

This document contains important informations about safety and correct utilization of our containers; please be sure you read carefully this document before using our containers.

Any updated versions of this document will be published on our website www.fustiplast.com so we suggest you to check periodically that the document in your possession is updated.

In case of doubt, please contact us through our sales offices.

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1 General informations

The polyethylene allows to obtain excellent containers for the transport of hazardous goods, thanks to the following features:

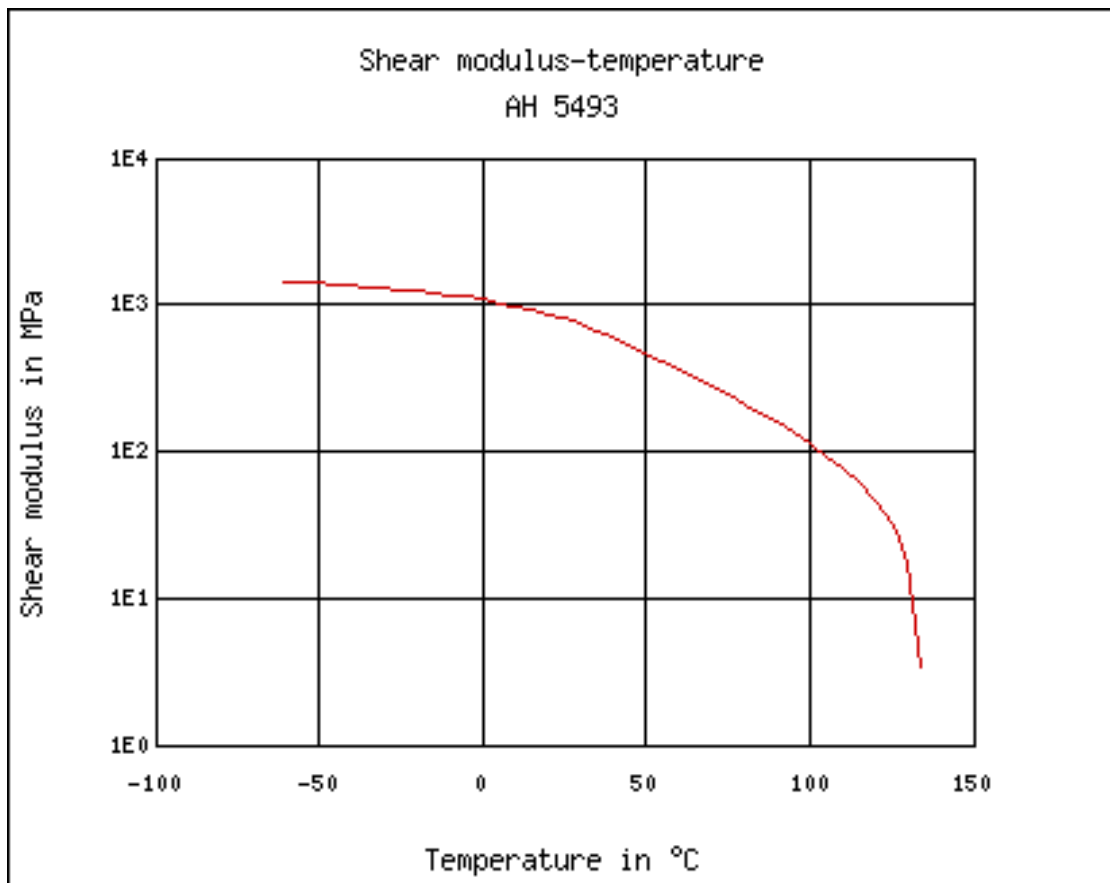
- high chemical resistance: few substances are able to assail chemically the polyethylene
- the high resilience permit to have containers able to absorb in an efficient way accidentally crashes
- Very low levels of migrations of substances from the container to the content.

In the meantime, the polyethylene has some potential weaknesses, which have to be known for the correct handling of the product:

- As highlighted in the graphic, the mechanical features degrade quickly with the increase of the temperature (up to zeroing at the fusion point equal to 128-130°), for this reason the polyethylene is not suitable to contain product with temperatures higher than 50°- 60° C and the PE stacked containers must not be submitted to high temperatures, to avoid the risk of crushing and eventual fall of the stacked containers. Eventual applications which go over the suggested temperatures, have to be carefully tested and validated by the filler.

Due to the degradation of mechanical properties with the increase of temperature, the containers must be moved by the handles only when the contained product is at room temperature.

Don't move the container by handles if the container is overheated for exposition to sunlight or to other heat sources.



- The direct sunlight attacks the molecular structure of polyethylene making it very frail, therefore, in case of use longer than 18 months, the containers must be preserved against the direct sun rays. In pigmented container, the own color (blue, black, etc) protects the polyethylene from the ultraviolet rays. The non-pigmented containers (except IBCs where antiUV agents are added to HDPE directly by the manufacturer of the polymer itself) should be used only and always protected from direct sunlight.
- Some very oxidizing chemical products notch the polyethylene, damaging quickly its chemical and mechanical resistance. In particular cases, a special homologation test of the container for the transport of the specific substances is required (to complete the eventual standard homologations).
- It is suggested to fill the containers at about 98% of their capacity, to reduce to minimal level the air inside and prevent that the variations of the air volume (in the wake of temperature changes) and the following changes of internal pressure can cause an excessive swelling or an implosion and therefore a reduction of the mechanical resistance of the structure.
- In case of transport of dangerous goods, please verify the ADR instructions, to proof which are the usable containers.
- All the actions described in this document (handling, filling, closing, movement, opening, emptying) have to be made by trained staff, who uses proper protection means (gloves, anti industrial accidents shoes, protections from chemicals products) and eventual tools for the opening/closing of containers.

The right use of our containers has to be made according to the indications provided in the following document.

1.1 Safety

For operators safety

- *Follow instructions supplied in this document*
- *Use our containers wearing accident prevention shoes, cut-resistant gloves (for handling metal parts) and all the protections necessary to prevent damage from contact with the contained material (protection from chemical, thermal or other injury)*

2 Filling

2.1 Optimal filling (volume)

We get the optimal replenishment, filling the container until 98% of its volume, with the aim to limit the effects of temperature variations on the volume of contained air and to limit the compression of container in case of crashes and solicitations both static and dynamic.

2.1.1 Effects of temperature on the contained air volume

The variations of the gas temperatures influence remarkably volume and pression (Kay Lussac's laws); the air, which remains in contenitors after filling and closing, make them inflated in case of increase of temperature or cause the implosion in case of decrease of temperature.

The effects of temperature variation could be generated by several causes:

- Warm-filling of the container with closing of it before cooling of the content (therefore cooling of the air from the temperature of filling to the ambient temperature)
- Considerable variation of the external temperature compared to the filling temperature of the drum (for example: summer-winter)
- *Exposure to sunshine*

The result is much more evident when higher is the ratio between air volume and product volume, becoming practically unimportant if the container is filled until 98% of its volume.

In particular cases the adoption of ventilation valves is suggested to reduce the effects of temperature; in case of adoption of ventilation valves and seals, please verify carefully that seals don't obstruct the air flow.

2.2 Warm filling

We advise against filling containers with substances, which have temperature higher than 60°.

We advise against stacking containers with temperature higher than 40°C.

As effect of the reduction of air volume in the container due to the decrease of temperature, we suggest to close the containers after cooling of the filled substances or we advise to require the assembly on containers of anti-implosion valves.

Eventual applications with temperatures higher than the suggested, must be tested and validated by the filler.

Due to the degradation of mechanical properties with the increase of temperature, the containers must be moved by the handles only when the contained product is at room temperature.

2.3 Closing after filling

Consult the chapter related to closing of containers.

2.4 Handling

Due to the degradation of mechanical properties with the increase of temperature, the containers must be moved by the handles only when the contained product is at room temperature.

Don't move the container by handles if the container is overheated for exposition to sunlight or to other heat sources.

Impose vertical stress to handles, avoid as more as possible torsional stress



Always prefer, where possible, the handling of containers packed on appropriate pallet.

3 Packing after filling and storage

3.1 Pallet selection

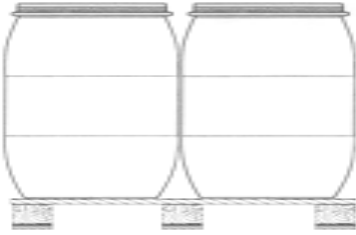
It is important that pallet used for packing and movement of goods filled in our containers have proper dimensions, so that the bottom of containers can find a correct support and is not only partially holded by the pallet, avoiding in this way the risk of downfall of stacks and/or possible damages and lacerations at the bottom of containers.

For transport in container you have to use only full area pallet.

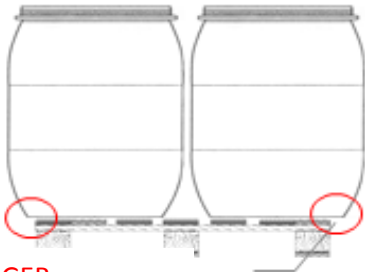


Correct selection of pallet

- use only full-area pallet



place drums on pallet, paying attention to the complete support of the bottom



DANGER

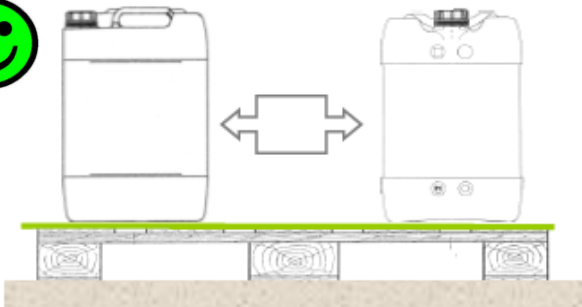
Uncorrect selection of pallet

The bottom of the drum jut out from the pallet with the following risks:

- A vertical load slightly unbalanced can bend the bottom of the drum, with following imbalance of the stack
- Solicitations and strong crashes can make the corners lacerate the bottom of the drum and create leaks of product.

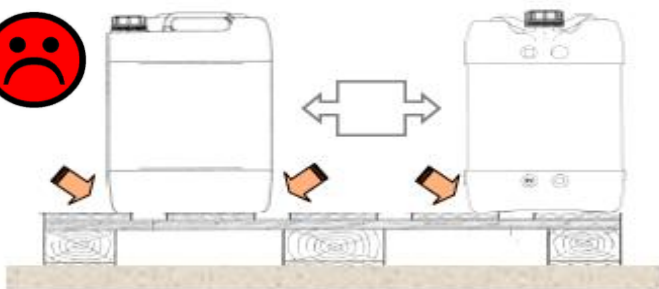
Eventual intralayer

If you don't have any flat-area pallet, you have to put an intralayer between the pallet and the containers, paying attention not to put the corners of the base between the spaces of the pallet crosses.



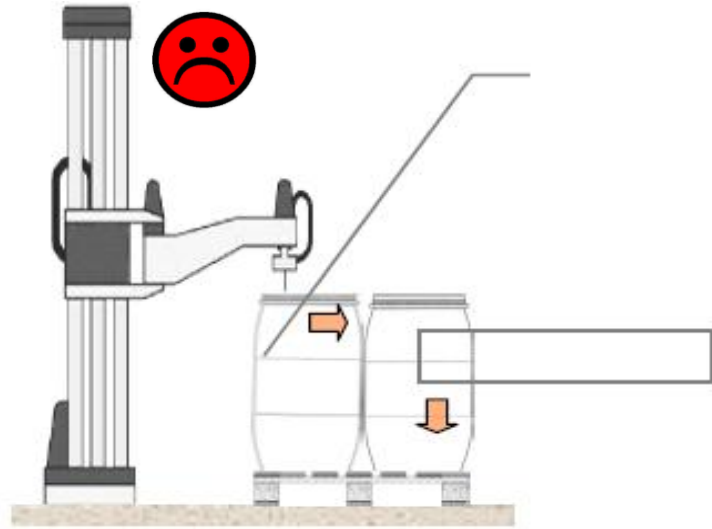
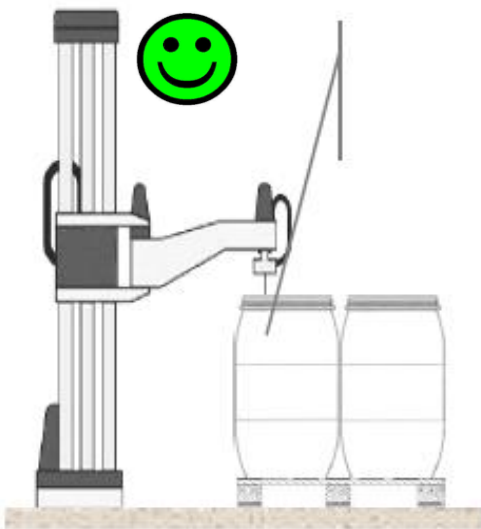
Not safety packing

The pallet don't have a flat surface, an intralayer was not used and the points with the orange indicators are potential points of damage/partitioning.



3.2 Wrapping actions

During wrapping phase the tension of the tape must not compromise the complete support of the drum on the pallet and must not deform the walls of containers.



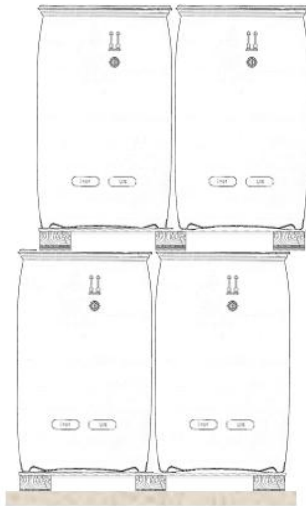
3.3 Storage

3.3.1 Static stacking

Stacking has to be made according to the specific weight of the product and to the stacking ambient temperature. The technical data sheets contain information about the static stacking at the temperature of 25°.

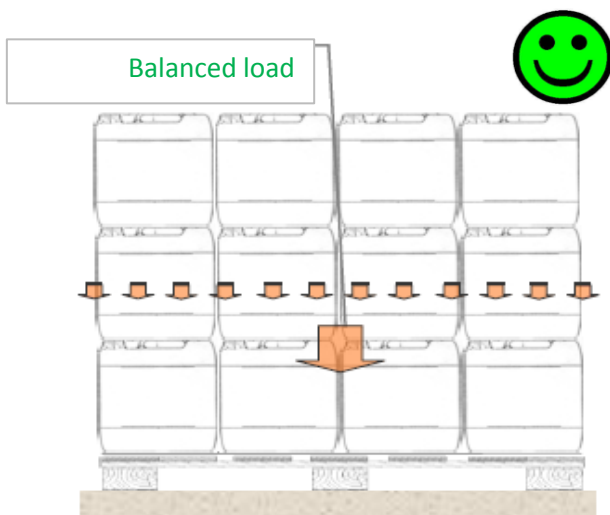


Overlap containers and pallets paying attention that the load is always well distributed on the beneath containers. Use an intralayer between containers and pallets, which lay upon it.

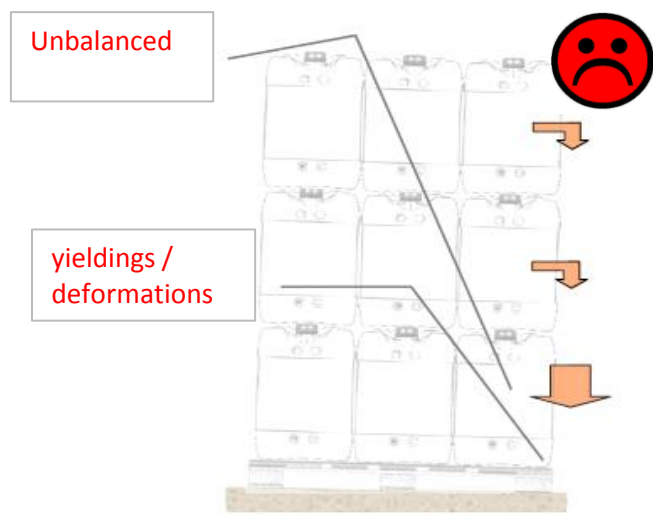


The containers in the picture on the left are not well overlapped, causing an unbalanced load and creating excessive localized efforts, with possible stack downfall.

The support surface of packing must be flat, in order to avoid horizontal solicitations, which imbalance the load and horizontal solicitations on the walls.



Stacking on flat surface



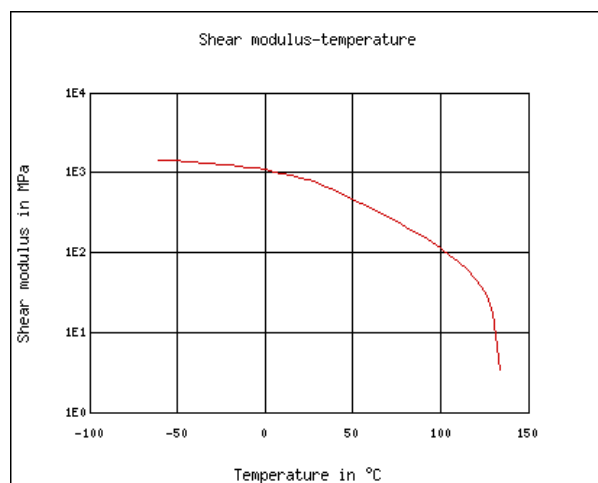
Stacking on sloping surface

3.3.2 Effects of temperature

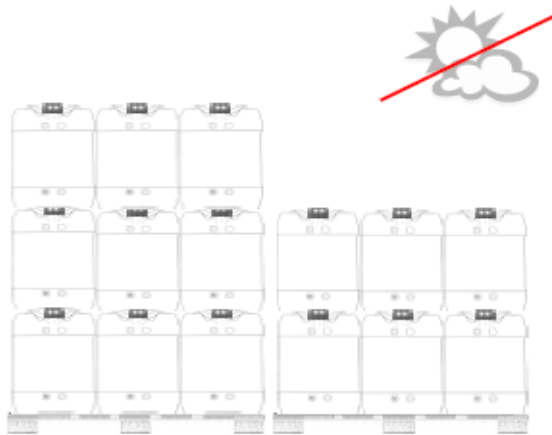
The shear module of polyethylene (and therefore the resistance to the vertical compression of containers) degrades when the temperatures increase. Therefore in case in which the resistance to stacking is a critical operation, is important not to expose container to temperature higher than 40°.

The excessive softening of containers due to exposure to high temperatures, can facilitate lacerations following to crashes or localised overloads (for example for use of pallet without flat area).

Don't move containers by handles, when containers are overheated by sunlight or by contained product or by other heat sources.



3.3.3 Effects of sunlight



The direct sunlight attacks the molecular structure of polyethylene making it very frail, therefore, in case of use after more than 18 months, the containers must be preserved against the direct sun rays. In pigmented container, the own color (blue, black, etc) protects the polyethylene from the ultraviolet rays.

Not pigmented containers, (except IBCs, where the PE is already supplemented by the producer of the polymer with anti UV agents) must be always used in shelter of direct sunlight.

Direct exposure to sunlight can cause overheating of the container, with consequent reductions in mechanical performance and safety.

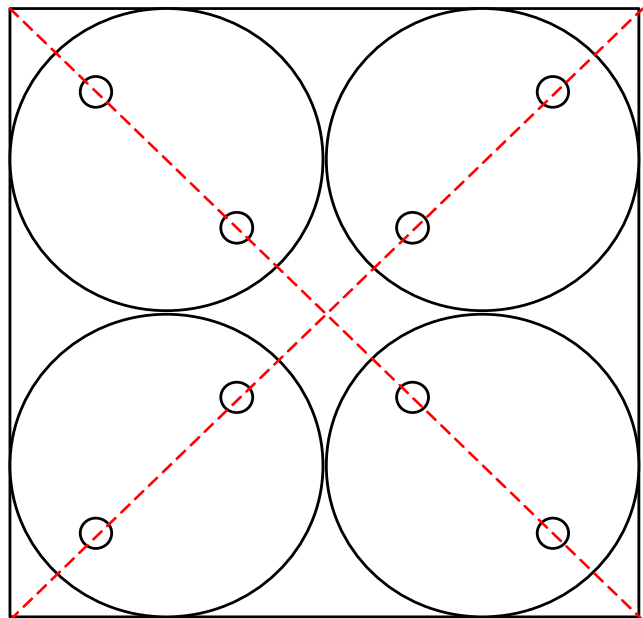
Do not move the containers by the handles when they are overheated by the sun or from the product.

3.4 Packing of I-ring plus

We obtain the right stacking using CP3 pallets with full surface (1.140 x 1.140), on which it is possible to stack 4 drums, allowing the bottoms to base completely on the surface of the pallet.

The ideal solution would be to arrange the openings like shown in the picture, to permit a right absorption of the upper weight from the below positioned drums.

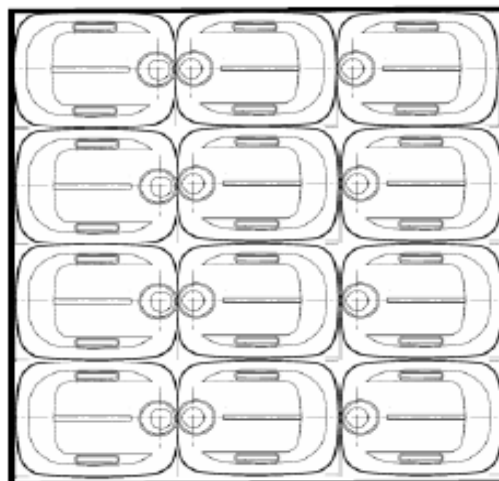
Resistance to stacking is influenced by the specific gravity of the contained product and by the temperature of storage ambient; technical data sheet shows the possible ways of static stacking at a temperature of 25 ° C



3.5 Packing of jerrycans

During packaging, put always necks of jerrycans toward the inner part of the package, in order to prevent accidental shocks to jerrycans closures during handling and to ensure a greater guarantee of inviolability.

During the final wrapping of the pallets with stretch film, avoid excessive stress over the 4 outside corners. If you can apply 4 cardboard corners to avoid causing the bending of the containers.



4 Stacking in containers and transport

Before selecting the container, you have to analyze the following elements:

- Eventual climate variations due to the shipment;
- Kind of goods to be shipped;
- Kind of packing;
- dimensions, weights and load distribution of the packages;
- transit time and transport conditions

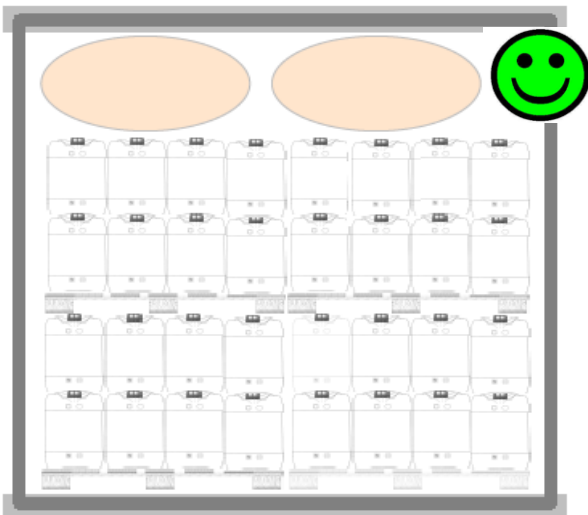
The variation of temperature inside the container for the transport of packagings is an absolutely important factor to be considered for the selection of the most proper packaging to the transport conditions and to improve all the counteractions, able to guarantee safety and packaging integrity until the end of the transport: consider that inside a container the temperatures can be higher than 50°C, influencing negatively the mechanical performances of the drum.

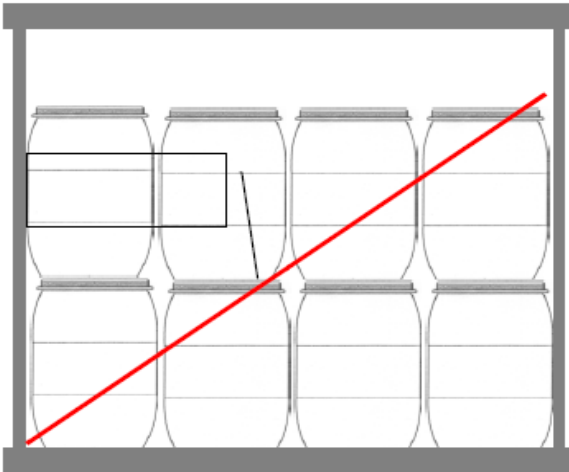
Moreover during the transport there are solicitations towards each direction on containers; these solicitations (if the load had not been positioned in a correct way) can make the packagings leap (which act as mallet on the underneath packagings) or can move sideways the packagings, causing an unbalanced stacking with following downfall of the beneath packagings.

The solicitations can be particularly remarkable in case of sea transport (oscillating movement and storms) or land transport in areas with uneven roads and/or when the means of transport are lacking of maintenance (shock-absorber, suspensions).

For this reason it is necessary:

- assure *carefully* the packagings, in order to avoid the movements and fill the empty spaces to improve the effectiveness of blocking systems (to obstruct movement towards each direction, also lenghtsides the containers)
- to place packaging in the most tidy and rational way
- for the disposition of packing in two lines, it is suggested to place an intralayer as separation, which guarantee the perfect distribution of the load on the base packagings.





Among the different solutions for the fixation of the load we suggest the adoption of LOADLOCK available through our sales offices.



Other solutions suitable for the fixation of the load and filling of empty spaces:

- big inflatable paper bags
- inflatables cushions
- TY-GARD
- High resistance belts



In case of doubt, we recommend to consult with carriers to whom you entrust your goods to find appropriate solutions and to avoid damage during transport

4.1 Dynamic stacking

Stacking values indicated in the technical data sheets refer to the static stacking, that means the stacking stress during permanence in warehouse. The dynamic stacking is sensitively influenced from the transport conditions (land transport, sea transport, etc.), from transit distances, from maximal reachable temperatures, from the modalities of load fixation, etc.

Generally, for densities lower than 1,4 kg/l a stacking of 1+1 can be allowed (exception: OT 120 lt drum with 4,8kg); the features of the container has to be evaluated in any case according to the distances, means of transports, foreseen temperatures, etc.

4.2 Results of transport of not steady loads

In the pictures on the left, we have a clear example of transported load without any stabilization, probably on damaged roads and with a truck with poor maintenance.



In the pictures on the left, we have a clear example of transported load without any stabilization, probably on damaged roads and with a truck with poor maintenance.

Red lines show spaces left empty during loading; these spaces allow a continuous movement of packages, causing a misalignment of upper and lower packages.

4.3 Sea Transport

In case of sea transport the transit time is usually very long (compared to the land transport) and there is the possibility that extremes and unforeseeable situations happen, which can solicitate excessively the containers and compromise the external aspect; generally we always suggest to use a stronger container (higher weight of PE) compared to the usual version for the land transport

5 Instructions for opening/closing of containers

5.1 Open top drums

All the actions described in this document must be made by trained staff, who uses proper protection means (gloves, anti industrial accidents shoes, protections from chemicals products) and eventual tools for the opening/closing of levers.

5.1.1 How to open an OT drum

- Remove the seal from the handle of the closure ring (it isn't assembled on empty drums)
- Open the closure ring opening opening completely the handle
- Remove the closure ring
- Remove the lid from the drum (in particular cases there is inside some vacuum and a major effort or the help of a lever could be required)
- Remove the red degasing tab from the lid (it must be only on empty drums, never on filled drums)

5.1.2 How to close an OT drum (applicable to filled drums)

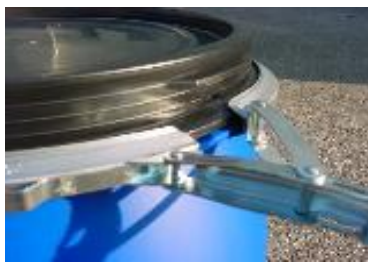
- If the red coloured tab is still positioned in the lid, remove it immediatly (otherwise this could cause leaks of product)
- Check that the gasket is well positioned in the lid and that it isn't damaged
- Put the lid onto the opening of the drum, so that drum and lid are lined up
- Press the lid on the drum to make the border of the lid almost in contact with the border of the drum
- Open the closure ring (the handle has to be completely opened)
- Put the closure ring so that both the border of the lid and the border of the drum remain insideward the outline of the closure ring
- Lock the closure ring, closing completely its handle
- Block the handle with a proper seal, adequate for your needs of mechanical safety and inviolability

If you use our plastic seal, the seal clip has to be inserted in the opening of the handle from above and then you have to ensure that it is firmly positioned.

Fustiplast can provide on request levers, which have been properly designed to facilitate the closings of handles.



Remove the red tab



Correct positioning of the closure ring



Position of the clip seal

5.1.3 Anti-implosion system for empty drums

Open Top Drums are shipped with a plastic seal inserted between the gasket of the lid and the opening of the drum, with the aim of annul the variations of internal pressure, following to the variations of temperature and eliminating, in this way, problems linked to the swelling or the implosion of containers..



The red seal must be absolutely removed during the filling actions, to avoid eventual leaks of product.

5.1.4 Substitution of lid /closing ring

ATTENTION: the substitution of the lid or of the closure ring with models different from the provided ones, cause the immediate annulment of the eventual homologation, because this is valid only if the version described in the homologation reports is respected.

5.2 Containers with caps (tight head drums and jerrycans)

All the actions described in this document must be made by trained staff, who uses proper protection means (gloves, anti industrial accidents shoes, protections from chemicals products) and eventual keys for the opening/closing of caps.

The caps are divided principally into 2 groups: BCS (called also TS) or CCS (identified also as DIN) ; both the groups are once again differentiated according to the dimension. In the following table simple pictures of BCS and CCS closure are shown.



BCS cap



BCS cap protected from a seal



CCS cap (self-sealing)

5.2.1 How to open a new container with caps

Empty tight head drums are supplied with caps partially screwed, that can be unscrewed manually, but jerrycans are supplied without caps. During the removal of caps take care not to damage the eventual seals.

5.2.2 How to open a filled container with caps

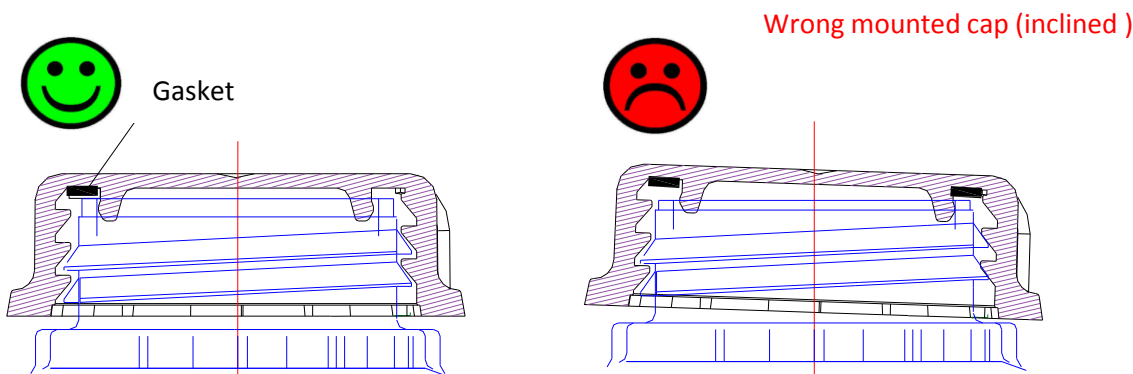
- If there is a BCS cap as closure, remove the plastic or steel seal with the help of a pincer
- Unscrew the cap counterclockwise with the help of the proper key (for CCS caps this operation cause the ropture of the ring seal)
- Remove the cap

5.2.3 How to close a container with caps (applicable to filled drums)

- Check that the gasket is correctly positioned in the lid and that it isn't damaged
 - For CCS caps, check that the seal (ring at the bottom of the cap) isn't detached/damaged
 - BCS CAPS: lean the cap inside the opening of the container without forcing
 - CCS CAPS: lean the cap against the opening of the container without forcing
 - Screw the cap clockwise without forcing the cap insideward the container; the application of forces insidwards the container could cause an uncorrect conjugation of threads
 - The cap must be closed with the couple shown in the technical data sheets provided by Fustiplast
 - *The use of lower torques can not guarantee the tightness of the container*
 - *The use of higher torques can overstretch both the seal and the cap or even the mouth of the container, resulting in loss of tightness or in breakage of the cap over time (stress cracking).*
 - BCS caps: put on the eventual guarantee seal
 - Repeat the closing operation with the eventual second cap
- Fustiplast can supply on request manual keys or tools purpose-designed to facilitate the operation of closing of caps.

5.2.3.1 Correct coupling cap/container

- Cap must be assembled without pressing toward the container, but simply leaning it and screwing it.
- The application of excessive pushing forces towards the container can cause an uncorrect coupling cap/container (see explanation in the following picture) and the lacking hermeticity of the container.



5.2.3.2 Precautions for automatic filling lines

- Check regularly the calibration of chuck clutches for the automatic closing of caps;
- Verify the perfect inserting/lean of the cap on the opening of the container: excessive vibrations of the container on the movement belt or unprecise positionings of the cap can compromise the assembly and closing of cap in line with the opening;
- Guarantee and maintain dry, as much as possible, the openings of the containers after the automatic filling and before the automatic closing: the presence of product can increase or decrease frictions and influence the effective force of closing, got with results similar to the adoption of a closing coupling too low (if frictions increased) or too high (if frictions decreased).

5.2.3.3 Caps with induction seals

The sealing of induction caps is influenced by several factors, which affect the heading of the aluminium foil of the cap. The three

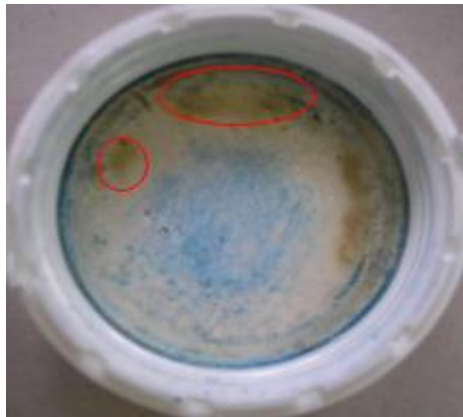
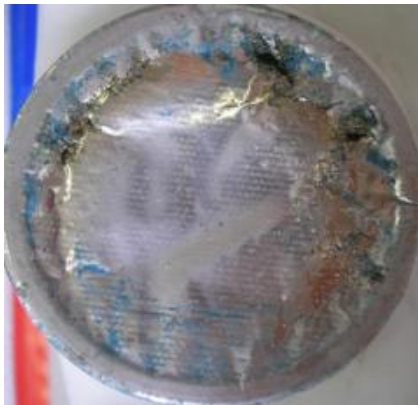
- Time of exposition to the magnetic domain (it depends generally from the speed of the tape, but it could be influenced by blockings or tape or container stopping)
- Distance between cap and induction machine
- Regulation of the machine power

An insufficient heading doesn't allow the correct fusion of materials and, therefore, the seal can't be completely welded or it can anyway too easily come off.

An excessive heading risks to damage the protection wrap which is on the aluminium foil, exposing it to the chemical attacks of the contained product, with possible perforation and leak of product.

We suggest to verify periodically the conditions of the seal and to settle conveniently the parameters and/or the distance of the cap.

The following pictures show a cap damaged by chemical attack (picture on the left) and the evident signs of overheating, remarkable, in this case, from a beginning of burning of the cardboard (picture on the right).



5.2.4 Closing torques of caps

Twisting couples to be adopted are indicated in the technical data sheets.

A closing couple too low doesn't guarantee a sufficient deformation cap/gasket to ensure the closure.

A too high couple can deform excessively both the gasket and the cap or even the opening of the container, with following leak of hermetical force or possible ruptures of the caps in the course of time (stress cracking).

5.2.5 Use of guarantee seals on BCS caps with venting system



Guarantee seals on the BCS caps, equippe with venting/degassing system, must ensure the air flow necessary to the correct work of the venting mechanism.

If the seal is able to block the air flow, this could cause swellings or implosions of the container.

5.2.6 How fit plastic seals capsule

Because of their purpose (make obvious opening attempts) the plastic sealing capsule are quite delicate and can be damaged during assembly (fracture zones specially weakened).

The procedure to fit properly sealing capsule without damaging them is as follows::



Assemble the capsule from the opposite direction to the tear tab



Push with your fingers to the tab and down, to facilitate the deformation of the capsule in the direction of thrust



Once in final position, terminate with a downward pressure to facilitate the anchoring

5.2.7 Caps substitution

ATTENTION: the substitution of the caps with models different from the provided ones, cause the immediate annulment of the eventual homologation, because this is valid only if the version described in the homologation reports is respected.

6 General Information about regenerated Polyethylene

The polyethylene can be regenerated and re-used for the production of containers, obtaining a cheaper product and with a lower environmental impact. Anyway the obtained product has different limits compared to the vergin polyethylene, above all due to the heterogeneity of the raw material and the partial decay of the features, following to the inevitable cracking process:

- Drums produced with regenerated material can not be homologated for the transport of dangerous chemical goods.
- Drums produced with regenerated material are usually used for employments in short time and short range shipments, because it's not possible to guarantee the mechanical tightness and the hermetical seal for long periods.
- The short mechanical resistance restrict the possibility of stacking.
- The chemical resistance and, in particular, the resistance to the cracking stress required to contain and transport for surface-active or oxidizing products is extremely limited and can not be controlled and guaranteed in any way.
- The resistance to the UV rays is limited and this advice against drums' stacking, full or empty, outside under the sun, which also in short time, can cause a cracking effect and the following breaking of the packaging.
- The blue color is modified in an evident way from the regenerated material, which, in base of the used batches, change the color of the original mixture; the result is a non homogeneity of the color, which can be highlighted in a little batch of production.
- *The regenerated polyethylene may be contaminated by materials with which it came into contact in the past, for this reason, the regenerated polyethylene can not be used in contact with food or in contact with products that require low levels of migration.*

7 Normatives' Extracts for the use of packaging for hazardous goods

As follow we list some information, extracted from the actual laws, to be respected for the usage of packaging for dangerous goods

- The packaging of dangerous goods involve the responsibility of the user, who has to ensure that the packaging is in accordance to the regulations, appropriate and compatible with the product to be shipped.
- The company must appoint a consultant for safety of dangerous goods transportation (Legislative Decree n. 40/2000), among which skills, there are also " state of packaging and periodical control".

- When the container is re-used for the transport of hazardous substances, some features has to be verified: the good state and the capacity to satisfy the tests preview by the ADR Regulations, this is valid also for the closing systems (caps, lids, discharging valves) which, eventually, have to be substituted (only with original accessories, as described in the hologation report).

7.1 Compatibility with acetic acid deductible from compatibility with wetting solution

In paragraph 6.1.6.1 , the ADR text states

A compatibility test with acetic acid is not required if adequate chemical compatibility is proved with a wetting solution

8 Use for transport of food substances

- The request of suitability of the container for transport of food products or anyway addressed to the contact with products of personal use, must be specified expressively on the purchase order.
- The suitability of the container to the transport of substances, included the respect of all the applicable laws, must be verified by the user.
- The user must verify that the container is, from an organoleptical point of view, compatible to the substances to be carried.
- Fustiplast apply good manufacturing practices in the process of production of containers addressed to the contact with food products; in any case who fills the container must verify that its hygienic conditions are proper and must provide for eventual action of cleaning.

9 Drum with removeable head or with non-removeable head ?

One of the distinctions made by ADR on chemicals is based on their status:

- Liquid , viscosity less than 2.680 mm²/s.
- Solid , viscosity over 2.680 mm²/s.

One distinctin made by ADR about plastic containers (drums and jerrycans, 6.1.4.8.5) is:



- Non-removeable head** containers (1H1 e 3H1) characterized by opening with a diameter not exceeding 7 cm

These containers are also called **Tight head**



- Removeable head containers** (1H2 e 3H2) characterized by opening with a diameter exceeding 7 cm , normally all container head.

These containers are also called **Open Top**.

These two distinctions are justified mainly by two physical factors:

- Stresses acting on the closures (caps / lids) in case of drop
- Stresses acting on the closures (caps / lids) in case of creation of internal overpressure (release of vapor or gas)

9.1 Stress differences in case of development of internal pressure

Based on the basic laws of physics we can calculate the force exerted on a closing device (f) , if we know the container internal pressure (P) and the surface of closing device (S)

$$f = P \times S$$

Assume that the pressure inside a container of 120 liters is 200 kPa (or 200.000 N/m²)

If the container is a non-removeable head type, the typical diameter of the cap used (bottom face toward the inside of the container) is 51.78 mm, with an area S = 0,002105785 m²

If the container is a non-removeable head type, the typical diameter of the cap used (bottom face toward the inside of the container) is 400 mm (diameter can change on different drums models), with an area $S = 0,125663706 \text{ m}^2$

We can now calculate the pressure inside the container that acts on the closing device

- Non-removeable head drum $f = 200.000 \text{ N/m}^2 \times 0,002105785 \text{ m}^2 = 421,16 \text{ N} = 42,93 \text{ kg}$
- Removeable head drum $f = 200.000 \text{ N/m}^2 \times 0,125663706 \text{ m}^2 = 25132,74 \text{ N} = 2561,95 \text{ kg}$

The force acting on the lid of a removable head drum is about 60 times the force acting on the top of a non-removeable head drum, this means that the closure of a removeable head drum can be easily undermined by his seat or even damaged or broken by stress.

9.2 Stress differences in case of drop

The first important difference in case of drop , is the state of the substance, liquid or solid

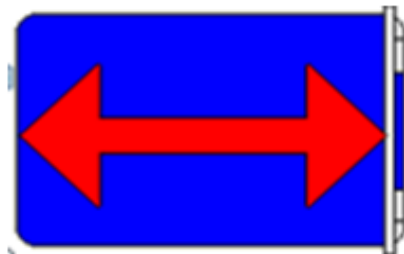
Solid state

When a container filled with a solid substance falls, the weight of the solid substance acts on the point of impact with the ground and there are no additional stresses on the container.

Liquid state

When a container filled with a liquid substance falls, the weight of the liquid substance acts on the point of impact with the ground, but immediately after impact, triggers a phenomenon similar to water hammer, tied to the abrupt cessation of motion of a fluid (movement of a fall), with the generation of stresses in the transverse direction of drop.

In the following image is summarized as, in case of "flat" drop of a drum, the phenomenon of "water hammer" stresses mainly top and bottom of the drum



Referring to the previous section, we could evaluate the pressure that is generated by water hammer and evaluate the force acting on the closing device and the conclusion remains the same as the previous paragraph, or:

The force acting on the lid of a removable head drum is about 60 times the force acting on the top of a non-removeable head drum, this means that the closure of a removeable head drum can be easily undermined by his seat or even damaged or broken by stress.

9.3 Choose between a removeable head or not-removeable head drum

Removeable head drum

- opening with dimensions which allows to extract powders or substances with high viscosity, often allowing the removal of the contents using spatulas or other utensils
- It's possible to insert inliners if needed
- They are often used to transport liquids (not classified as dangerous) because customers prefer the convenience of drawing liquids from drum head without the aid of pumps, valves or other utensils

Non-removeable head drum

- Resist to drops when containing liquids
- Resist to high internal overpressures

In the case of transport of dangerous substances, ADR is very clear, allowing the transport of liquid dangerous goods only in non-removeable head drums or otherwise classified 1H1

In the case of transport of substances not classified as dangerous, there are no laws that force you to choose the type of container, the advantages and disadvantages of the drums, however, remain unchanged and the choice to carry liquids in removable head drums carries the risk of product spillage in case of drop or overpressures..

Recently, the competent authorities for approval of containers used in ADR transports, approved removable head drums for liquids, which are characterized by:

- performance (maximum pressure and density maximum capacity) lower than benefits obtained from non-removeable head drums

- use of lids and closing rings very reinforced respect to accessories used on a standard removable head drum
- Presence of a cap and an opening with a diameter not exceeding 7 cm

The proper use of removable head drums for transport of liquids provides:

- *lid and closing ring are closed by drum producer with the help of a press (without inserting venting stripes), lid and closing ring will be opened by end user who must pull the content out of the drum*
- *filling operation is performed through the opening with diameter not exceeding 7 cm avoiding absolutely to open closing ring and lid*

The use of removable head drums approved for the carriage of liquids should be chosen bearing in mind that in any case performances are lower, when compared to a non-removable head drum.

We suggest you to contact our sales staff for a consultation on the choice of drums to use.