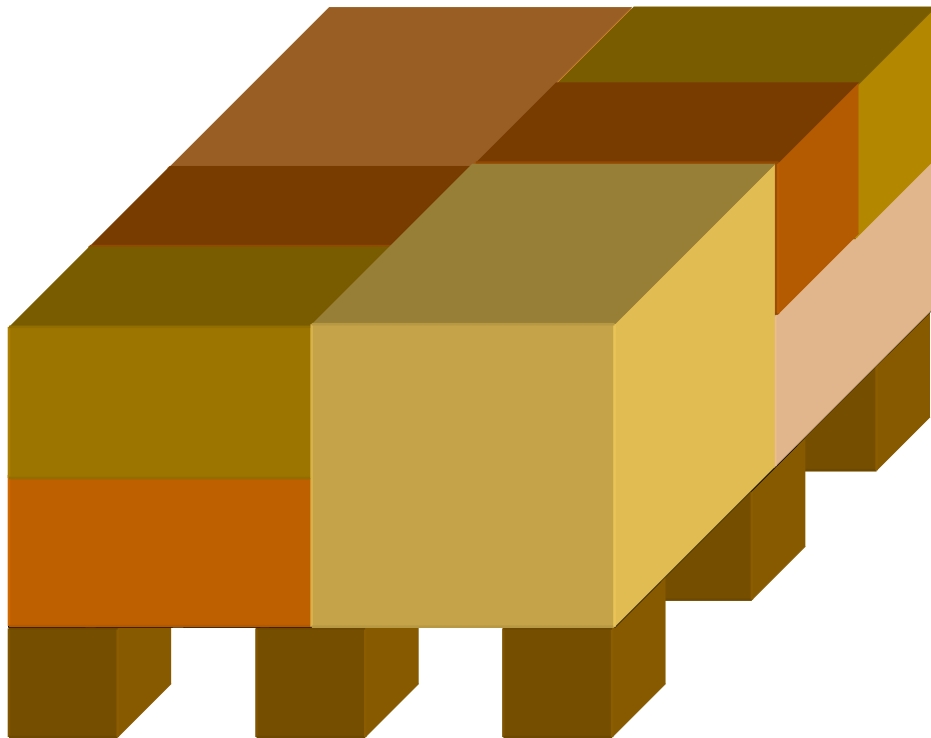
Description	Measurements (L x B x H in mm)	Weights
Non-printed cardboard made of triple wall corrugated board	<p>600 x 400 x 400</p> 	<p>Attention</p> <p>< 15 kg</p>
	<p>600 x 400 x 200</p> 	<p>Attention</p> <p>< 15 kg</p>
	<p>400 x 300 x 200</p> 	<p>Attention</p> <p>< 15 kg</p>

Pallets

Attention:

If goods are delivered on pallets, the goods must be packed in the above-mentioned cardboards. The defined weights and measurements must be observed! ads-tec does not accept oversized and bulk packages and containers!

Exception must be confirmed in writing by ads-tec.



Tab. 2: allowed packaging



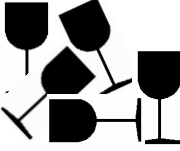



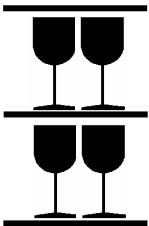

8.3 Requirements on delivery note

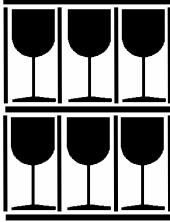



The delivery note is due to accompany to the goods. This could be in or at the cardboard in a gusted wallet. A completed delivery note should contain the following information:

- Sender
- Sender's contact data / contact partner
- Date
- Goods recipient with room for specification of the point of handover (e.g. Incoming goods 2)
- Order number
- Order information (specified by ads-tec on order)
- Conditions of delivery and transport method
- Item / designation / material number / quantity / remarks

- Gross weight of the packages per delivery note / order (order number)
- Number of packages per delivery note / order (order number)
- Receipt fields for the exchange of pallets and containers

8.4 Sensitivity index (EKZ)


EKZ	Explanation	example
	<p>0</p> <p>Parts must be protected against falling out of transport container, coarse-grained dirt, rain, snow and spray water outside closed rooms</p> <p>The maximum stacking or packing height must be adhered to</p>	
	<p>2</p> <p>Ensure basic protection</p> <p>Parts are loose in the container and do not have to be layered</p> <p>Minor impacts are permitted</p> <p>No bulk goods!</p>	
	<p>3</p> <p>Ensure basic protection</p> <p>Parts must be layered, but can touch each other</p> <p>Parts must be individually handled</p> <p>Minor impacts are permitted</p> <p>Empty spaces in the container, as illustrated here, must be filled with suitable packaging material</p>	
	<p>5</p> <p>Parts must be layered and kept apart by means of separating layers</p> <p>Parts can touch each other in the same plane</p> <p>Parts must be individually handled</p> <p>Minor impacts are permitted</p> <p>Empty spaces in the container must be filled with suitable packaging material</p>	





	6	<p>Parts must be layered and packaged individually or without touching (pay attention to UV protection if applicable)</p> <p>Parts must be protected against impacts</p> <p>Empty spaces in the container, as illustrated here, must be filled with suitable packaging material</p>	
	8	<p>Parts must be protected against electrostatic, electromagnetic and magnetic fields</p> <p>Parts must be packaged protected against dust</p> <p>Parts must be protected against impacts</p> <p>Any pins and contacts must be protected against mechanical effects</p> <p>The protective and handling function of the packaging must be ensured; the container size must not be changed if possible</p>	
Special packaging	9	Special packaging for which a special agreement is made between ads-tec and the respective supplier	

Tab. 3: Sensitivity index

9. Example of appropriate packing of various materials

This list describes the absolute minimum requirements. The supplier must take depending on the material further appropriate protective measures:

Mechanical units	
	Bubble foil wrap

	<p>Bubble foil envelope and separating walls for protection and assurance</p>
<p>Electronic devices</p>	
	<p>Safety distance between material and cardboard as a protection against humidity, puncture, etc. Separation and fixation of the devices with single webs and comps</p>
	<p>Additional protection of the devices with ESD-bag</p>
	<p>Additional protection of the devices with cushion</p>