Allpack Hp nv - Paaiestraat 17 - 2500 LIER
Tel.: 03/488.21.92
Fax.: 03/489.10.47
Membre Agrée N° 110
Approved Member N° 110

S.E.I.

S.E.I.

EDITORIAL

The Industrial Packaging Syndicate, author of the first specifications manual already corrected in 1992, wanted to integrate, in this new edition, the evolution in technology and procedures that has been recorded in the filled since the past few years.

The Technical Office of the Packaging Syndicate, composed of the best technicians and engineers coming from partner companies, has added, revised and completed the specifications where necessary.

There-of:

The presentation of the SEI label, the conditions for its application and the garantees that it provides can be integrated in this manual,

The logistic risks text has been developped to include, in the actual choice of packaging, the notion of final product destination, the product environment and its storage;

The different physico-chemical protections «a» «b» «c» and «d» complete the different packaging categories;

Chapter 5 «Transport Cases» has been revised;

Packaging in the environment constitutes a new chapter: chapter 10; the traceability and quality of it constitutes chapter 11.

DISTRIBUTION OF THE SPECIFICATIONS MANUAL

INTERNAL DISTRIBUTION

- *President of the S.E.I.*
- *Members of the Technical Office of Industrial Packaging.*
- *Members of the S.E.I.*

EXTERNAL DISTRIBUTION

- *VERITAS Inspection organization*
- *A.F.N.O.R.*
- *Requesting certifying organizations*
- *Requesting customers and suppliers*

UPDATES OF MANUAL

- *DONE BY : BTEI*
- *FREQUENCY : Checked at least once a year*
- *DISTRIBUTION : Internal and external as indicated above*
- *CAUSES : Changes of international standards and specifications or major technological development.*

LIST OF REVISIONS

ISSUE		APPROVED BY	INDEX
1992	FIRST EDITION	**B.T.E.I.**	**0**
1995		B.T.E.I.	1
1999		B.T.E.I.	2

Note: HOLDERS OF THIS DOCUMENT WISHING TO RECEIVE UPDATES ARE REQUESTED TO CONTACT : S.E.I.

33, RUE DE NAPLES 75008 PARIS
TEL. : (33) 01 53 42 15 53 FAX : (33) 01 53 42 15 51
INTERNET: www.sei-France.org
e-mail: sei@starnet.fr

CONTENTS

INDUSTRIAL PACKAGING SPECIFICATIONS S.E.I.

FOREWORD

In the context of the creation of the European Market, the object of these specifications is :

- to cancel the 1992 edition and its actualized 1995 version;

- to harmonize all existing packaging and protection specifications in Europe, including SEI France - HPE Germany - BSI ENGLAND - UNI ITALY, etc ...;

- to establish general conditions applicable to industrial packaging produced by service providers in the Community;

- to specify, for each type if equipment, the mechanical and physico-chemical protections to be provided according to the conditions of handling, transport and storage;

- to enable the manufacturers, dispatchers and consignees of this equipment to use the same classifications and recommendations, so as to facilitate the drafting of contracts between parties and their performance;

- and finally to have these specifications applied whatever the place of origin or destination of the equipment.

Some of the standards referred to in this document will be replaced by CEN standards.

THE SEI TRADE MARK

Instaured by professionals, the SEI label was created after the second world war 1939 - 1945.

It held an essential role in the technological evolution for the climatic and mechanical protection of materials destined to travel throughout the globe.

This is how originally the Industrial Packaging Technical Office (B.T.E.I.) had been composed of the best technicians and engineers coming from participating companies in order to elaborate the specification techniques necessary to registrate a collective name label recorded by the INDUSTRIAL PROPERTY INSTITUTION.
The use of the SEI label is accorded to requesting companies provided that they correspond to the conditions set by the SEI status report.

The holders of the SEI label have to conform to the general conditions of execution and all specifications as issued by the BTEI, without restrictions or reserves.

Monitoring of the respect of the label specifications in the European Community is performed by the VERITAS agency for all SEI approved companies.

THE ROLE OF PACKAGING

Users are reminded that the packaging function is an essential link of the logistics chain in the actual distribution of goods.

Because of this, packaging design is to be considered as specialist's issue.

The industrial packer must offer the best possible solution to the problems induced by the logistic circuit imposed at the time of dispatch.

Protection and packaging take into account the type of transportation (truck, rail, sea, air), of transshipment,of handling, and of storage, in accordance with professional practice. They cannot eliminate the risk of damage by unforeseeable transport, handling, and environmental conditions.

Before deciding on a type of packaging, the industrial packer must gather all the essential informations for its conceptual

design (see French standard H 00.300 entitled «Assembly of necessary information for the definition of industrial packaging".

This study will take into account:

The product characteristics :

type - shape - dimensions - mass - centre of gravity - vulnerability to mechanical stress and physico-chemical constraints, possibilities of grouping, immobilizing and gripping.

Logistic environmental constraints:

- handling and transport conditions, equipment lifting , allowable weights and sizes for road and rail vehicles, shipping containers and holds, and aircraft trunks.

- climatic conditions in countries of destination and of countries crossed during transport.

- storage conditions.

This information allows the industrial packer to offer the best equation between suitable techniques (physico - chemical and mechanical protection), delays and costs.

Packaging manufactured according to this specification manual benefits from the guarantee offered by the SEI label, provided that the packaging manufacturer is an approved SEI label user. (See «General conditions applicable to packaging bearing the SEI label» appendix page *64b*).

CHAPTER 1

STATEMENT OF PRINCIPLES AND RECOMMENDATIONS

MAKING IT POSSIBLE TO DETERMINE, WITH CERTAINTY, THE NATURE OF THE PROTECTIONS AND PACKAGINGS TO USE ACCORDING TO THE TYPE OF PRODUCT TO BE PACKAGED

1.1 PRINCIPLES OF PHYSICO-CHEMICAL PROTECTION

Physico-chemical protection isolates from elements causing deterioration, such as:

- water
- water vapour
- salt air
- pollution of all kinds
- electrolysis phenomenon
- temperature
- sunlight
- pressure an depressure
- micro-organisms
- harmful pests, bugs or rodents
- harmful equipment, materials, and substances nearby, insofar as their presence is reported to the packing company
- radiation of all kinds (static electricity, electromagnetic phenomenon, etc...)
- etc....

The choice of the physico-chemical protection must therefore take into account the two following parameters:

a) sensitivity of the product to be packaged to deteriorating agents
b) climatic environment of the product during its handling, transport,and storage.

1.1.1 SENSITIVITY OF SOME PRODUCTS TO CORROSION

Products are vulnerable to chemical deterioration.

This deterioration takes the form of smudging or oxidation that may make the product inusable or alter its properties. This holds true for metallic or metal composed products as well as metal protection type packagings.

Classification of metals in order of decreasing need of protection against corrosion (as per specification US MIL P 116).

a) Magnesium alloys of all types, bare and alterable

b) Magnesium, bare and alterable

c) Steel, iron and all alloys except stainless steel, bare and alterable

d) Steel, iron, magnesium and alloys except stainless steel,bare and alterable

e) Steel or iron plated with chromium, nickel, copper, silver or tin, for other than decorative applications

f) Construction steel (low-alloy, high yield point)

g) Silver, copper, brass, bronze, beryllium, lead, cadmium, zinc, babbitt alloys (tin, antimony, copper) and aluminum alloys (all), bare and alterable

h) Steel or iron plated with cadmium, zinc, sheet covered with an alloy of tin and lead

i) Stainless steel, monel metal (nickel, copper) aluminum or titanium alclad, bare and alterable

j) Silver, copper, bronze, brass, beryllium, lead, babbitt metal, cadmium, tin and aluminum alloys (all), bare and non-alterable

k) All decorative plating

l) Stainless steel, monel metal, aluminum or titanium alclad , bare and non-alterable

m) Painted surfaces

This list should not be regarded as an exhaustive classification intended to compare the corrosion characteristics of metals and alloys. It is simply given in an order, a principle that might be modified, to alert and guide those who are not yet familiarized with the general corrosion characteristics of most common metals in the choice of method protection.

Generally, the closer a material is to the head of the list, the more corrosion protection it will require during storage and transport.

It is therefore important that the customer or the builder of the equipment informs the packaging contractor of the composition of the equipment and the risk incurred.

IMPORTANT NOTE

STATE OF THE MATERIAL BEFORE THE DELIVERY TO THE PACKER

EVERY CORROSION SENSITIVE MATERIAL OR PART OF MATERIAL
MUST BE PROTECTED DURING THEIR FABRICATION
BY AN ANTI-CORROSION PRODUCT OR SYSTEM.

The packer will not be able to take

the responsability of the anti-corrosion

if the corrosion sensitive material

is delivered without protection.

The principal will have to indicate
if the protection applied is temporary or definitive.

1.1.2 CLIMATIC ENVIRONMENT OF THE PRODUCTS

(See planisphere page 16b)

Packaged products may be exposed for variable lengths of time to the climatic conditions for their place of storage or mode of transport.

1/Places of storage or modes of tranport

a) European conditions

b) Maritime and other conditions

c) Tropical conditions

2/The duration for which the protection may have to be effective may be :

- 6 months
- 12 months (ALLPACK)
- or more, under the particular contract worked out.

Packaging types will therefore be chosen according to these two parameters.

1.1.3 IMPLEMENTATION OF PHYSICO-CHEMICAL

Physico-chemical protection may take the form of :

1) contact protection
2) waterproof - rain tightness
3) protection by vapour-tight barrier
4/ any other protection against degradation. (see p. 7)

1.1.3.1 a PROTECTION - CONTACT PROTECTION

Before any contact protection is applied, it is essential for the equipment to be cleaned, i.e. made free of pollution in the form of oil, dust, moisture, oxides, fingerprints, etc.

Contact protection will then be provided, as appropriate, by one of the following products :

P1 - Corrosion-proof substance leaving a flexible bituminus film after the evaporation of a solvent. To be used only on parts that need not be taken from stock for use.

P2 - Corrosion-proof substance leaving an oily film after the evaporation of a solvent. Used on machine parts. Compatible with subsequent lubrication. Must be completed by wrapping in grease-proofing materials.

P18 - Inhibitory element in state vapour, anti-corrosion product for the ferrous metal surface. It can have the following shape: powder, paper, plastic films or impregnated rubber.

P19 - Corrosion-proof substance leaving an adherent waxy film after the evaporation of a solvent. Used on exposed machined parts. Must be removed by a petroleum solvent before the product is used.

P20 - Corrosion-proof oil having rust-inhibiting properties in the vapour phase. Used inside closed systems (gear gases, engines, tanks, etc.).

This list is not exhaustive: other products may be used where appropriate.

Contact protection may or may not be completed by :

- wrapping in a neutral grease-proof material,
- blanking or covering with waterproof using a self-adhesive fabric, standard MILB 121 or NF H 00.312 entitled " Waterproof and greaseproof soft and self - adhesive protection materials",
- waterproof "b Protection",
- vapourproof "c Protection".

1.1.3.2 b PROTECTION - RAIN-TIGHTNESS, - WATERPROOF

This protection is appliable each time that:

1/ The material is water sensitive but unsensitive to vapour.
(hygroscopic materials like the refractories, insulating materials and papers.

2/ The material bears a temporary contact protection but this protection does not stand up to rain-tightness.

This protection is got thanks to the realization of a waterproof soldered bag (only for little pieces) or a undehydrated waterproof soldered cover.

The shrinkable covers which allow rain-tightness, without waterproofness are comparable to this protection.

1.1.3.3 C PROTECTION BY VAPOUR-TIGHT BARRIER

This is intended to establish and maintain the humidity inside the vapour-tight envelope below a certain level (5 g of water per m3 at 15°C) during transport and storage.

The moisture may :

- come from the inserts, staying, padding, stuffing, suspension, damping or other materials,
- come from the product itself,
- be present in the enclosure when the envelope is being closed,
- enter through the walls of the envelope.

The penetration of moisture depends on the permeability of the barrier material to the water vapour, climatic conditions and the duration of the storage.

The type of vapour-tight barriers and the quantity of dessicant will be chosen accordingly.

Nota: To check that the material does not contain humidity inside, by draining and drying up the cooling system.

A - VAPOUR-TIGHT BARRIER

Vapour-tight barriers are chosen according to the various parameters mentionned above.

The levels of permeability to water vapour are the criterium according to which these barrier materials are chosen.

These levels are stated in grams per square meter per 24 hours at 38°C and 95% relative humidity (tropical laboratory conditions).

Table 1, for example, may be used in choosing between two materials :

P - Polyethylene 0.2mm thick, having a permeability to water vapour less than 5 g per square meter per 24 hours, or comparable standard (NF H 00.311-1), intilted "Heat-weldable soft materials. Polyethylene monosheet with a water stream transmission coefficient (P) between 1g and 4 g/m²/24 hours".

T - Heat solderable canvas as per US MIL B 131 or NF H 00.310, intilted "Heat-weldable and soft materials with low water streamtransmission coefficient (P < 0,3 g/m2/24 hours)".

The covers will be sealed without obligation of depression.

TABLE 1

TABLE OF CORRESPONDENCE				
PACKAGING	6 MONTHS	12 MONTHS	24 MONTHS	MEAN CLIMATIC FACTOR
EUROPEAN CONDITIONS	P	P	T	F = 1, 00
MARITIME CONDITIONS AND OTHERS	P	T	T	F = 1, 50
TROPICAL CONDITIONS	T	T	T	F = 2,50

** On option*

B - DEHYDRATING

a/ Definition of the dehydrating

The bag of dessicant must be in conformity with NF H 00.321.intitled "dehydrating Bag" or DIN 55473 OR US MIL D3464.

The French unit of desiccant is the mass of product capable of adsorbing, at 20°C +/- 3°, in the specified moist atmosphere, the following quantities of water:

TABLE 2

MOIST ATMOSPHERE (R.H. IN %)	QUANTITY OF WATER ADSORBED (GRAMS)
20	60
30	80
40	100

The apparent volume of this unit must be less than 600 cm3. One French unit of desiccant is equivalent to 16 American units.

b/ Use of dehydrating

The dehydrating bags are delivered in plastic bags who contain one indicator paper permitting to check all the time their correct state.

- blue paper = correct
- pink paper = bad

These indicators must be all the time in the bag containing the dehydratings.

These bags must be kept closed until the use of the last dehydrating bag.

The bags of desiccant will be immobilized inside the packaging and care shall be taken that they are not in direct contact with the products.

To improve the effectiveness of the desiccant, the bags will be distributed as uniformely as possible inside the vapour-tight envelope.

c/ Quantity of dehydrating

Experience shows that there are practically no harmful effects of moisture below 40% R.H. at 15°C, or 5 g of water per m3 of air. To maintain this value, bags of desiccant are placed inside the vapour-tight envelopes.

For storage for very long periods, periodic inspections are mandatory, and the desiccant can be replaced in the course of these inspections. For that the covers with humidity indicator will be used.

The number of units of desiccant is calculated using the following formula :

$$nU = 0.7\ p\ STF + XK$$

Example : pour p = 0,18 g/m2/24 h $nU = \frac{STF}{8} + XK$

That is to say: 1/8 U per m² for one year in European climatic contions and one compensation of the wedging moisture.

where :

nU = Is the French **n**umber of **U**nits of desiccant to use.

0.7 = Is a coefficent applying to the permeability of the barrier materials, reflecting the ratio between actual and laboratory conditions of use.

p = Is the **p**ermeability of the material expressed in g/m2/24 hours, measured at 38°C and at 95% relative humidity.

S = Is the area of the barrier in m2; the area to be used is the inside surface of the first envelope regarded as tight to water vapour emanating from the product.

T = Is the period of storage in years.

F = Is the climatic factor taken from the appended figure page 16b; the factor to use is the highest encountered in the various regions through which the packaged product is to pass on its way to its ultimate destination.

K = Is the mass of hygroscopic insert materials, in **K**ilograms.

X = A coefficent that depends on the type of material:

- **2** for dry wood (< 20% of humidity).
- **1** CP < 10% of humidity.
- **1** for hair felt, cellulose based materials, cardboard and other materials not categorized below.
- **0,75** for agglomerated fibers (horsehair, synthetic or vegetable fiber, agglomerated with rubber).
- **0,25** for glass fibers.
- **0,06** for synthetic foam and rubber.

Note: The wedging material inside the vapour-tight enclosure must be non-hygroscopic insofar as possible, limiting the use of wood.

In some type of vapour-tight packaging, inert or neutral gases may be used.

The life of the protection time begins the day of the definitive delivery of the packaging to the customer and is closed at the end of the contract guarantee.

1.1.3.4 RAIN-TIGHTNESS, VENTILATION

Since condensation is caused by variations in both temperature and relative humidity (internal and external), it is important that outer packaging (protecting products liable to corrosion) should be rain tight and ventilated so as to promote the elimination of internal moisture.

The body of the packaging, if made of wood without gaps, for categories with protection indices a, b, or c, must be lined with a moisture-resistant impervious material. The cover will be rain-tight. It may be made of :

- plywood, with joints if necessary

- or a wood/polyethylene sheet assembly held by a moisture-resistant plywood or fiber or particle board or arry other product resistant to constraints stipuled above (see § 5.2 page 35 et 5.3 page 38).

At least two ventilation surfaces must be provided, one at the top and one at the bottom of the case, in opposed panels, per 10 m3 of case. Their area should be at least 20 cm2 each.

The aircraft packagings must be equipped with ventilation surfaces to equalize the pressurization and depressurization.

If the case bottom has open joints, the ventilation surfaces at the bottom of the vertical panels may be eliminated.

An exception will be allowed for small cases (less than 1.50 m3) or cases that are completely filled or stuffed, for which no ventilation opening need be provided.

The ventilation surface must be protected from the rainwater.

A fine-mesh screen may be placed over the ventilation surfaces, especially for tropical packaging.

It is important to check that no insert blocks the ventilation surfaces.

If a vapor-phase corrosion inhibitor is used, there must be no ventilation holes.

Some category 4 substances and products, such as glassware, ceramics, steel, stainless metals, etc..., require no ventilation or lining in the cases.

CLIMATIC ENVIRONMENT

The packaged materials suffer during very variable lengths of time from the climatic conditions of their mode of transport and site of storage.

Climate factors were determined to take account of:

- the European conditions,
- the maritime conditions,
- the tropical conditions.

They are object to a graphic representation on the planisphere opposite.

1.2 MECHANICAL PROTECTION

The purpose of mechanical protection is to isolate the product from such environmental factors as :

- the compressive stresses of staking
- the bending, torsional and shear stresses caused by staking, handling and transport
- the impacts caused by falls during handling
- vibrations caused by transport.

The choice of method of mechanical protection must be guided by the following three parameters :

a) vulnerability of the product to mechanical stresses
b) mechanical environment of the product during handling, transport and storage
c) unbalance (center of gravity not at center of packaging).

1.2.1 VULNERABILITY OF PRODUCTS TO MECHANICAL STRESSES

This vulnerability may be of various kinds :

a) Structural (for compression, bending torsional, or shear forces)
b) Surface (sensitivity to abrasion of exterior coatings)
c) To impacts and vibrations (resistance to the dynamic stresses caused by falls of the packaging and by vibrations during transport).

1.2.2 MECHANICAL ENVIRONMENT

This depends on the storage, handling and transport equipment used.

a) During storage, packaging is subjected to vertical stresses during stacking. The packaging is made so as to resist to the forces applied to side panels.
b) During handling operations, the packaging may fall. The maximum allowable height of the fall is inversely proportional to the weight of the parcel (see table 3 on page 18).
c) During transport operations, packaging is subjected to vibrations and impacts.

These depend on the means of transport used :

- road
- rail
- sea
- air

and depend on the circuits used.

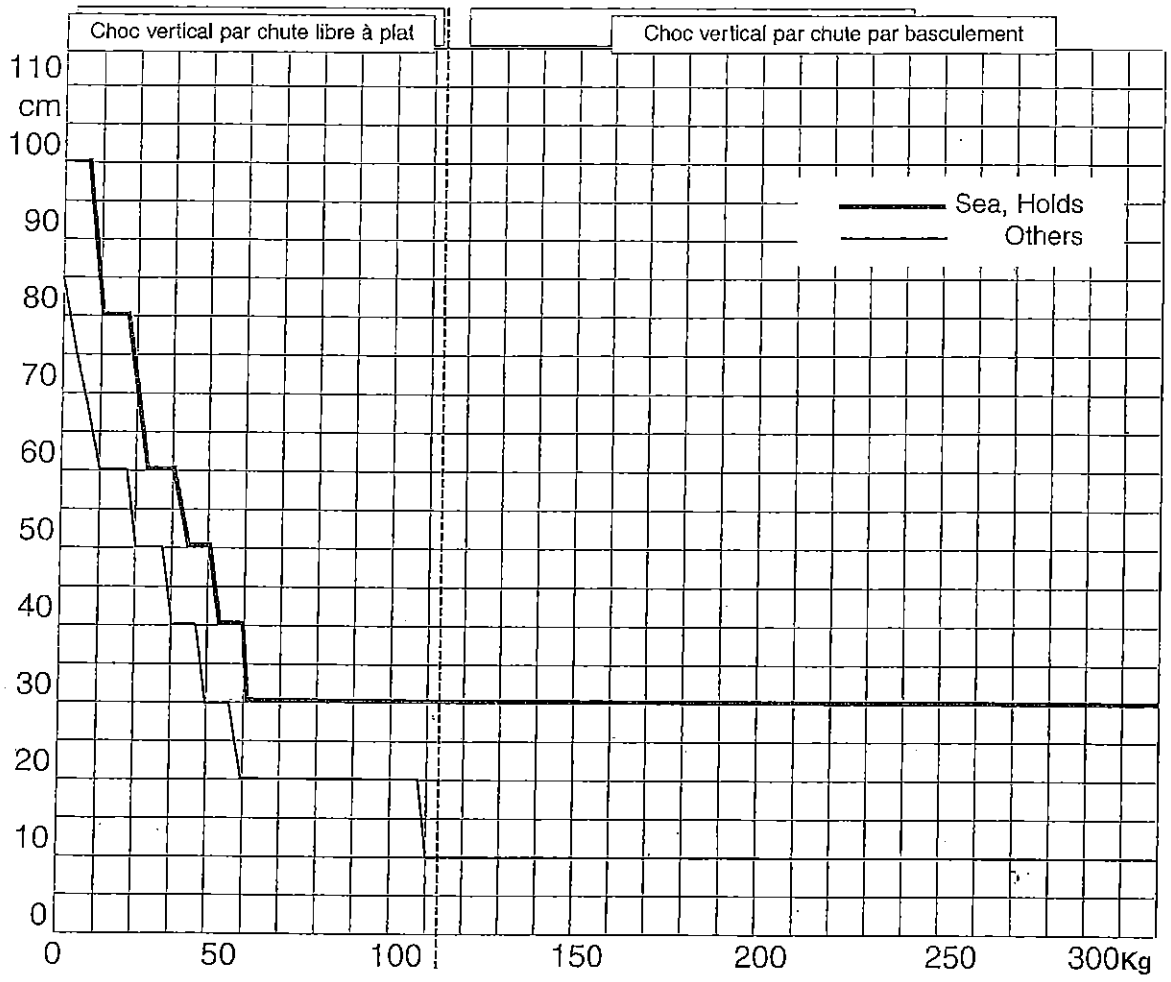
Vibrations spectra for transport circuits will be analyzed as graphs which will define the range of acceleration in comparison to the variations of the frequency of the vibrations.

Those graphs depend for each means of transport of the:

- transport conditions (example: bad road or good surface)
- transported goods
- position of the packages in the transport.

TABLE N° 3

EXAMPLE OF RUNNING RISK ACCORDING TO A TYPE OF TRANSPORT



1.2.3 IMPLEMENTATION OF MECHANICAL PROTECTION

Mechanical protection will therefore be of several orders:

1 - Protection by inserts and immobilization

2 - Protection against abrasion

3 - Protection against impacts and vibrations

1.2.3.1 PROTECTION BY WEDGING AND IMMOBILIZATION

This integrates the product with its container.

Then, the goods will have to be isolated from inner-sides of the crates by wedging in order to make possible, without any damage, for the panels of the crates to warp and to ease ventilations.

Immobilization may be affected by bolting, hooping, inserts, stuffing, etc.

1.2.3.2 PROTECTION FROM ABRASION

This prevents deterioration of the surface by abrasion and grinding.

Packaging and wrapping materials that cannot cause damage in contact with the product will be used.

1.2.3.3 d PROTECTION FROM IMPACTS AND VIBRATIONS

A - Protection against impacts

It isolates the product from its container by suspension systems.

These systems serve for example, during impacts caused by free-falls, to decrease the acceleration of the product by absorbing the energy of the fall (say by compression of a resilient elastic material).

The materials used will therefore be chosen according to :

- the vulnerability of the product to acceleration
- the height of fall the packaging may have to withstand during storage, handling and transport.

B - Protection against vibrations

It isolates the product from its container by damping systems.

These systems screen out the vibrations caused by means of transport.

These systems are designed to attenuate the levels of vibrations.

Allowance must be made for the relations between :

- the natural frequencies of the products, and
- the natural frequencies of the packaging and of the means of transport used.

Generally, protection against impacts and protection against vibrations is provided by one and the same type of material.

C - Equipment concerned

Equipment which mechanical vulnerability rate cannot be reduced by immobilization wedging and therefore that requires a protection by hanging up or damping.

D - Application

The equipment will be immobilized inside of a support or container through a hanging up or damping system

The damping device will have to be chosen according to the geometrical characteristics of the ware (shape, weight, vulnerability), and to the technical data given by the manufacturer.

The calculated wedging and damping systems will be made of elastic materials, plates, blocks, corners, brace, matresses, rubber cushions, or mechanical device working when in contact with the piece, the support or the internal crate.

Example : see chapter p 21.

1.2.3.4 WEDGING FOR INTERNAL IMMOBILIZATION

To ensure the coherence of the whole, all moving or cantilevered parts inside an item of the product must be immobilized or supported by means provided by the manufacturer.

1.3 MEANS OF CHECKING

Simple device may be fixed to packaging to detect stresses in excess of standards to which it is subjected (impacts, overturning, moisture, temperature).

CHAPTER 2
CATEGORIES OF PACKAGING

The following categories of packaging have been chosen to allow the immobilization and the gripping of the goods : they lead to the definition of supports or containing elements which will be, according to each case, completed by physico-chemical or mechanical protectional rates.

The previous categories 5 and 6 that concerned protection rates were cancelled and replaced respectively by paragraphs "c Protection" and "d Protection".

The methods of packaging are codified by adding the categories that define the supports and the containing elements with the protection rates.

The reading is done from the outside of the packaging to the goods.

Example, method "**3 d 4 c a**" corresponds to:

External crate	category	**3**
+ shockproof absorber	protection	**d**
+ filled-sided case	category	**4**
+ dehydrated waterproof	protection	**c**
+ contact protection on the product	protection	**a**

CATEGORY 1

SADDLES AND BASES

2.1.1 PRODUCTS CONCERNED

- Oversized products that, because free of mechanical and physico-chemical vulnerability, need not be packed in crates.

- Any other products that is heavy and/or bulky and not very vulnerable.

Types of materials concerned by this category are mostly boiler made materials (columns, reactors, turning machines, condensers, tubes, etc...)

Some of these self-supporting items can be handled by slings, either directly or using existing lifting points.

Where their mechanical strength values make special self-supporting saddles necessary, a special study will be required.

(See sketch n° 1 on page 54)

2.1.2 PHYSICO-CHEMICAL PROTECTION

1 - No physico-chemical protection

1 a - All parts vulnerable to corrosion must be protected by the manufacturer, who will in particular take responsibility for draining, rinsing, drying and protecting.
However, on express request, the packer may complete these services.

1 b - Rain-tightness (shrink or stretch film or flexible film).

2.1.3 MECHANICAL PROTECTION

This will be provided by saddles made of wood, metal or possibly some combination of both, attached to the product (in particular by metallic belts).
The floor loading must not exceed 10 T/m2.

1 d - Material filed on its base by the mechanical absorbers.

2.1.4 MARKINGS

This will take the form of boards attached to the saddle or to the product.
(See chapter 7 p 43).

CATEGORY 2

BUNDLES, PALLETIZATION

2.2.1 PRODUCTS CONCERNED

Products of which the mechanical and/or physico-chemical vulnerability is not such as to require packaging in a crate or case and of which the structure allows grouping.

- The bundle will be preferred for slender parts having structures not likely to be damaged during normal handling : straigth pipes, shapes,framework elements, roughs, etc.

- Pallets will be preferred for the grouping of small items not vulnerable to crushing (roughs, raw materials in slab form, parts in transport parcels).
(See sketches 2 and 3 on page 54)

2.2.2 PHYSICO-CHEMICAL PROTECTION

2 - No physico-chemical protection

2a - All parts vulnerable to corrosion must be protected by the manufacturer, who will in particular take responsibility for draining, rinsing, drying and protecting.
However, on express request, the packer may complete these services.

2b - Rain-tightness (shrink or stretch film or flexible film).

2c - The protection will allow vapour proofness, made of water tight-barrier with adjunction of a dehydrating.

The ledging parts of the material will be protected to avoid any deterioration of the cover.

The **2c**-methods are exclusively for packages on bases grouped in the container or for road transport "door to door" or for storage on site, controlled, without handling or transport. The responsibility of the packer can be set only if he was in charge of the whole operation.

2.2.3 MECHANICAL PROTECTION

2.2.3.1 BUNDLES

This may consist of arrangements such as :

- straps or iron wire around the product (used for relatively light bundles)
- U iron or wood sticks joined by nuts and bolts
- welds, etc.

NOTE : in some cases, this self-supporting product can be handled directly. Some products may necessitate special bundles, for which a special study will be required.

2.2.3.2 PALLETIZATION

Mechanical protection is provided by the platform on the bottom surface; the other surfaces are protected by shrink or stretch films or by binding with plastic or metallic straps.

2d - Use of pallets or absorbed panels for road transport or containerization without rupture of transport "door to door".

2.2.4 MARKINGS

This takes the form of boards fixed to the bundles or, in the case of palletization, contained in the plastic film. (See chapter 7 p 43).

CATEGORY 3

PACKAGING IN CRATES

2.3.1 PRODUCTS CONCERNED

- Fabricated equipment of which the shape or fragility rules out saddles or bundles
- Piping, frameworks, wrought sheet and plate
- Guard rails
- Mechanical and electrical assemblies.

2.3.2 PHYSICO-CHEMICAL PROTECTION

3 - No physico-chemical protection.

3a - All parts vulnerable to corrosion must be protected by the manufacturer, who will in particular take responsibility for the draining, rinsing, drying and protecting.

3b - Protection of the equipment is limited to rain-tightness, provided by making a flexible covering enclosing the part to be protected.

3c - The protection is tight to water vapour and takes the form of vapour-tight barrier in conjunction with a desiccant.
Protruding parts of the product will be covered to eliminate any risk of damage to the envelope.
Method **3c** will be used only for packaging on bases for "door-to-door" by container, road transport, or for storage on site without handling or transport.

2.3.3 MECHANICAL PROTECTION

For the categories designated above, the product will be immobilized by inserts appropriate to the nature of the product and fixed to the crate:

- by the placement of a saddle or frame on the platform of the crate,
- or by bearing against surfaces that cannot be bent out of shape.

3d - Direct damping of the ware inside of a crate.

3d2 - Damping on a dunnage board of the ware inside of the crate.

3d3 - External crate with an internal crate suspended in it in which the product is immobilized.

3d4 - External crate with an internal crate with filled sides. In this internal crate the product is immobilized.

2.3.4 MARKINGS

This will be in the form of boards affixed to the sides of the crates. (See chapter 7 p 43)

Note: The crate opening will be limited at 20 cm when the category 3 is used as external packaging for retail or sea transport without containerization.
The option "frame crate" can be chosen for packaging grouped in containers.

CATEGORY 4

PACKAGING IN PACKING CASES

2.4.1 PRODUCTS CONCERNED

Any assembly needing mechanical and possibly physico-chemical protection; the levels of protection applied will allow for the specific sensitivity of the equipment - there are four categories.

Electric motors, electromechanical equipment, motor-reducer sets, control valves, control regulating, monitoring, and measuring cabinets, etc. Any metallic or structural part having sensitive machined surfaces.

2.4.2 PHYSICO-CHEMICAL PROTECTION

4 - No physico-chemical protection.

4 a - All parts vulnerable to corrosion must be protected by the manufacturer, who will in particular take responsibility for draining, rinsing, drying and protecting.

4 b - Rain-tightness (shrink or stretch film or flexible film). For the packing of some hygroscopic products that must neither be dehydrated nor moistened, welded waterproof covers will be used.

4 c - The protection is tight to water vapour and takes the form of vapour-tight barrier in conjunction with a desiccant.

Protruding parts of the product will be covered to eliminate any risk of damage to the vapour-tight envelope.

All accessible and corrosion sensitite accessible part must be given a surface protection (grease, rust-proof paint, anti-corrosion film, self-adhesive fabric, etc.), provided by the manufacturer or completed, on request, by the packer.

Inaccessible and internal parts must be protected by the manufacturer (draining, rinsing, etc.).

Important: For air transport , it must be kept in mind that the pressure differences between the ground and in flight are such as to impose vapour-tight coverings having an internal volume about one third greater than for conventional packaging.

2.4.3 MECHANICAL PROTECTION

For all methods, the products will be immobilized inside an outer case :

- either by inserts in the case,
- or by grouping in internal crates or cases.

4 d - Direct damping of the ware inside of the crate with filled sides.

4d2 - Damping on dunnage board of the ware inside of the crate with filled sides

4d3 - External crate with filled sides, inside of which an internal crate is suspended. Inside of this internal crate the ware is immobilized.

4d4 - External crate with filled sides, inside of which an internal crate with filled sides is suspended. Inside of this internal crate the ware is immobilized.

The external crate is made of unplaned wood with closed joints, of plywood or cardboard.

Note: This type of crate may included some plain panels or reinforcing device for handling operations.

2.4.4 MARKINGS

These will be applied directly to the surface of the case, in weatherproof ink, or on plastic or metal boards affixed to the sides of the case. (See chapter 7 p 42).

CATEGORY 7

PACKAGING OF REELS

2.5.1 PRODUCTS CONCERNED

This category consists of all cables delivered on reels by the supplier.

2.5.2 PHYSICO-CHEMICAL PROTECTION

No corrosion protection is provided for products in this category. Cable ends are protected by the supplier or, on request, by the packer.

2.5.3 MECHANICAL PROTECTION

The product is protected by lagging made of boards with closed joints in plywood, or any other process. Except otherwise stipulated, this work is done by the manufacturer or, on request, by the packer.

Barring exceptions, the product will be dispatched as is.

However, it may be grouped in crates or packing cases and be included in packaging categories N° 3 or 4.

2.5.4 MARKINGS

They will be applied directly to the surfaces, in waterproof ink, or on to moisture-proof panels that will be fixed to the sides of the reels. (See chapter 7 page 43)

CATEGORY 8

PACKAGING OF DANGEROUS GOODS

This category is applied to products classified as «dangerous goods»; their nature makes necessary special protection and packaging in accordance with regulations specific to the mode of transport chosen.

Air transport : OACI regulations///IATA code

Sea transport : OMI regulations///IMDG code

Land transport : CITMD and OCTI regulations///RID and ADR codes

For the protection and packaging of these products, the manufacturer must provide all required information to the packer so that the latter can comply with the various relevant national and international regulations.

Generally, the manufacturer must provide primary packaging in conformity with regulations for his products.

SUMMARY TABLE OF PACKAGING CATEGORIES

EQUIPMENT CONCERNED Examples	PACKAGING CATEGORY Chapter 2	PROTECTION PHYSICO-CHIMICAL [a] Contact protection Chapter 1.1.3.1	[b] Rain-tightness Chapter 1.1.3.2	[c] Vapour-tightness Chapter 1.1.3.3	MECHANICAL [d] Contact and vibration protection Chapter 1.2.3.3
Large fabricated vessels, Columns, reactors, Condensers, etc...	[1] SADDLES AND BASES	■	■		■
Straight piping, Frame parts, Shapes, etc...	[2] BUNDLES - PALETTISATION	■	■	■	■ ■
Machine-welded assembly, Frame works Elecrical equipment Mechanical equipment Small fabricated vessels, Piping, ect...	[3] CRATES	■	■	■	■ ■ ■ ■
Electrical motors Motor reductors Glass Data processing equipment, Automation etc...	[4] PACKING CASES	■	■	■	■ ■ ■ ■
Reels of cable	[7] PACKAGING OF REELS	external staving with plank, plywood, etc...			
Dangerous materials	[8] PACKAGING OF DANGEROUS MATERIALS	according to regulation (AIR: IATA, SEA: IMDG, LAND: RID 1 ADR)			

KEY:

■ TO DO IMPERATIVILY

Technical definitions: see pages 21 to 29
Sketchs of packaging: see appendix pages 54 and the folowing one, sketches n° 1 to 15

CODIFICATION

[1] Packaging category

[a] Type of protection

Nota: The codification is made from external to internal

EXEMPLE NON LIMITATIF DE CODIFICATION D'UN EMBALLAGE

[3]	[d]	[4]	[c]	[a]
outer crate	damping anti-shocks	inner packing case	dehydrated sealed cover	contact protection

CHAPTER 3

PROTECTION, PACKAGING AND PACKING OF WORKS OF ART, FURNITURE AND DECORATING

3.1 Concerned materials

Furnituring, decorating, antiques, paintings, sculptures, works of art.

Traditional methods are still used but the application of new materials will bring more safety and cleanness.

3.2 Protection of the state of surface - prepacking

The previous packaging will take account of the vulnerability of the surface of the goods.

Will be used:

- Silk-paper wrappig, muslin paper, cotton cellulose, polyethylene foam, paper, polyethylene, etc...

- Thick wrappings helping to avoid stamping and dividing the constraints as: expansed polyethylene, alveolar polyethylene (bubbles), crimped paper, simple-sided cardboard, wrapped woodfiber, etc...

The grouping of the goods will be eased by using unitary packaging made of corrugated cardboard or by packing them with kraft paper, strenghten paper, hessian or plastic strip.

3.3 Mechanical protection

The protections to be set to allow a good conservation of the furniture and works of art during their transport are inherent to the material, the shape, the weight and the constitution of those objects, and will have to be prepared unitarily.

3.3.1 Seats, armchairs, sofas, furniture

After protecting the surface, those goods will be packed by stamping, wrapping or any other adapted means. This work will be carried out with appropriate materials or any other technique adapted to the furniture having to be protected. In the case of some particularly vulnerable and delicate furniture, they can be packed in rubber, forming a protecting case. The wedging will have to isolate the contact of the legs from the inner sides of the packaging.

3.3.2 Framing of the mirrors, looking glasses, pier glasses

They will be protected by a stamping of adequate thickness and shape so that a uniform aspect in "square" protects bosses and ledges. The glass parts will carry adhesive tape in order to avoid, in case of damage, that the breaks damage the parts under the glass. The adhesive tapes will not be set on the frame so that any degradation of the state of surface of this varnished, gilded or waxed frame is avoided.

3.3.3 Small or medium-sized objects of diverse shapes and materials

They will be prepared as parallelepipedical packages carried out with appropriate materials.

3.3.4 Particularly delicate, asymmetrical objects

Polyethylene rubber or any other similar materilsl will be used so that they have a parallelepipedical shape.

3.3.5 Paintings on a frame

To isolate the canvas, one can either make packets or packages, or set bars on the frame, making the wedging of the goods easier.

3.3.6 Framed paintings

The protection of the frames will be done by thickness stamping and with an appropriate shape, in order to protect any moulding, boss, and ledge. The canvas will have to be without contact to the packaging.

3.3.7 Paintings of high value

The use of individual basins, in which the painting will be protected with appropriate materials, can be thought of and recommended.

3.3.8 Statues and sculptures

The size of the piece of art (weight, dimensions, shapes, material) must be taken into consideration in order to choose the best method. Pieces of medium dimension can be packaged as geometrical packages, in order to protect the ledging parts. For bigger pieces, the packaging will be carried out directly in the containing element (crate) by wedging the big parts with pieces of wood covered by felt, foam,moss, etc...

3.3.9 Crystal lusters, glassworks, pendants, etc...

After protecting the elements, they will be suspended and firmly hung in their contents and will be then packed with the more appropriate materials.The pendants, crystal etc... will have to bear a cover to make them stick to their support.
To make the handling of the objects of § 3.3.6 and 3.3.7 easier, it is recommended to avoid the setting of bars and the wedging in the contents.

3.4 PACKAGING

- For handling, transport or long-time storage, the packaging will protect the good from shocks and vibrations.

- According to the cases, transported by air, sea,or land,the content as a wooden or plywood crate, or cardboard crate , will be manufactured at the wished dimensions, furnished with barrier materials, the whole of it having to correspond to the standards required by the recommendations in the "Packaging methods board".

- Some use will require to examine the reusable packaging which wedging will be adapted to the shape of the objects and will be unloosable. The closings and the openings of those packaging are maneuvrable without special means.

CHAPTER 4

GROUPING CRITERIA

The previous categories correspond to protection and packaging methods offering a set of protections specified in chapter II page 21

These arrangements are made to protect a part or set of parts; they constitute an elementary packaging or level of protection.

Elementary packaging units may be grouped to facilitate transport, handling and storage defined by a category and by a protection as well.

Example : Parts may be protected according to category 4c (vapour-tight barrier + desicant + cardboard box) and this set of cardboard boxes is then grouped in a transport case (category 4).

CHAPTER 5

TRANSPORT CASES

5.1 WOOD CASES

5.1.1 GRADES OF PACKAGING WOOD

The grade of wood used for industrial packaging is based on the specifications of the converted timber regularly available from European softwood sawmills.

The following will be used (See table n°5) :

- Grade **P1** : Frame or structure -for loading-bearing elements
- Grade **P2** : Cases, shuttering -for non-load-bearing elements
- Grades **OB** : Fine woodworking -can be planed
- and grade **1** : Ordinary woodworking -special frameworks

are used only for special packaging in which appearence or mechanical properties are of critical importance.

Measurement of knots.

Given the mechanical strength required, knots are measured perpendicularly to the centerline.

TABLE 5

MINIMAL DEMANDINGS

CRITERIA	GRADE P 1	GRADE P 2
knots	On both faces, knots are measured according to prEN 1310, article 4.1.2. There are not taken into account on the edges. The knots < 10 mm are not taken into account. Grouped knots have to be considered as individual knots.	
tight, partly tight or dead knot	≤ 33% of the width of the piece	≤ 60% of the width of the piece
loose knot	≤ 20 mm	≤ 30 mm
rotten knot	≤ 20 mm	≤ 30 mm
double knot	Allowed	Allowed
exposed heart	Allowed on one side	Allowed on one side
unexposed heart	Allowed	Allowed
splits	Splits are taken into account on the ends, the sides and the edges. They have to be measured according to prEN 1310	
split on the side	Allowed[1)]	Allowed[1)]
double split (in the planks)	1 split on the plank ≤ 1 width of the plank	1 split on the plank ≤ 2 width of the plank
double split (in rafters and dice)	Not allowed	Not allowed
pocket of resin	Allowed on one side only	Allowed on one side only
inbark	Not allowed	Not allowed
bluishing	See[2)]	See[2)]
biological deterioration except the bluishing	Not allowed	Not allowed
active insect stings	Not allowed	Not allowed
unactive insect stings	Allowed until 5 holes of diameter ≤ 3 mm	Allowed until 5 holes of diameter ≤ 3 mm
wanes (without bark)[3)]	wanes are mesured according to à prEN 1310, article 4.8.	
	Allowed until 33% of the thickness if ≤ 25% of the length of the piece, allowed on both edges of a face and ≤ 10mm at each edge.	Allowed until 50% of the thickness if ≤ 30% of the length of the piece, allowed on both edges of a face and ≤ 20mm at each edge.

1) Except where the nailling down was done (see corresponding standards of the product)
2) Mechanical properties are not modified by the bluishing. The bluishing can be avoided by braizing process or other means.
3) Square wood can be defined in the standards of the products or in the contracts.

5.1.2.1 THICKNESS OF WOOD

The thickness of the boards and battens used will depend on the dimensions of the cases, the weight and type of product to package and its inserts.

With allowance for these parameters, the thickness will be as follows :

TABLE 6

NET WEIGHT OF THE PRODUCT	THICKNESS OF PANEL BEFORE PLANING	THICKNESS OF BATTENS BEFORE PLANING
Until 500 kg	18 to 22 mm	18 to 22 mm
From 500 kg to 2 t	18 to 22 mm	22 to 25 mm
From 2 t to 5 t	22 to 25 mm	25 to 32 mm
From 5 t to 10 t	25 mm	25-32 mm or 38 mm
From 10 t to 15 t	25 or 32 mm	32 or 38 mm
From 15 t and beyond	32 or 38 mm	38 mm

Remark : Commercially available wood on the French market has a tolerance of +/- 2 mm, and planing, if the customer requests it, also removes 2 mm, giving true thickness slightly less than the values stated above.

Note: All cutting up of structure wood with a length <7 mm will have to be in one piece.

5.1.2.2 DIMENSIONS OF SAWN TIMBER

The dimensions are mesured according to the following **standards**:

NF EN 1309-1 : Round and sawn wood. Measure method.
Part 1 : sawn wood

NF EN 1313-1 : Round and sawn wood. allowed tolerances and preferential dimensions. Part 1 :Resinous sawn wood (replace b 53-100, july 1998).

The normal lengths are in 0.50 - or 0.25 m increments from 1.50 m to 8 m.

Note : To obtain the thickness at 20% moisture specified by the standard, the fresh wood must be cut oversize.

For example: the thickness of 25, 38 and 50 mm at 20% moisture are usually sawn to 27, 41 and 54 mm respectively.

The width of the decorating planks will have to be over 100 mm.

TABLE 7

PREFERENTIAL DIMENSIONS ACCORDING TO STANDARD prEN 12248

REFERENCE SECTION									
THICKNESS (mm)	WITH (mm)								
	75	100	125	150	175	200	225	250	300
16	X	X							
18	X	X	X	X					
22	X	X	X	X		X			
25	X	X	X	X	X	X			
32	X	X	X	X					
38	X	X	X	X	X	X	X	X	X
50	X	X	X	X	X	X	X	X	X
63	X	X	X	X	X	X	X		
75	X	X	X	X	X	X	X	X	X
100	X	X		X		X	X	X	X

Note : *Other dimensions are utilisable with national standard.*

5.2 PLYWOOD CASES

5.2.1 CLEATED PLYWOOD CASES

Plywood panels are increasingly used in industrial packaging. They have the following advantages :

- Lighter packaging
- More compact
- Resistant to diagonal forces
- Impermeability
- Ease of use.

Since the design of plywood cases is different from that of cases made of sawn wood, the structure of plywood cases should be designed according to :

- The mass and volume of the products
- Tthe nature of the inserts
- The thickness of the plywood
- The number of plies.

According to these conditions, the following thicknesses are indicated for guidance :

TABLE 8

PREFERENTIAL DIMENSIONS

NET WEIGHT OF THE PRODUCT	THICKNESS OF PANEL	THICKNESS OF BATTENS
Until 500 kg	> to 6 mm	> 18 mm
From 500 kg to 2 t	> to 10 mm	> 22 mm
From 2 t à 5 t	> to 10 mm	> 25 mm
From 5 t à 15 t	> to 12 mm	> 38 mm
over 15 t	> to 15 mm	> 38 mm

The glues used in making the plywood must be moisture-resistant.
The plywood may be given further treatment to make it resistant to fungi, insects, and termites, i.e. fungicide and insecticide treatments, required for some types of container.

The plywood, made at high temperature, have not to undergo any curative treatment.

In case of traditional packaging, the assembling of the panels must be imperatively done through bars or join-covers.

TABLE 9

THICKNESS AND DIMENSIONS

NOMINAL	TOLERANCES	MINIMUM NUMBER OF PLIES
10	8,7 to 10 mm	3
12	11,1 to 12,5 mm	5
15	14,3 to 15,8 mm	5
18	17,5 to 19 mm	7

5.2.2 PREFABRICATED CASES IN PLYWOOD PANELS

The plying plywood cases are often used and have the following advantages :

- Low weight
- Maximum volume usable
- High resistance to falls
- Low glut storage
- Reduced recycling as the used components are of low volume
- General tolerances are narrowed in comparison to solid wood

The materials used are most of the time:

- Birch wood
- Poplar wood
- Eucalyptus plywood
- Resinous plywood

The thickness used are generally between 5 and 10 mm with a number ol plies between 3 and 7 according to the quality of packaging.

The sticking will have to be of grades ii or III

The plying cases is put togheter with steel bars fastened or riveted in the plywood or in metal, tissue or plastic hinges. the obtained hardness is all the higher as the assembling is resisting along the tidges.

The used poils and the construction of plywood influence the characteristics of the cases.

The plying plywood packaging offers equally a very high resistance to static loads (piling). For the more than 30 kg loads, the packaging are provided with pallets or bottom-pallets added as a result of study.

STANDARDS AND CLASSIFICATION OF THE PLYWOOD

One will have to try and stick to the following standards :

EUROPEAN
- EN 315 : Plywood - Dimension tolerances.
- EN 314-1 and 2 : Plywood - Quality of the sticking
  - Part 1 : Test metod
  - Part 2 : Requirements
    - Grade II semi-external
    - Grade III external.

FRENCH :
- AFNOR NF B 54-154 : Plywood with plied - Type of sticking
  Definition - Tests - Qualification.
- AFNOR NF B 54.160 : plywood with plies (general use)
  Dimensional - Characteristics of the panels.
- AFNOR NF EN 635 - 1, 2 and 3 (old norms NF B 54-170 -1 and 2)
  Plywood - Classification according to the aspect of the sides

ENGLISH :
- BRITISH STANDARDS BS 6566 : Sticking WBP or MR
- BRITISH STANDARDS BS 6566 - Class II

GERMAN :
- DIN 63705

AMERICAN :
- APA PS 1.83
- APA PS 1.83 - Grade C-D GROUP 1

RUSSIAN : GOST AO.55.71 : Russian birchwood panel

5.3 CASES WITH PANELS MADE OF PARTICLES OR FIBERS

The use of woodpanels is allowed.

The OSB panels will have to correspond to the standards for mechanical resistance and those for moisture resistance.

The thickness that will have to be taken into account will be as a minimum of the advised for plywood cases.

The conception of the cases will be identical to the conception of plywood cases.
The use of fiber panels will not be used to produce covers for tropical packaging cases. Risks of moisture will have to be taken into account in order to choose or not moisture resisting panels.

STANDARDIZATION

OSB :

- NF EN 300: Panels with thin, long and orientated sheets (OSB) Definitions, classifications and requirements. OSB/3 and OSB/4

FIBERS

- NF EN 310: Wood panels. Determination of the elasticity module in flexion and flexion resistance.
- NF EN 317 : Panels with particules and fibers panels. Determination of the swelling in thickness after water immersion.
- NF EN 322 : Wood panels. Determination of the moisture.
- NF EN 323 : Wood panels. Determination of the density.
- NF EN 324 : Wood panels. Determination of the dimension of the panels
  Part 1 : Determination of the thickness, width and length
  Part 2 : Determination of the square and os the rectitude of the edges.

5.4 CARDBOARD CASES

This consists essentially of two-layer or three-layer cardboard.

Several grades may be used, depending on the volumes and net weights of the products to be packaged.

These grades are measured in «kg» or in «tests», which are indices of dynamic perforation and vertical compression.

Some cardboards are «moisture resistant».

The cardboard packaging is reserved for packaging that is not in contact with moisture, for elementary packaging put together then in wood cases or packaging for deliveries "Door to Door" in a lorry or a sea container, without breaking of load, or air transport without outside storage.

Example of boxes :

- Cardboard boxes, two or three layer, with wooden battens («wrap around»)

Sketch 11 in appendix on page 52

Assembly made of cardboard and wood.

The prefolded cardboard, in a single piece, forms the sides, bottom, and cover. Assembly is done by stapling the corners with wooden battens.

The wood must must have a splitting capacity of maximum 22%.

Cardboard boxes, two or three layer, on wooden pallets.

Sketch 12 in appendix on page 52.

The body is made of a prefolded skirt, all cardboard, that may have a bottom with flaps.

The assembly is stapled or hooped to a wooden pallet and covered (before hooping) with a stapled prefolded cardboard cover.

See document FEFCO : "International code for Cardboard Packaging" available at :

37, rue d'Amsterdam - 75008 Paris

Tel : (33) 01 53 20 60 80 - Fax (33) 01 42 82 97 07

STANDARDIZATION:

- NF H 13 - 000: Cardboard packaging. Vocabulary.
- NF Q 12 - 008: Cardboard and paper. Corrugated cardboard. Characteristics of the corrugated cardboard with simple and double slots for packing.
- NF Q 12 - 009: Cardboard and paper. corrugated cardboard. Characteristics of the corrugated cardboard with a triple slot for packing.

5.5 RECYCLABLE PACKAGING / TECHNICS

In some cases, the packaging may be reusable and is designed to provide full protection during the logistical cycles to which the products contained will be exposed.

These containers incorporate all necessary protection and are generally designed for a specific use.

Internally, they may have general-purpose or specific inserts, or damping systems.

Externally, they include all accessories and markings necessary for their logistical functions.

Thightness is provided by the very nature of the rigid envelope and the joint plane.

According to the degree of protection required, the envelope may be :

- plywood panels,
- laminated polyester, polyethylene, ABS or other plastic,
- metallic panels,
- cardboard.

The packaging will have to product and according to a technical specification of the needs. They generally have to have a previous qualification.

5.6 CONSTRUCTION OF CASES

Among the types of packaging, several types of cases, each having its own design features, are distinguished.

For each type, it is possible to distinguish various ways of production, which will depend on the characteristics of the product to be packaged and how it is handled, transported and stored.

Three main classes of cases are distinguished :

1 - Platform or bell case (sketch 6 in appendix, page 55).

Making it possible to position, protect and immobilize the product on the platform before the panels are assembled.

2 - Assembled cases (sketch 8 in appendix page 55).

The panels are assembled before the packaging operation.

3 - Special cases (sketch 14 in appendix page 56).

Folding, take-down and other packing cases.

Barring special waivers, all platform or case bottoms will have seals to facilitate handling. Their positions and dimensions must comply with AFNOR standard H 20.008 Gripping device (see § 5.7 under mensioned).

See table and sketch in appendix page 54 à 56 in appendix .

Slinging structures will take account of the gross mass and will be positioned according to the centre of gravity.

- All cases exceeding 5 T gross mass will have iron angles at their slinging points.

- To avoid the wrenching of side panels during handling by fork-lift truck, when the said panels are fitted, their bottoms should be raised 5 to 10 mm above the bottom of the platform.

5.7 GRIPPING DEVICES

DIMENSIONS

GROSS MASS OF PACKAGING	DEVICES	
	HEIGHT (mm)	WIDTH
From 100 kg à 5 t From 5 t à 15 t over 15 t	> 95 > 120 > 140	in all cases the width shall be at least equal to the eight

According to standard NF H 20-008 : Gripping devices for individually handled packaging to be sent.

The packaging devices shall not be of a piling of more than two elements. Their breadth will be at least equal to their height.

ARRANGEMENT

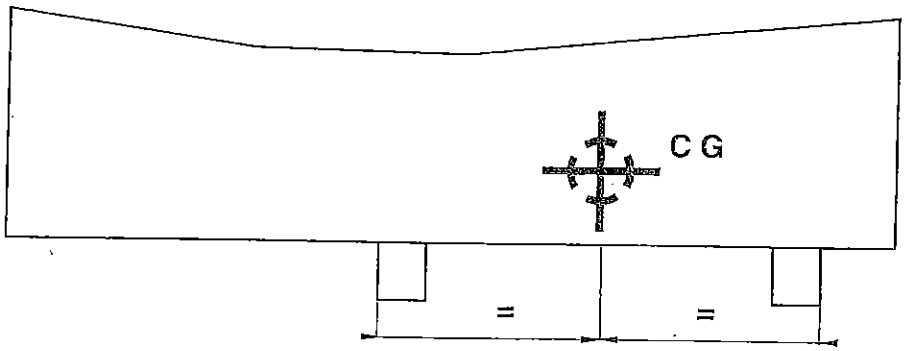
An opening for slings, of at least 90 mm, shall be provided at each end of the largest

dimension of the packaging. (See note below)

- For packaging having a mass of less than 2T and a lengh of 980 mm or more, or having a mass of more than 2T and a length between 980 mm mm and 1.190 mm the distance between the gripping devices must be at least 590 mm. (transpallets).

- For packaging having a mass of more 2T and a length of 1.190 or more, the distance between the gripping devices must be at least 800 mm.

When the centre of gravity is more than 20% of the dimensions of the parcel from the centre of the length of the parcel, the gripping devices must be arranged accordingly (sketch below).



Note: Those conditions are not compulsorily applicable to the pallets-cases.

5.8 TREATMENT OF WOOD

The use of sawn wood packaging materials is subject to regulations and requirements in some countries.

For example :

- Australia and New Zeland strictly require curative treatments and the presentation of the corresponding phyto-medical certificates.

- The United States of America and some tropical countries require a preventive treatment for which a certificate must be provided.

When in doubt, it is wiser to question the customer or to ask the official representatives of the countries in question for confirmation.

CHAPTER 6

CONTAINERIZATION

This concept of filling containers does not involve an industrial packaging method the way it has been defined in the previous categories, but a complementary way of packing, handling, transporting and buckling goods.

The container, for air or sea freight, is not to be considered a packaging but most of all an auxiliary means of handling products for the service of a transit agent, or shipping company, doing only the haulage therefore not responsible for the wedging of the ware.

6.1 PHYSICO-CHEMICAL PROTECTION

The container is not waterproof. There is a high risk of internal condensation due either to the ware itself or to the temperature variations.

It is therefore crucial to elevate any carton packages off the floor of the container in order to avoid water damage (for example : putting packages on pallets inside the container).

A physico-chemical protection is essential for all corrosion sensitive goods.

6.2 MECHANICAL CONSTRAINTS

The mechanical constraints for general use closed containers (GP or DRY) are of a different nature (height of piles being limited inside the containers), the crates or the contents of the ware can be of lighter structure under the condition that the container be forwarded directly from the sender to the consignee, "Door to Door".

When the route is not derect, the cases must be accorded to the usual standards.

6.3 WEDGING AND GRIPPING

The packer being responsible for the stowing inside of the container, he has to take all necessary precautions so that the crates of goods are wedged and the proper stowing carried out.

He should keep in mind the maximum weight allowed for the goods, their proper adjustement and the centre of gravity of the container. The wedging can be carried out by nailing blocks of wood on the bottom or on the vertical sides of the container.

The container is lifted with staps, iron ribbons, cables or chains with adjusters and hooking to the stowing rings existing on the container. The ISO standards (containers) impose external dimensions. Therefore it is very important, in either case, to be in contact with the transporters or the forwarding agents in order to know the tight dimensions, because they are different from one container to one another.

See tables and drawings on pages 57 to 61.

CHAPTER 7

MARKINGS

7.1 GENERAL CONDITIONS

The objectif of markings on the packages:

- To insure therefore avoiding any risk of a lost, late or mistaken routing.

- To draw attention on possible precautions to be taken during handling, transportation and storage as well as during the unpacking before the utilisation of material.

The markings allow, to this effect, various visible and legible writings.

They can include:

- The transport marking, wich include identification and routing markings:

Product designation	- Part number - Order number - Contract number etc...
Numbering of package	- Package number/total number of packages - Lot number, etc...

- Markings and pictograms relative to the handling, transportation and storage of the ware:

Measurements	- External dimensions of the package (in cm) - Lenght x Width x Height - Net weight in Kg. - Gross weight in Kg

Pictograms NF ISO 780 standard (extract in appendix on pages 62-63).

Marking is applyable to packaging :

- elementary (unitary or multiple),

- intermediate,

- collective, for transport or dispatch.

All packages should bear the S.E.I. Trademark, the logo defines the packer.

IMPLEMENTATION :

- The markings of elementary, unitary or multiple packages will be carried out directly on the package envelope or by sticked or attached labels.

- The same is true for intermediate packages that can put together the elements contained in the elementary packages.

- Markings must be applied using black ink or other process that is weatherproof. The

use of protected metallic or plastic or plasticized tags is allowed. They must be attached very carefully.

7.2 SPECIAL CONDITIONS

a/ Climatic conditions :

The packaging, in a vapour-tight barrier, will be marked, in English always, in black ink on the cover:

"EQUIPMENT IN VAPOR-TIGHT ENCLOSURE - DO NOT OPEN."

b/ Dangerous substances :

Couply with the legislation in force.

Nota : APPLICATION OF THE EUROPEAN STANDARD NF EN 20780/ISO 780 Packagings. Pictograms about the handling of goods. (see pages 62-63).

PICTOGRAM 1: iso 7000/n° 0621	To use only for breakable goods
PICTOGRAM 2: iso 7000/n° 0622	To use only for packaged material in shape of balls.
PICTOGRAM 3: iso 7000/n° 0623	Must be used when the reference position of the packaging is not obvious.
PICTOGRAM 7: iso 7000/n° 0626	To use only when the packaging cannot withstand bad weather. For instance : the cardboard packaging for "door-to door" or air forwarding.
PICTOGRAM 8: iso 7000/n° 0627	To use only when the centre of gravity of the packaging is carried off more than 20% of the geometrical axis.
PICTOGRAM 11: iso 7000/n° 0630	This pictogram can be stretched to the limits of the number of the piled packages.
PICTOGRAM 13: iso 7000/n° 0632	This pictogram allows to show the limits of mini, maxi, or mini and maxi temperature.

CHAPTER 8

VOLUME OF PARCELS

Manufacturers must take into consideration the gauge requirements of means or transport and transit in the states and countries in which the packaged equipment is transported.

For European road transport, the usual gauge is :

- Total train length	:	15.50 m
- Overal width	:	2.50 m
- Overal height	:	4.00 m

For sea transport, containers comply with ISO standards. (see sketch in appendix pages 57 to 61).

For air transport, the dimensions of parcels must take account of the type of aircraft. Possibility of containers or pallets. (see sketch in appendix page 58).

For rail transport, gauge specific to each country.

For river transport increasingly used for oversized loads.

In all cases, oversized loads, whatever the mode of transport, necessitate a special study.

CHAPTER 9

RECORDING OF EQUIPMENT AND LISTS

The packaging operations are performed by the packer on the basis of the data provided by the manufacturers and the carriers (consignment note, delivery voucher, list).

This information must enable the packer to identify the equipment without possessing any special technical knowledge. Because of this, the manufacturer's identifications must be corectly fixed to each item and must rigorously match the information in the notes.

The packer's check of quantities is applied only to equipment that are counted under normal working conditions.

If pre-packaged parts are delivered, the packer's check can only be of the pre-packaging units, the numbers of which must be clearly stated on the delivery vouchers.

The check of the appearance of the visible parts of equipment (for scratches, deformation, breakage, traces of impacts, traces of oxidation) will be performed when it is taken in charge.

The packer is required to communicate to the manufacturer the contents of each parcel.

At the manufacturer's request, the packer may prepare the parcel vouchers and packing list :

- either on forms supplied by the manufacturer
- or on neutral forms.

For each parcel, the identifications, the destination of the equipment, and the weights and dimensions must be recorded.

CHAPTER 10

PACKAGING AND ENVIRONMENT

10.1 WASTE

The word "waste" meaning "all residous in the course of a production, a transformation or utilization, all substance, material or good bound to be left away".

In the case of an industrial packaging we find :

- fabrication falls,
- materials for unusable packaging,
- packaging materials coming from unpacking,
- broken or unusable goods, etc...

10.2 DOCUMENTS

Act n° 75633 of July 15 1975 concerning waste disposal and material recovery.

Decree n° 94609 of 13 july 1994 concerning waste and material recovery and also package waste where the holders are not the families.

The directive 94/62/CE of the European Parliament and council of 20 December 1994 concerning packaging and packaging waste.

Decree n° 98638 of July 1998 taking into account the requirements tied to the environment in the creation and fabrication of the packages (J.O. of 25 July 1998).

These documents are available upon request at S.E.I..

10.3 APPLICATION

Contrary to houshold package waste that have to be treated by the municipality and that the cost of recycling are taken care of by the packaging manufacturer, the same operation concerning industrial packaging are taken care of by the last user that abandons them.

The same is true for waste coming from the maters of the packages.

The only authorized way of elimination for the package wastes are :

- the reutilization
- recycling
- energetic valorisation

Keeping in mind the different ways of valorization, the Decree does not require a systematic sorting of package, but it is interesting to negotiate some waste of value by sorting them before the collection by spevilized companies.

It is each person's duty to settle a contract with the collector companies or directly with the recycling companies, holders of waste having to justify the valorization of their packaging waste to the state agents.

Holders that produce a weekly volume inferior to 1.13 m3 of package waste are not subject to this obligation, since it will be the responsibility of the community in charge of removing household waste.

In practice, a municipality that increases the value of the waste, can take charge of the package waste of a bigger volume as any other recycling organization, upon approval of these valorisations.

10.4 OBLIGATIONS

Article 2 of the French decree stipulate that :

The only authorized ways to eliminate packaging waste (defined earlier) are :

Valorisation by the re-employment, recycling or any other means aimed at achieving reusable material or energy.

The holders of packaging waste (defined earlier) should :

a/ either initiate their own valorization in an approved area,

b/ either give away the exploitational contract of an opproved area under the same conditions,

c/ or give away by contract to a recognized intermediary insuring a transport, trading or waste brokerage activity.

CHAPTER 11

QUALITY - TRACEABILITY

11.1 QUALITY

11.1.1 GENERAL PHILOSOPHY

Concerning the quality of provisions accomplished, the first responsability falls on to the personnel to whom the job is confined.

Obtaining quality is through good management on all levels thanks to a proper analysis of duties to be accomplished and good appropriation with strict application of the specifications.

The definition of necessary competence, the choice and the training of the suitable personnel, use' of adequate material are important criteria essential for achieving quality.

The quality procedures should enable to verify that each provision has been carried out satisfactorily and that the safety measures have been taken. As a result, they have to have a documented proof that the quality required has been obtained.

11.1.2 PROCEDURES AND INSTRUCTIONS

The organization of the quality must be done through.formalization of orders including the organization procedures, technical specifications and all instructuins necessary to the realization of the provisions

11.2 TRACEABILITY

PACKAGES

CUSTOMER PART NUMBER:
RESERVED TO THE DESCRIPTON OF THE CONTENT FOR 1 - 2 - 3 - 4 CATEGORIES

PACKAGING

CATEGORY	PHYSICO-CHEMICAL PROTECTION			MECHANICAL PROTECTION
	a	b	c	d

SELF-CONTROL

Types of control	in accordance	Types of control	in accordance
Deck (Robust conception)		Cover (umbrella)	
Over elevation of The panels		Waterproof cover	
Brace - Corner iron		Dehydrating Quantity:.....	
Crate fitting		Markings	
Waterproof qualities of the cover		Centre of gravity	
Holes of ventilation		LOGO S.E.I.	
Absorption		Marking of the cover (take the inscription in English)	
Protection against contacts			

DATE:.....
SIGNATURE:

OK ☐
NO ☐

ANNEXES

GLOSSARY
LIST OF STANDARDS QUOTED IN THIS MANUAL
SKETCHES
PICTOGRAMS
GENERAL CONDITONS APPLICABLE TO INDUSTRIAL PACKAGING BEARING THE S.E.I. TRADEMARK

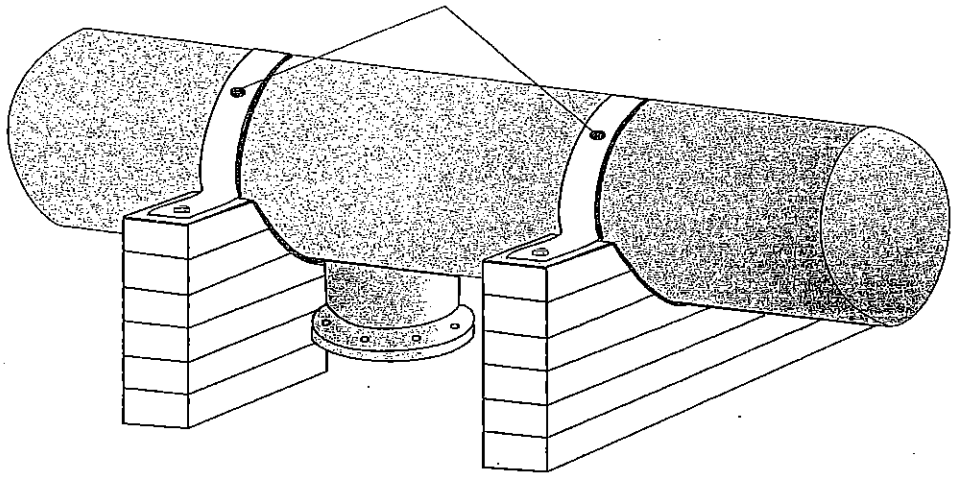
LEXIQUE

ENGLISH	FRENCH	Mark	Page	Sketches
Angle iron	Cornière	N-P	55	9
Batten	Barre	G	55	6
Belt	Ceinture	A	54	1
Bottom	Fond	I	55	6
Bracket	Equerre	O	55	7
Bundle	Fardeau		54	2
Cleated	Barré à l'anglaise		55	8
Crate	Claire-voie		54	4
Cross lath	Echarpe	U	54	5
End	Bout	M	55	6
Film	Film	C	54	3
Folding	Pliante		56	14
Fork opening	Passage de fourches		54	3
Frame crate	Harasse		54	5
Grouping	Unitisation		54	3
Lagging	Douvage		54	3
Lid	Couvercle	F	55	6
Longitudinal member		J	55	6
Pallet	Palette	D	54	3
Platform	Cloche		55	4
Prop	Chandelle	Q	54	9
Reel	Touret		56	15
Rib	Ame ou Ecrasement	R	55	9
Saddle	Berceau		54	1
Side	Côté	H	55	6
Sill	Semelle	K	55	6
Skid	Skid	S	55	9
Spacer	Entretoise	L	55	6
Strap	Feuillard	B	54	3
Structure	Structure	J-L	55	6

LISTE OF STANDARDS QUOTED IN THIS BOOK BY ORDER OF APPEARANCE

SADDLE

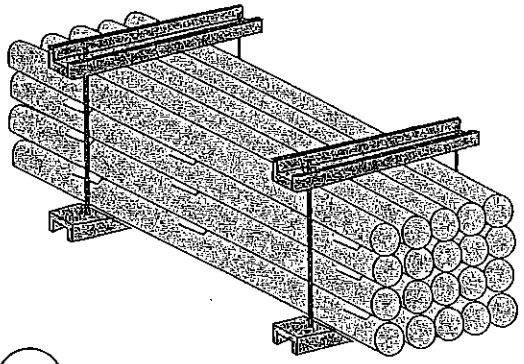
A



1

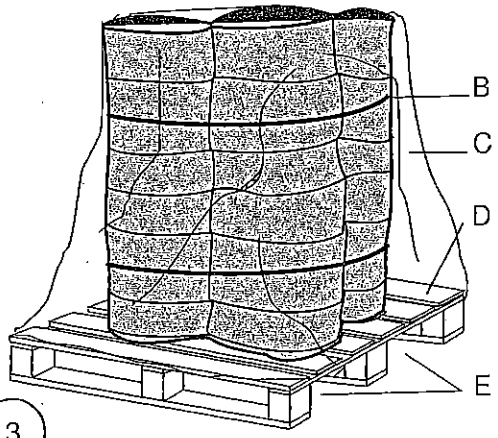
category 1

BUNDLE



2

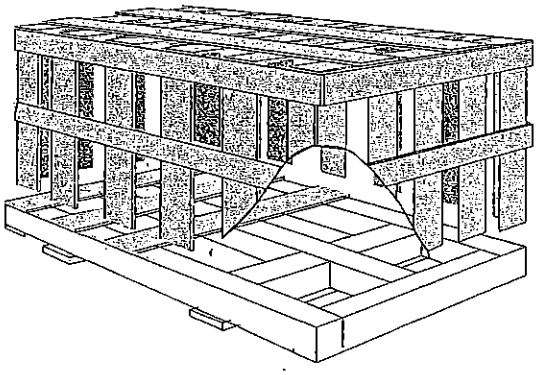
PALLETIZATION-GROUPING



3

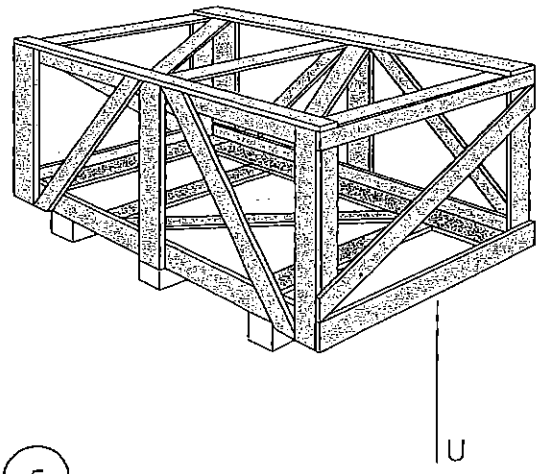
category 2

PLATFORM CRATE



4

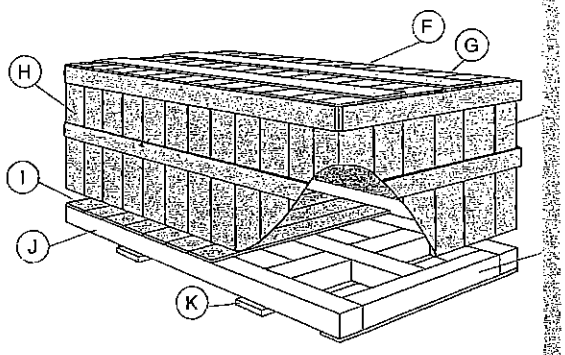
FRAME CRATE



5

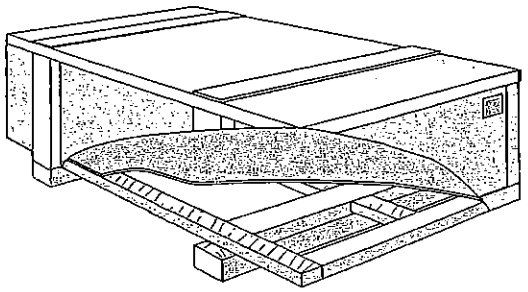
category 3

PLATFORM PACKING CASE



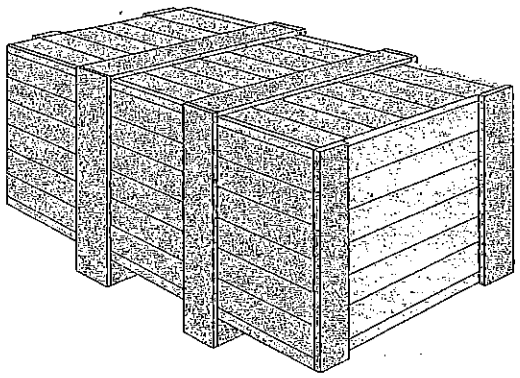
6

PLYWOOD PACKING CASE



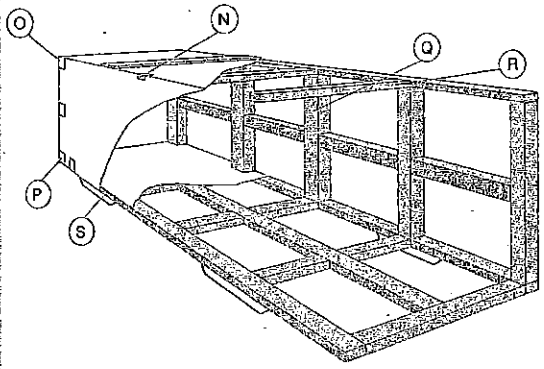
7

CLEATED PACKING CASE



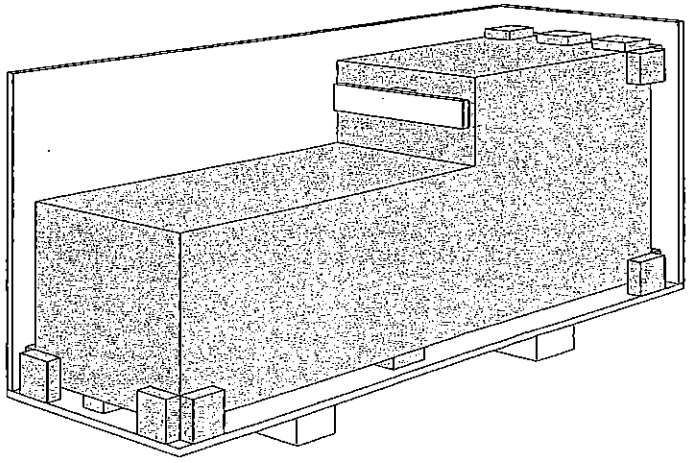
8

PLYWOOD PACKING CASE



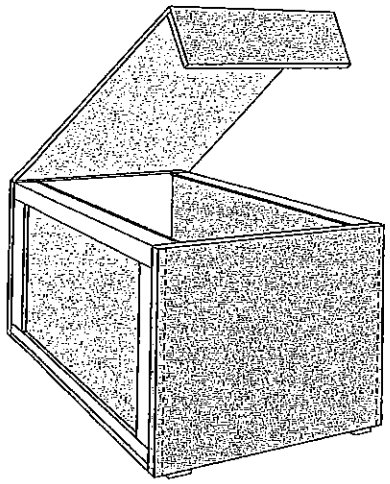
9

PACKAGING FOR IMPACT AND VIBRATION PROTECTION



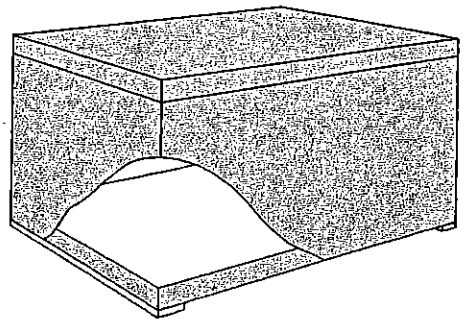
10

WRAP-AROUND CARDBOARD BOX



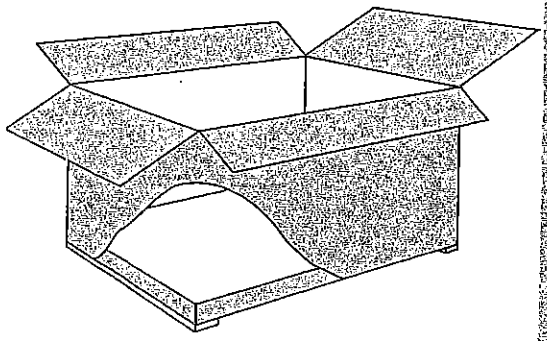
11

PLATFORM CARDBOARD BOX



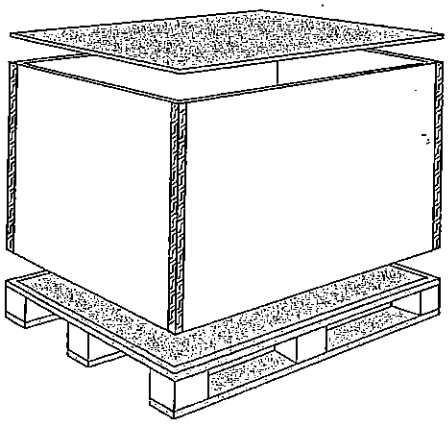
12

CARDBOARD BOX



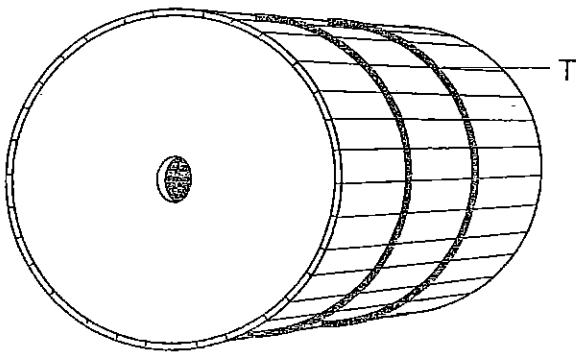
13

FOLDING PACKING CASE



14

REEL



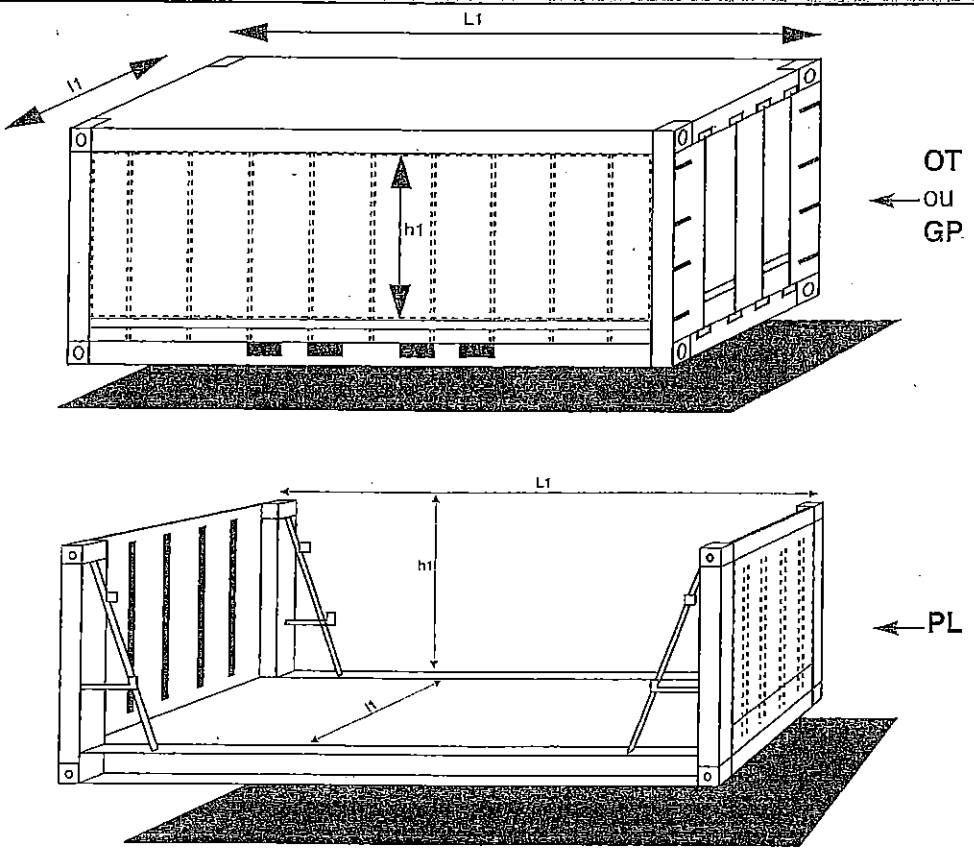
15

EXAMPLES OF SHIPPING CONTAINERS

ISO CONTAINERS	20'x8'x8'6"	40'x8'x8'6"	20'x8'x8'	20'x8'x8'6"	40'x8'x9'6"	20'x8'x8'6"	40'x8'x8'6"
SIZE AND TYPE	20 OT	40 OT	20 GP GP (2000)	20 GP (2200)	40 GP	20PL	40PL
INSIDE DIMENSIONS							
LENGTH L1	5867	11998	5867	5867	11998	5840	12000
WIDTH l1	2330	2330	2330	2330	2330	2060	2060
HEIGHT h1	(1)	(1)	2197	2350	2350	2170	1950
DOOR OPENING DIMENSIONS							
WIDTH	2286	2286	2286	2286	2286		
HEIGHT	2261	2261	2134	2261	2261		
HEIGHT UNDER LONGITUDINAL MEMBER	(1)	(1)					
MAXIMUM GROSS MASS (kg)							
Containers built after 86	24000	30480	24000	24000	30480	30480	36000

(1) These dimension are not standardized. Standard IS 668 states that they must be as large as possible.

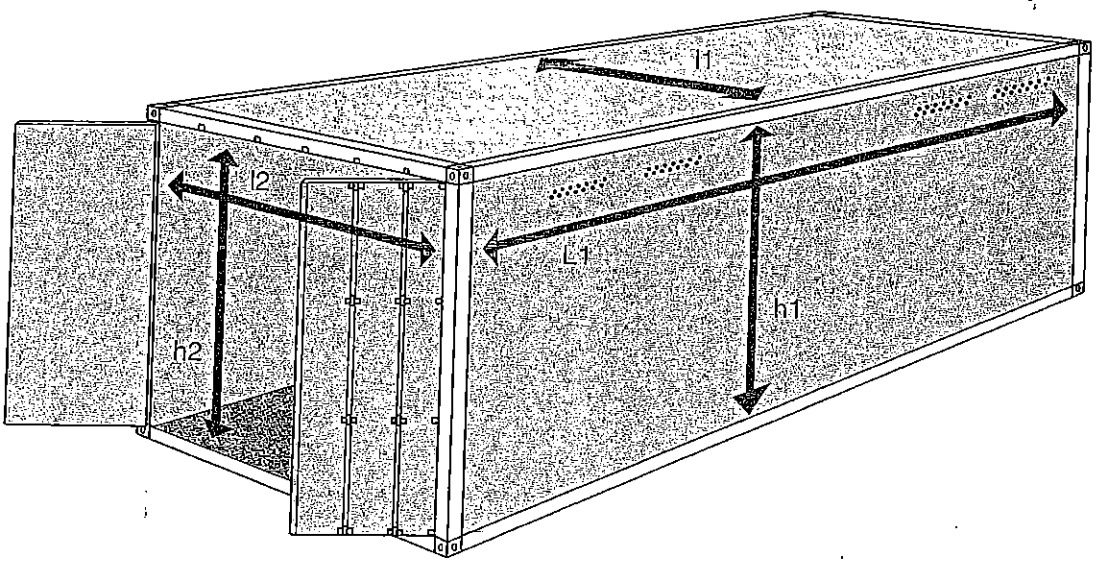
Notes: OT = Open Top
GP = General Purpose
PL = Platform (FLAT)



SHIPPING CONTAINER FOR GENERAL PURPOSE: GP

GP: Container for General Purpose		CONTAINERS I.S.O.			
		20° x 8° x 8°	20° x 8° x 8°6	40° x 8° x 8°6	40° x 8° x 9°6
SIZE AND TYPE		20 GP	20 GP	40 GP	40 HC**
INSIDE DIMENSION *					
LENGTH	L1	5867	5867	11998	(1)
WIDTH	l1	2330	2330	2330	(1)
HEIGHT	h1	2197	2350	2350	(1)
DOOR OPENING DIMENSIONS*					
WIDTH	l2	2286	2286	2286	(1)
HEIGHT	h2	2134	2261	2261	(1)
MAXIMUM GROSS MASS * (kg)					
Containers built after 86	24000	24000	30480	(1)	

(1) These dimension are not standardized. Standard IS 668 states that they must be as large as possible.
* Code according to the countries.
** HC: Hight Club or Jumbo (containers with higher dimensions)

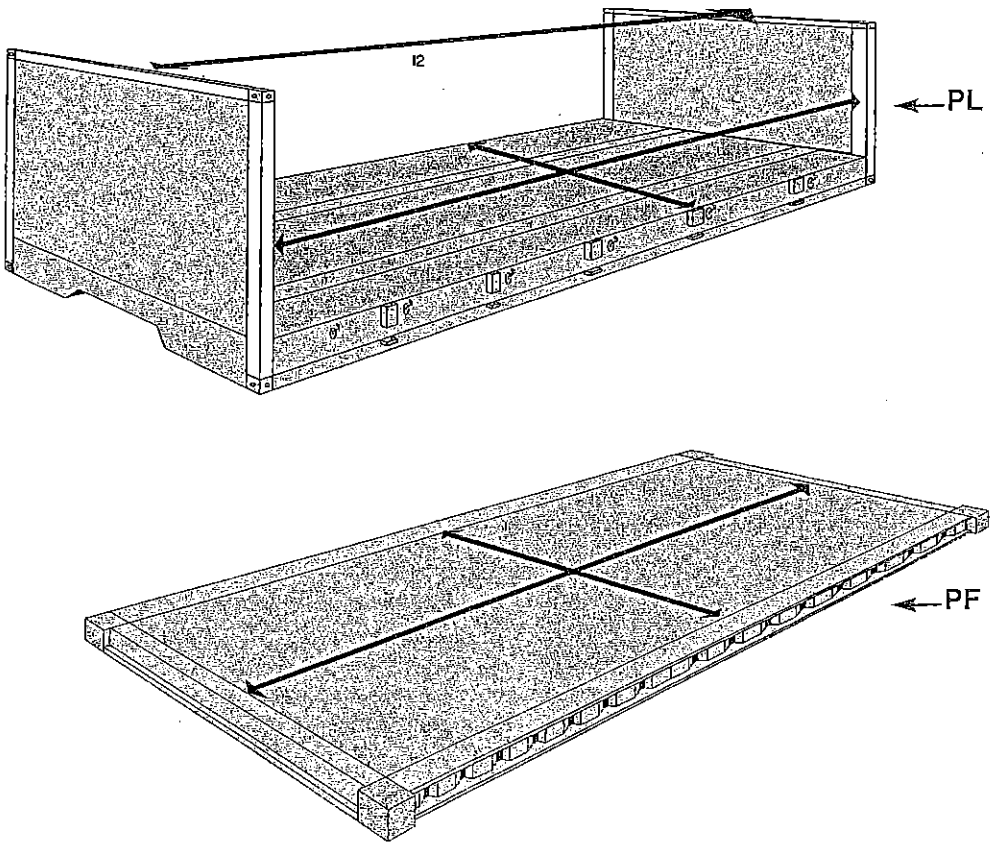


NOTE: For all complementary information, refer to the shipping transports or the specialized forwarding companies.

PLATFORM SHIPPING CONTAINER: PL / PF

PL: Platform type container (FLAT)		CONTAINERS I.S.O.			
PF: Platform container		PLATFORM (PL)		PLATFORM (PF)	
		20" x 8" x 8,6"	40" x 8" x 8,6"	20" x 8"	40" x 8"
SIZE AND TYPE		20 PL	40 PL	20 PF	40 PF
INSIDE DIMENSIONS *					
LENGTH	L1	5840	12000	(1)	(1)
WIDTH	l1	2060	2060	(1)	(1)
HEIGHT	h1	2170	1950		
MAXIMUM GROSS MASS * (kg)					
Containers built after 86	30480	36000	24000	30480	

(1) These dimension are not standardized. Standard IS 668 states that they must be as possible.
* Code according to the contries.



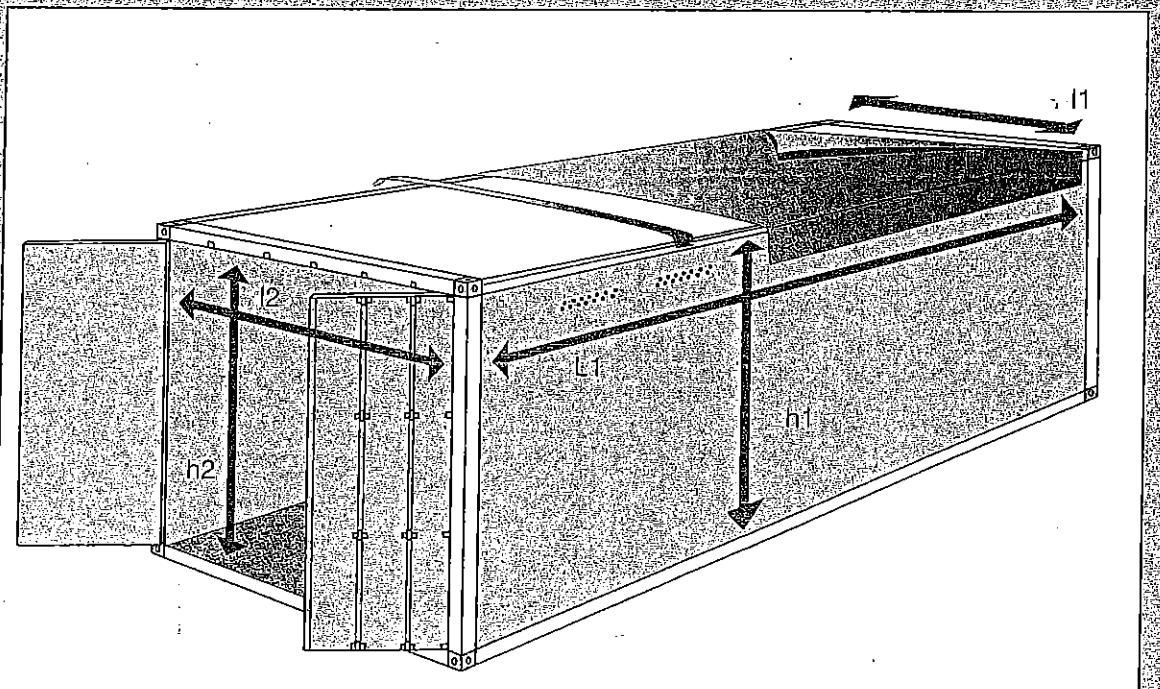
NOTE: For all complementary information, refer to the shipping transports or the specialized forwarding companies.

OPEN TOP SHIPPING CONTAINER: OT

OT: OPEN TOP CONTAINER		CONTAINERS I.S.O.	
		20' x 8' x 8'6"	40' x 8' x 8'6"
SIZE AND TYPE		20 OT	40 OT
INSIDE DIMENSIONS*			
LENGTH	L1	5867	11998
WIDTH	l1	2330	2330
HEIGHT	h1	(1)	(1)
DOOR OPENING DIMENSIONS *			
WIDTH	l2	2286	2286
HEIGHT	h2	2261	2261
HEIGHT UNDER LONGITUDINAL MEMBER	h3	(1)	(1)
MAXIMUM GROSS MASS * (kg)			
Containers built after 86	24000	30480	

(1) These dimension are not standardized. Standard IS 668 states that they must be as possible.

* Code according to the countries

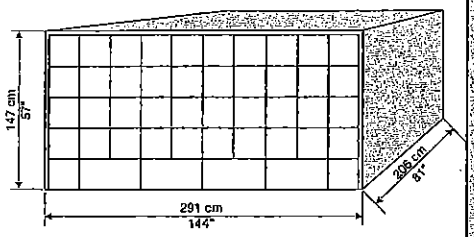


NOTE: For all complementary information, refer to the shipping transports or the specialized forwarding companies.

EXAMPLE: AIRCRAFT CONTAINER AND PALLET

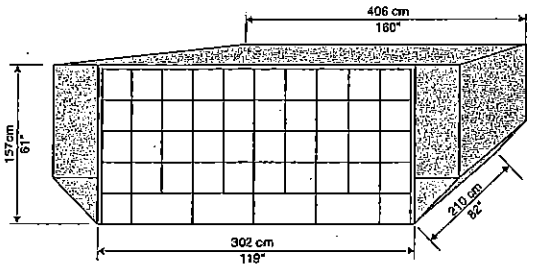
88 x 125 inch LD - 9 container

Interchangeability:	74D / 743 / M11 / 312 / 313 / truck
Usable volume:	10.0 m3
Max. net weight capacity:	6.604 kg
IATA rate class :	5



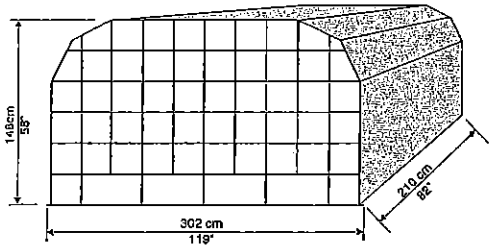
88 x 125 inch LD - 9 "fullsize" container (FSC)

Interchangeability:	74D / 743 / M11 / 312 / 313 / truck
Usable volume:	12.2 m3
Max. net weight capacity:	4.306 kg
IATA rate class:	5



88 x 125 inch LD - 9 "igloo"

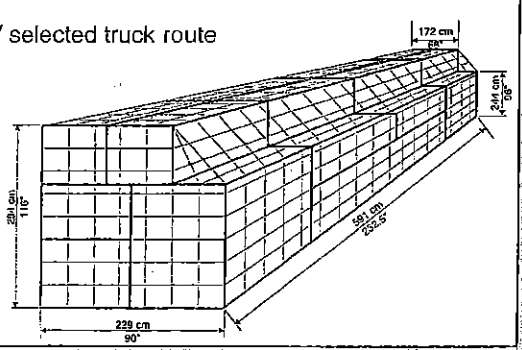
Interchangeability:	74D / 743 / M11 / 312 / 313 / truck
Usable volume:	9.5 m3
Max. net weight capacity:	5.450 - 6.584 kg *
IATA rate class:	5

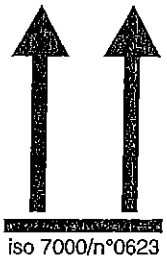
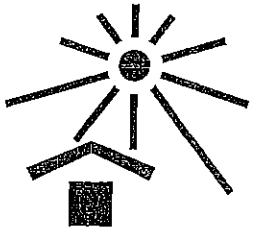
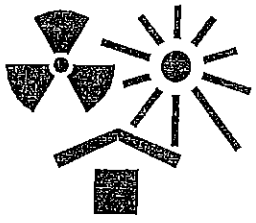


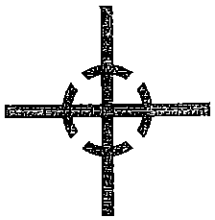
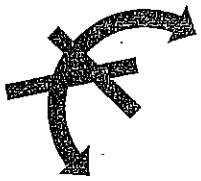
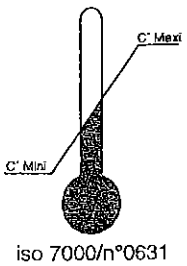
238.5 x 96 inch 20 "foot pallet"

Interchangeability:	74D main deck / selected truck route
Usable volume:	33 m3
Max. net weight capacity:	10.910 kg *
IATA rate class:	not available

Height may be 298 cm (117")
for single pieces only,
due to lashing equipment.



key	symbol	function
1 fragile handle with care	 iso 7000/n°0621	indicates: a) that the content of the transport packaging is fragile b) that it must be handled with care
2 use no hooks	 iso 7000/n°0622	indicates that hooks may not be used to lift the transport packaging
3 top	 iso 7000/n°0623	indicates correct upright position of transport packaging
4 keep away from heat	 iso 7000/n°0624	indicates that the transport packaging must be kept away from heat
5 keep away from heat and radioactivity	 iso 7000/n°0615	indicates that the content of the packaging may be damaged or made completely unusable by heat or penetrating radiation
6 sling here	 iso 7000/n°0625	shows where slings should be attached to lift the transport packaging

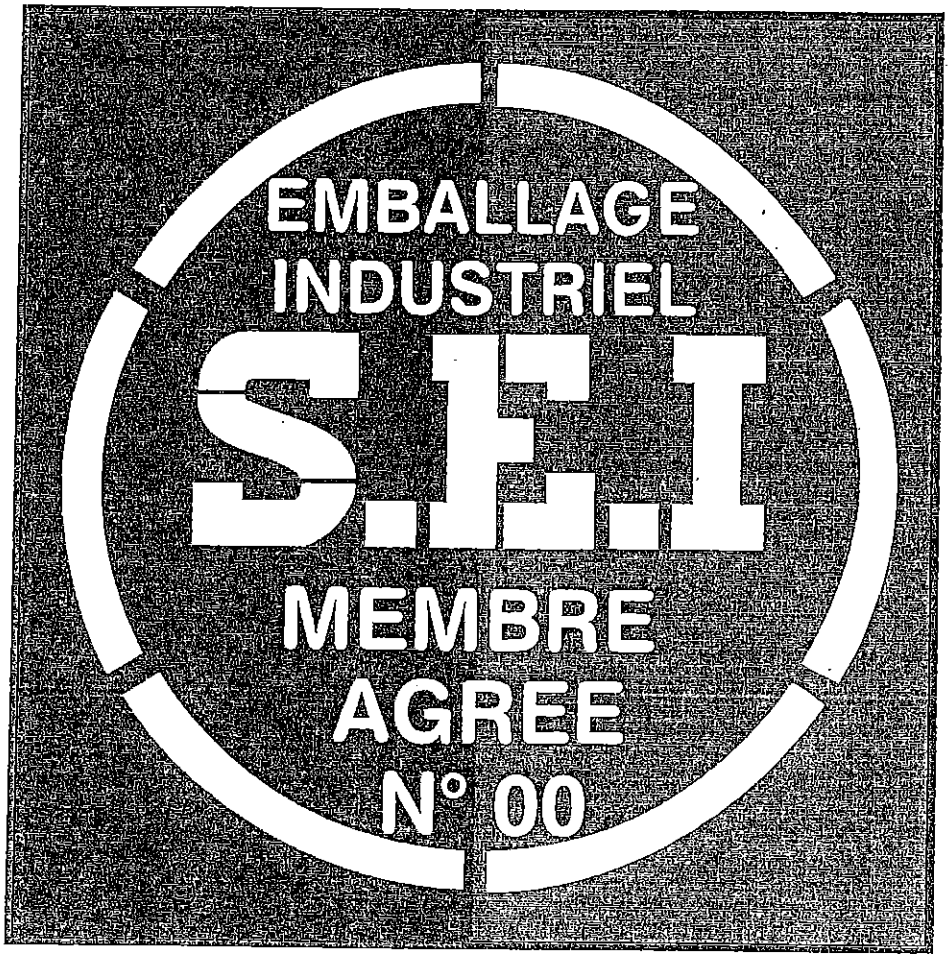
key	symbol	function
7 keep away from moisture	 iso 7000/n°0626	indicates that the transport packaging must be kept in a dry environment
8 centre of gravity	 iso 7000/n°0627	indicates the centre of gravity of the transport packaging
9 do not roll	 iso 7000/n°0628	indicates that the transport packaging must not be rolled
10 no trolley this side	 iso 7000/n°0629	identifies locations on transport packaging where trolleys or trucks must not be placed
11 storage limits	 iso 7000/n°0630	indicates limited storage capability of transport packaging
12 clamp sides	 iso 7000/n°0631	shows where clamps should be placed for handling of transport packaging
13 temperature limits	 iso 7000/n°0631	indicates temperature limits between which transport packaging must be kept

GENERAL CONDITIONS APPLICABLE

TO INDUSTRIAL PACKAGING

BEARING THE S.E.I. TRADE MARK

MARS 1999



THE TRADE MARK S.E.I.

DEFINITION OF THE GUARANTEE

ARTICLE I

The contracts for industrial packagings, signed under guarantee of the S.E.I. trademarrk, are bound by the general conditions stipulated below:

The trademark S.E.I. registered on the 22 July 1968 under number 50182 (registered at the I'I.N.P.I. under number 760923) and which renewal of registration was carried out on the 22 Juin 1978 under number 283019 (registered at the I.N.P.I. under number 1.054.749), and the 7 Juin 1998 under number 931.969 (registered at the I.N.P.I. under number 158.28.20), is the ownership of the Syndicate for Industrial Packaging who concedes the use of this trademark to their members who have got the consent of the Direction Committee

The production of an industrial packaging under the S.E.I. trademark is certified true guarantee to the technical specifications enacted by the Engineering service for Industrial Packaging(E.IS.I.P.).

This guarentee is a duty exclusively, for the packer himself: the appending of the S.E.I. trademark does not imply any engagement or obligation from the Syndicate for Industrial Packaging.

ARTICLE II

The guarantee of a good technical execution is a duty for the packer insofar as the whole process is totally taken upon by the manufacturer, holder of the trademark, and especially, the choice of the type of packaging the process of packaging the goods, the wedging, closing and hooping of the packaging.

EXCLUSION OF THE GUARANTEES

ARTICLE III

The guarantee cannot be reffered to and the packer must not bear any responsability in case of damage of the goods or materials:

a - if the type of packaging was imposed to the industrial packer by the user or his customer,

b - if all or some of the material or packaging and protection products were imposed, applied or supplied by the user of his customer,

c - if incomplete or false information about the goods or ware to pack were given,

d - if the information about the transport conditions of the goods were hidden, mistaken or incomplete,

e - if the damage concerns the goods or materials inside of the empty delivered packagings,

f - if the damage occurred to the goods or materials is due to corrosion or oxidation, or to any inherent defect of the thing, and if the customer's order did not bear "waterproof packaging",

g - if the damage is the result of the inherent defect of the thing.

ARTICLE IV

The guarantees given for the packagings produced under cover of the S.E.I. trademark become lapsed:

a - in case of any abnormal conditions of stocking of transport (excessive temperatures, abnormal pressures,magnetic or radioative elements, etc..) that can damage the packaged goods or materials and/or their packagings, unless the packer was aware of those written abnormal conditions and accepted the risks, what the customer will have to prove, .

b - in case of, as a result of corrosion or fire agents, or any parasites etc..., the packaging is partly or totally damaged by external factors, without questioning of the quality.

In case the quality of the packaging is disputed, the legal proof lies with the customer of the packer.

DURATION OF THE GUARANTEE

ARTICLE V

The guarantee of the S.E.I. trademark lasts during the travel for which the packaging was conceived until the packaging is opened, which has to be carried out at last in the month after the arrival of the goods to destination.

In case the transportation of the packaged ware is stopped, the guarantee of the "S.E.I" trademark shall not exceede two months after the date of notifying of the completion of the packaging.

ARTICLE VI

The guarantee of the S.E.I. trademark, linked to the execution of a "waterproof packaging", covers, with reservation of the articles II and III above, the anti-corrosion protection of the packaged goods. This guarantee lasts one year from the date of notifying of the completion of the packaging and can continue for another delay, but after a special request from the customer, accepted by the packer. When this allotted time is spent, the packer cannot refer to his guarantee any longer.

ARTICLE VII

The guarantee of the S.E.I. trademark that legally ends when the allotted time is spent, will be compulsorily suspended when the packaging is opened, if the opening is made before the alloted time by anyone, including, if necessary the customs.

SETTING OF THE GUARANTEE, STATEMENTS AND NOTIFICATIONS

ARTICLE VIII

The guarantee can be set to if the damage is found before the end of the delay of guarantee on the condition that this damage is established and that the packer is aware of this written damage through a registered letter, in a delay of five days after the first opening, the report having to be made by an expert of the Court or a law official.

The packer keeps the right to establish, or to have established on site, by any expert or person sent by him, the causes and the nature of the declared damage and the customer undertakes to give all facilities in this regard.

In case of successive or spread out contracts, any delay in the statement of the damage will cause the forfeiture of the guarantee for packaging or wedging of same type if, as a result of this delay, the packer was not aware of the possible damage or to cover it up.

PRESCRIPTION OF THE GUARANTEE

ARTICLE IX

According to a formal agreement, any action against the packer is prescribed for a one year delay valid from the time the offending packaging was first opened.

Regarding the damage that occurred while the goods are in charge of the packer, the prescription delay of one year is valid from the day when the damage were known from the customer or reported to the customer by the packer.

Regarding the damage done to goods packed in a "waterproof packaging", made under cover of the S.E.I. trademark, the prescription delay of one year is valid from the last day of the granted guarantee and on the condition that the first opening related in the article VIII above had occurred within the delay guaranteed, and any opening subsequent to this delay puts an end to any claim.

AMOUNT OF THE GUARANTEE

ARTICLE X

In all cases the responsibility of the industrial packer working under the guarantee of the S.E.I. Trademark would have to be set into action, whether during the packing process or as a result of a deficit or an imperfection of the packaging, the guarantee will not exceed :

- 500 F. (five hundreds Francs) per kilo, of given or packed goods,
- with maximum 500.000 F (five hundred thousand Francs) per package, crate or packing case,
- and a maximum 1.000.000 F (one million Francs) per damage,
- the indemnity cannot go beyond the original value of the goods, including packaging and transportation.

It is formally agreed that the responsibility of the packer is limited to the direct damage to property, to the formal exclusion of any claim for commercial, moral or indirect prejudice.

ARTICLE XI

If the customer considers that the amounts stipulated in article X above constitute an insufficient limit of responsibility, this limit can be modified on the condition that a written, formal and previous statement is made.

ARTICLE XII

The defined responsibilities in the guarantee are normally covered by the insurance policies compulsorily taken out by the packer that holds the S.E.I. trademark.

In the case that the customer, according to the provisions of article XI above, wishes to raise the limit of responsibility stipulated in article X above, a special complementary insurance can be subscribed but on the condition that a written, previous and formal request is made, and for each process a request must be made.

INFORMATION OF THE CUSTOMER

ARTICLE XIII

The present general conditions for producing industrial packaging are continuously to the disposal of any user who requires the making of the packagings under cover of the S.E.I. trademark.

In case new technical specifications in the production of industrial packaging under the S.E.I. trademark were carried out, or in case of part modifications, a minimum delay of the one month will be kept before they are put into practice, in order to have time to get the customer thoroughly informed.

ARTICLE XIV

Any user, at any time, can require from the Direction Committee of the S.E.I. trademark to have the list of the packaging companies authorized to avail themselves of the trademark and the list of the Statutes and the Regulation of the Trademark.

CLEARANCE AND STORAGE

ARTICLE XV

The packer can postpone or refuse the delivery or can refuse to take in charge in his workshops goods or materials which packaging cannot be immediately used.

According to a formal agreement, the packed goods will have to be cleared by the customer at last fifteen days after their forwarding by the packer, with a clearance note.

Beyond this delay, any storage operation will be considered out of the provisions about the packaging contract itself and on the condition of a written formal statement.

Consequently, any storage operation, or supplementary provision will be dealt, in return of a distinct remun eration, with in one or more specific and private contracts that will be settled either with the packer himself, or, should the occasion arise, with companies of a third party .

TRANSPORT AND HANDLING

ARTICLE XVI

Any transport, displacement and handling of goods or materials, carried out in any place and made necessary by the making of a packaging carried out under cover of the S.E.I. trademark, are an accessory to the packaging contract and therefore, are, in the same limits, subject to the guarantees stipulated in the articles above.

Any transport or transport commission, are not considered an accessory to the packaging contract and are not subject in any case of the provisions above

It is case, in particular, of long distance transport that cannot in any case be considered an accessory to packaging operations or be included in the packaging contract.

ARTICLE XVII

In case of, as a result of mistaken statements, or because there was not any special instructions, about the weight, nature, specific fragility, sling raise, special wedging, means of access to use, workshops themselves, etc..., the handling would cause any damage to the goods or materials, the provisions of article XVI above would not be put into practice.

PREROGATIVE OF THE JURISDICTION

ARTICLE XVIII

Any variance at, either the settlement of the invoices, or the right carrying out of the given work, will be the exclusive competence of the Court of the registered office of the packaging company, even in case of appeal at guarantee or in case there are many defendants.

Any amicable derogation to the present conditions cannot be invoked as a precedent..

Ouvrage édité par JJA GRAPHIC 01 46 67 99 66
pour le compte du Syndicat de l'Emballage Industriel (S.E.I.)