



**MANUAL ON HANDLING
A CARGO PACKED INTO
A FLEXIBLE CONTAINER
(FIBC, BIG BAG)**

v01.2024

The present Manual is based on the best practices with the purpose to ensure safety, keep a product quality high and improve packaged product transshipment efficiency.

We recommend that you follow all applicable provisions of this manual in your work.



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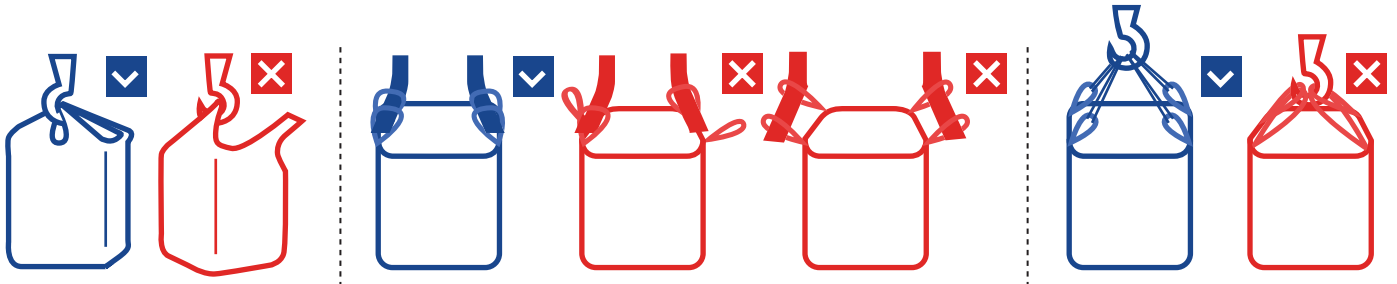
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We will be grateful for all your comments and suggestions sent to the e-mail quality@uralkali.com

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FIBC LOADING AND UNLOADING

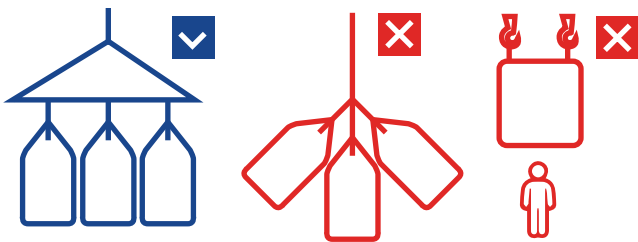
Lifting of FIBC by slings shall be carried out strictly vertically. Single-sling and double-sling FIBC shall be hoisted by one hook or forklift fork, and for double-sling FIBC the slings are tied to one lifting point. Four-slings FIBC can only be hoisted by all four loops with four hooks or two forks. The width of the fork should not be greater than the FIBC width, so that the slings remain upright and do not create a breaking load on the shell of the FIBC



When moving, you should avoid sudden jerks of the crane and side hits of FIBC against machinery; also avoid piling on the neighboring bags.

Loading and unloading operations shall not damage FIBC shell, slings and PE liner. Particular care should be taken to check the surface below slings, since this is where tearing usually begins.

While handling packaged product, you should pay attention to a uniform color of the shell and slings material. Uneven color, weaving, roughness may indicate improper quality (strength). Be especially careful when moving such FIBC!



Loading and unloading of more than one FIBC at a time may only be performed using a special beam ensuring the suspended FIBCs vertical position. Avoid lifting several FIBCs piled one on top of another; this can lead to breakage when moving such FIBCs.

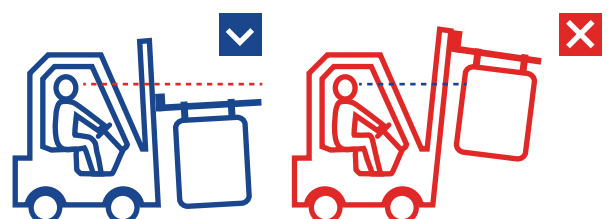
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LIFTING AND TRANSPORTING OF FILLED FIBCS WITH A FORKLIFT

To prevent damage, avoid FIBC hits against machines parts, forklift wheels and truck platform sides. If a FIBC damage exceeds 3 cm, repacking is recommended. Patches ("minor repair") are highly undesirable, as a patch does not guarantee the product safety later on.

To make the forklift more stable, the lifting device shall be tilted back slightly and the FIBC shall be placed as low as possible without touching the forklift wheels or the ground.

The forklift lifting capacity must match the weight of the cargo being transported. The transported FIBC shall not restrict the view of the forklift driver, at the same time it must not touch the ground.



*Repacking process: Before repacking, you shall first "inflate" the FIBC. It is recommended to install a sieve with a mesh size of 1 cm * 1 cm on the repacking hopper to avoid foreign items in the cargo.*

Do not use a forklift with a deformed fork part. The fork ends of the forklift (lifting hooks) must be rounded or have protective covers (casing).



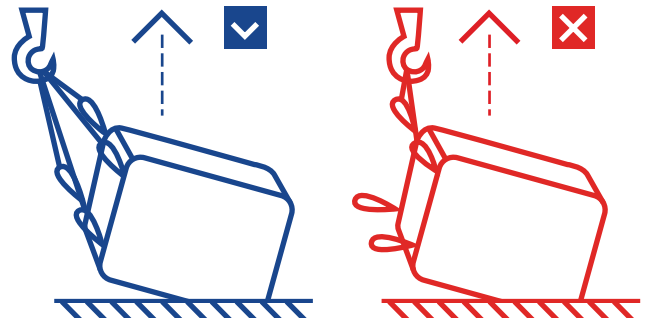
The forklift must stop completely before FIBC lifting or lowering.

FIBC lifting (lowering) shall be strictly vertical by all the loops (slings) without jerking and the lifting loops and other lifting devices must be vertical.

To correct the position of a FIBC fallen on its side, use all slings wound through all the lifting loops. To correct an FIBC that has toppled completely, use the additional rope (sling) attached to the container slings and fork of the forklift.

Otherwise, you can damage FIBC slings because of the unevenly distributed load.

Any attempt to lift the FIBC using fewer loops than those provided, may result in the loops being torn off.



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FIBC LOADING INTO A TRUCK BODY, HOLD OR SEA CONTAINER

When loading FIBC into a truck body or hold you shall:

- visually check the body/hold condition, identify and insulate in advance or remove protruding sharp parts;
- cover the bottom and sides with thick cardboard; - avoid FIBC friction and hits against the walls / bulkheads;
- start loading FIBC by placing the product along the walls.

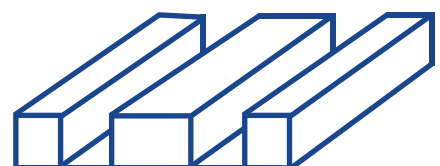
When loading and unloading FIBC into/from a sea container, you shall:

- visually check the walls and floor condition, identify and insulate or remove protruding sharp parts in advance;
- cover the bottom and walls with fiberboard, thick cardboard or other material;
- avoid FIBC friction or hits against walls.

If it is impossible to lift FIBC by slings to put it on the second tier because the container ceiling is low, load FIBC as follows: first, lift the FIBC by the upper loops and put it on a support (for example, a pallet turned over), and then put a forklift fork completely under the FIBC bottom at once. This method of loading prevents "inserting" the fork with a force under a filled FIBC, as the fork part can very likely damage projecting seams on FIBC bottom.

Be sure to inspect the forklift fork part before that! The fork ends of the forklift (lifting hooks) must be rounded or have protective covers (casing).

Any notches and imperfections shall damage FIBC bottom.



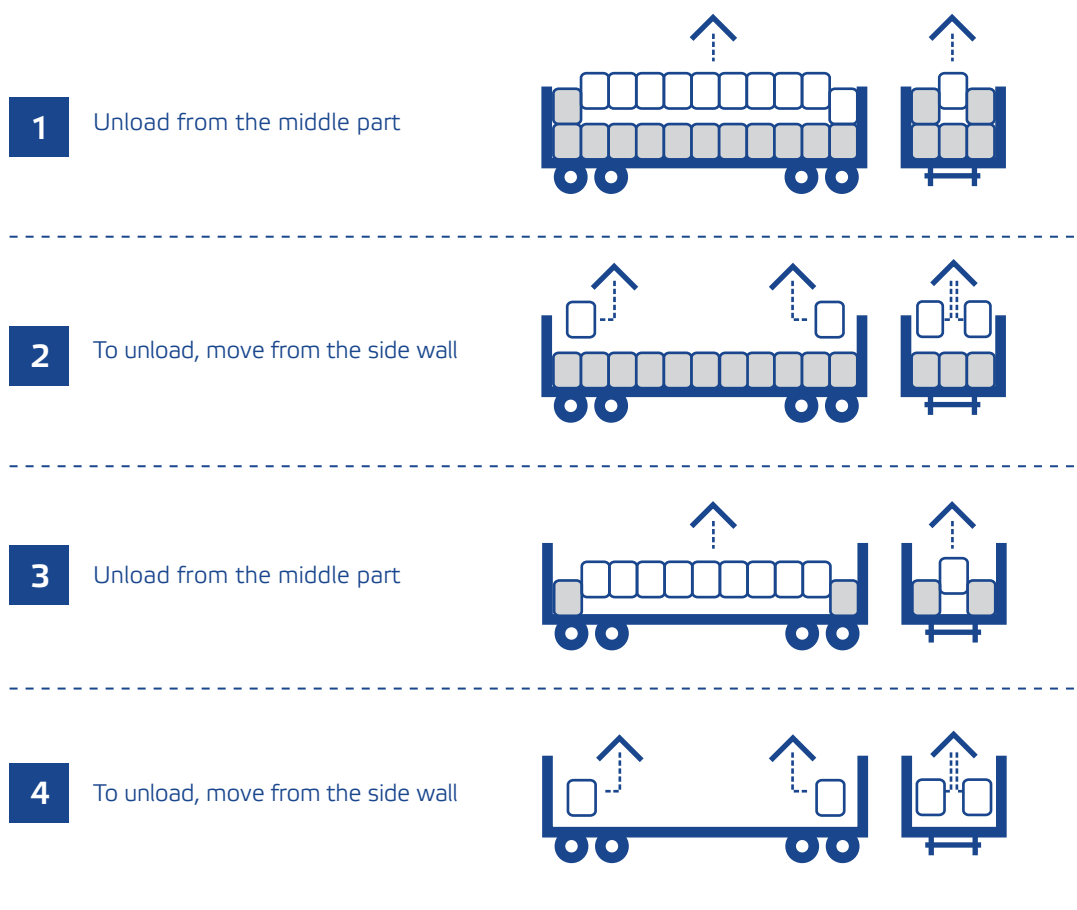
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FIBC UNLOADING FROM OPEN WAGONS

During open wagon unloading, you shall:

- avoid sudden jerks of lifting devices and crane and FIBC side hits against the open wagon walls and other items;
- first unload the FIBCs located in the middle part of the open wagon;
- to unload the FIBCs located at the wagon walls, move it away from the wall;
- unloaded from open wagons, FIBCs shall be placed on a flat surface cleared of sharp items and include water-drains or be put onto pallets;
- see in Appendices 1 – 3 the diagrams for stacking of 500, 800 and 1,000 kg weight FIBCs and the order of its unloading from open wagons.

The order of FIBCs unloading from open wagons

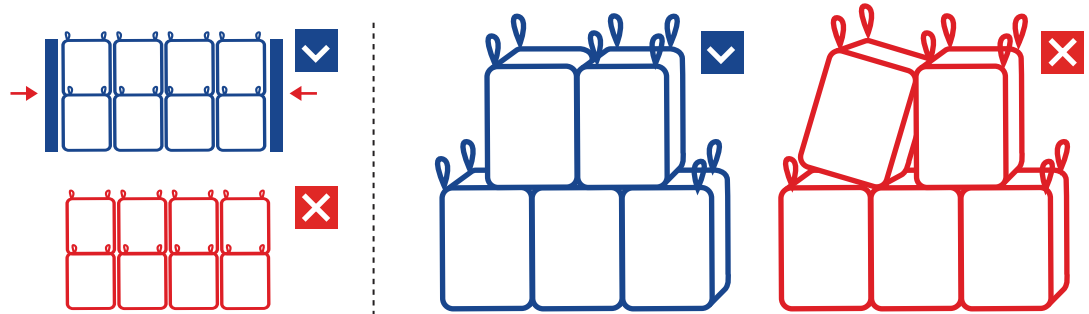


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FILLED FIBC STACKING

When stacking FIBCs, every effort should be made to ensure the stack stability. To do this, the stack must be supported with two or three retaining walls (the higher the stack, the more retaining walls). It is allowed to store FIBCs in 3 (three) tiers.

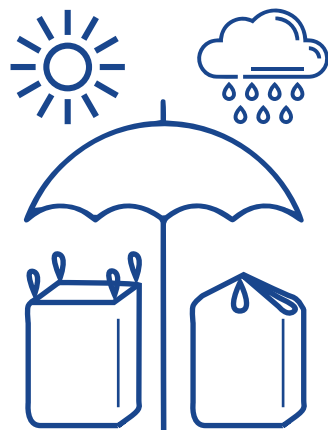
FIBCs shall be stacked in tight rows, vertically; each layer to be tiered inwards by half FIBC diameter around the stack perimeter. If the cargo tends to fall on a side or in the case of stacking without supports, it is recommended to make a pyramid for the stack stability (one FIBC less on every next tier). FIBCs should not be pushed into a stack as this can cause damage to the sides.



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FILLED FIBCS STORAGE

If FIBCs are stored outdoors, it is necessary to use timber decking (the preferred option) or pallets under the bottom row of FIBCs and a covering tent (cover) to fully protect the stack from atmospheric moisture and solar radiation. Before FIBCs placing on decking or pallets, be sure to check that there are no protruding elements, screws, nails.



Violation of the requirement to cover FIBC results in its moisture contamination and FIBC shell strength decrease due to polymer photodegradation. The tent shall be made of a waterproof material resistant to UV radiation. No more than two stapled tents per stack should be used. Be sure the top closure is properly tied..

The FIBCs storage site should be solid, flat and have water drains.

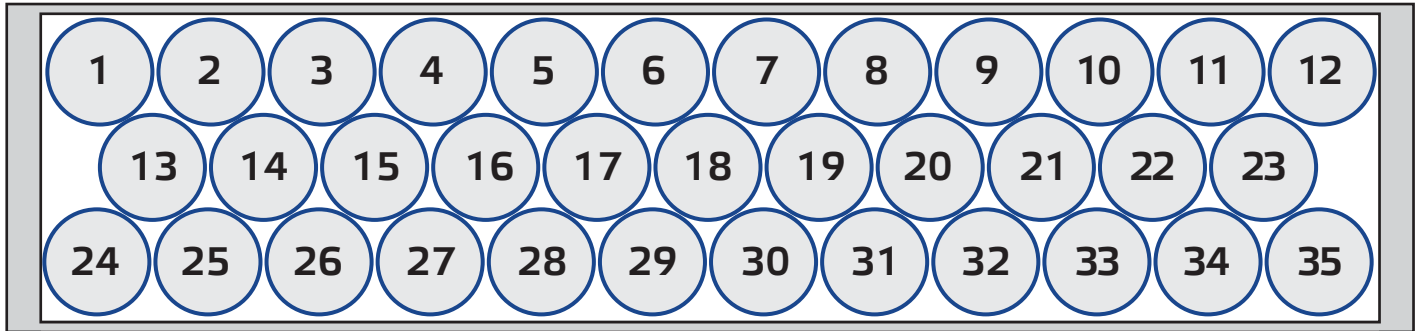
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EMPTY FIBCS STORAGE

FIBCs shelf life is limited. Expired FIBCs may be used only after additional control tests.

UNLOADING ORDER OF **1000 KG** FIBCS FROM OPEN WAGONS

FIBCs stowage according to two schemes provided for 67 containers (in this case, there are no containers 17, 18 and 19 in the upper tier) and 69 containers (in this case, there is no container 18 in the upper tier).



To ensure FIBCs safety, open wagons unloading with a truck mounted crane or electrical hoist shall require a crossbeam for three hooks and shall be performed in the following sequence:

For upper tier containers

1-st lift – FIBC No 19, 20, 21
(for the scheme 69 FIBCs)
or 20, 21 (for the scheme
67 FIBCs)

2-nd lift – FIBC No 15, 16, 17
(for the scheme 69 FIBCs)
or 15, 16 (for the scheme
67 FIBCs)

3-rd lift – FIBC No 13, 14

4-th lift – FIBC No 22, 23

5-th lift – FIBC No 4, 5, 6

6-th lift – FIBC No 1, 2, 3

7-th lift – FIBC No 7, 8, 9

8-th lift – FIBC No 10, 11, 12

9-th lift – FIBC No 27, 28, 29

10-th lift – FIBC No 24, 25, 26

11-th lift – FIBC No 30, 31, 32

12-th lift – FIBC No 33, 34, 35

For bottom tier containers

1-st lift - FIBC No 18, 19, 20

2-nd lift - FIBC No 15, 16, 17

3-rd lift - FIBC No 13, 14

4-th lift - FIBC No 21, 22, 23

5-th lift - FIBC No 4, 5, 6

6-th lift - FIBC No 1, 2, 3

7-th lift - FIBC No 7, 8, 9

8-th lift - FIBC No 10, 11, 12

9-th lift - FIBC No 27, 28, 29

10-th lift - FIBC No 24, 25, 26

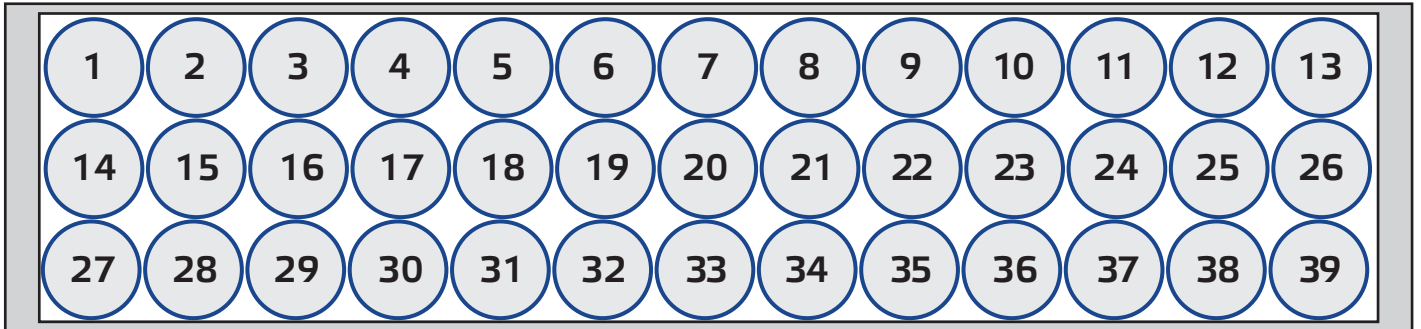
11-th lift - FIBC No 30, 31, 32

12-th lift - FIBC No 33, 34, 35

To unload the FIBCs located at the wagon walls, move it away from the wall.

UNLOADING ORDER OF **800 KG** FIBCS FROM OPEN WAGONS

FIBCs stowage according to the scheme provided for 78 containers (39 in each tier):



To ensure FIBCs safety, open wagons unloading with a truck mounted crane or electrical hoist shall require a crossbeam for three hooks and shall be performed in the following sequence:

1-st lift – FIBC No 19, 20, 21

2-st lift – FIBC No 16, 17, 18

3-rd lift – FIBC No 14, 15

4-st lift – FIBC No 22, 23, 24

5-rd lift – FIBC No 25, 26

6-st lift – FIBC No 3, 4, 5

7-rd lift – FIBC No 1, 2

8-st lift – FIBC No 6, 7, 8

9-st lift – FIBC No 9, 10, 11

10-rd lift – FIBC No 12, 13

11-st lift – FIBC No 29, 30, 31

12-rd lift – FIBC No 27, 28

13-st lift – FIBC No 32, 33, 34

14-st lift – FIBC No 35, 36, 37

15-rd lift – FIBC No 38, 39

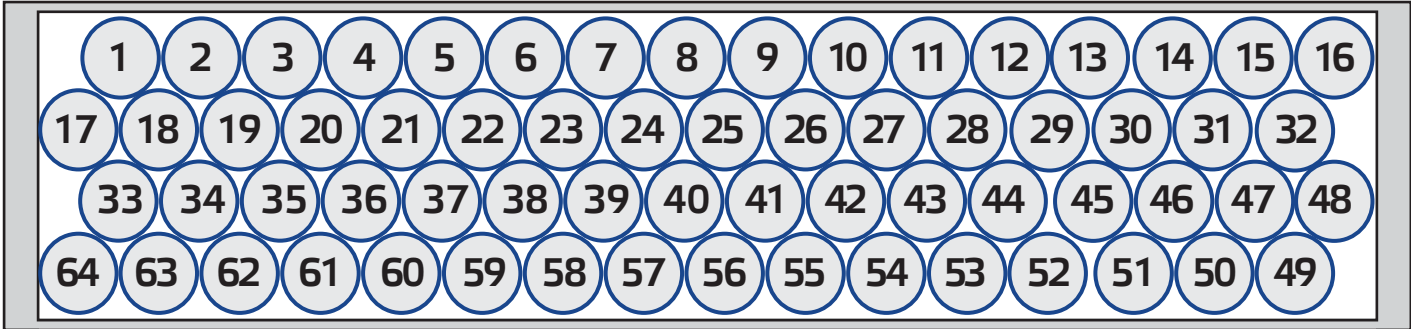
The bottom tier shall be unloaded similarly to the upper. To unload the FIBCs located at the wagon walls, move it away from the wall.



APPENDIX 3

UNLOADING ORDER OF **500 KG** FIBCS FROM OPEN WAGONS

FIBCs stowage according to the scheme provided for 128 containers (64 in each tier):



To ensure FIBCs safety, open wagons unloading with a truck mounted crane or electrical hoist shall require a crossbeam and shall be performed in the following sequence:

- 1. FIBCs No 18-32

- 2. FIBCs No 33-47

- 3. FIBCs No 17, 48

- 4. FIBCs No 1-16

- 5. FIBCs No 49-64



To unload the FIBCs located at the wagon walls, move it away from the wall.