EFIBCA

European Flexible Intermediate
Bulk Container Association

Questions & Answers

Concerning the Use of Flexible Intermediate Bulk Containers (FIBC)

Questions and Answers Concerning the Use of FIBC

Selection of the FIBC

1. Which type of FIBC do I need?

There are three basic types of FIBC: reusable FIBC for heavy duty, reusable FIBC for standard duty and single-trip FIBC. Your supplier can help you determine the correct type of FIBC for your specific needs. The following aspects will influence your choice: weight and type of product to be filled, filling temperature, number of filling cycles, preferred method of filling, transport, storage and discharge.

The more precisely you specify your product, the better your supplier will be able to recommend the best FIBC for your needs. Foremost, you should clarify if your FIBC must fulfil special requirements for the transport of food or dangerous goods, or for material with electrostatic characteristics.

2. Are there standards for the use of FIBC?

Yes, there are several standards:

- EN ISO 21898 Packaging – Flexible intermediate bulk containers (FIBCs) for non-dangerous goods
- IEC 61340-4-4 Electrostatics – Part 4-4: Standard test methods for specific applications – Electrostatic classification of flexible intermediate bulk containers (FIBC)
- UN Recommendations on the Transport of Dangerous Goods (ADR, RID, IMDG-Code, Orange Book, Chapter 6.5)
- TRBS 2153 – Avoidance of ignition hazards due to electrostatic charge (Vermeidung von Zündgefahren infolge elektrostatischer Aufladungen), applies for Germany

3. How should FIBC be marked?

According to norm EN ISO 21898:2005 FIBC should bear a durable marking (either in the form of a label or printed onto the FIBC):

- Name and address of the supplier / reconditioning company
- Type of construction by supplier which may only apply to one particular type of FIBC
- Name and address of distributor, if applicable
- Safe working load (SWL) in kg
- Safety factor, e.g. 5:1, 6:1 or 8:1
- Indication of relevant norm
- Type of FIBC, e.g. heavy-duty reusable FIBC, standard-duty reusable FIBC
- Number of certificate of construction as well as month and year of issuance of certificate
- Name of test house
- Date of production of FIBC
- Pictograph for the recommended handling
- Indications concerning special handling following 3.7 of EN ISO 21898:2005
- In case the FIBC is certified for a special product: the description of the product

According to the UN guidelines, FIBC intended for dangerous goods have to be durably and legibly (minimum 12 mm print size) marked as follows (see example):

1) UN packaging symbol

2) Type
(13H1) FIBC without coating or liner
(13H2) FIBC coated
(13H3) FIBC with liner
(13H4) FIBC coated and with liner

3) Packaging group
X: for packaging group I, II and III (FIBC for solid goods only)
Y: for packaging group II und III,
Z: for packaging group III only

4) month and year of manufacture

5) country of approval

6) referred to approval authority

7) referred to manufacturer and other authorized identification of FIBC

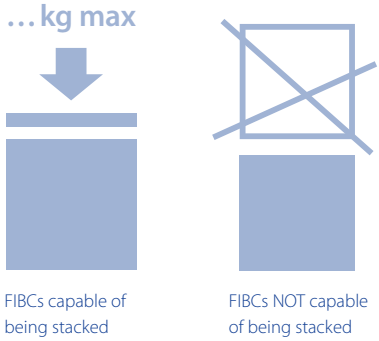
8) reference number of authority

9) stacking test load in kgs
(in case of FIBC that are not designed for stacking, it should indicate "0")

10) maximum gross mass in kgs
(FIBC plus content)

In addition, according to ADR 2009 (section 6.5.2.2.2), the maximum permitted stacking load shall be displayed as a symbol on FIBCs intended for dangerous goods (see figure 1). The mass marked above the symbol shall not exceed the load imposed during the design test divided by 1.8.

Figure 1: Stacking symbols according to ADR 2009



Filling

4. How do I safely fill FIBC?

During the filling process FIBC should be hanging from the lifting device in a way that their bottom either touches or hangs closely above the ground or pallet. Please make sure the discharging spout of the FIBC – if featured – is closed before the filling. Consult your supplier should you wish to fill your FIBC with hot material since not all FIBC are designed for high temperatures.

In order to ensure stability under load, the filling height of the FIBC should be between 0.5 and 2 times the shortest horizontal dimension of the FIBC, typically

- the diameter for FIBC with a round base,
- the length of the shorter side for FIBC with a rectangular base.

Note: While filling or discharging a FIBC, an electrostatic charge may occur, which under certain circumstances can lead to an explosion. For more information, please refer to question 16 of this booklet.

5. What has to be considered when filling food?

The overriding principles behind regulations on FIBC coming into direct or indirect contact with food are the protection of human health and the composition of the food and its perceivable properties. EU-Regulation 1935/2004 lays down requirements on all kinds of packaging materials, including plastics, to ensure human health. There is another very important specific regulation for food contact materials made from plastics: the EU-Regulation 10/2011. The FDA in the US follows the same principles. Furthermore, process-related quality systems such as GMP (Good manufacturing practices) and Hygiene Management should be applied for production

of food contact FIBC. Please note that national legislations may apply and should also be considered. Discuss your and your end-user requirements with your supplier to ensure you receive the quality you need.

6. What has to be considered when filling dangerous goods?

When filling dangerous goods you need to ensure that no hazardous dust is dispersed into the environment which may endanger operator health. For better containment, it is recommended to use only dustproof FIBC type 13H2 or FIBC with an inner liner, such as type 13H3 or 13H4.

FIBC intended to transport dangerous goods have successfully undergone a comprehensive design type test in accordance with the UN Recommendations and the related legislations ADR/RID or IMDG and are manufactured and tested under a quality assurance programme which satisfies the competent authority.

Transport

7. How do I safely lift FIBC?

Before lifting, please check your FIBC for transport damage. In general, FIBC should be lifted according to the instructions given on the label. As a rule, the FIBC should be lifted and lowered symmetrically avoiding any abrupt or jerky movements. Any form of swinging should be avoided during the lifting process. Please be aware that most transport damages occur due to improper lifting of the FIBC. Never lift FIBC by steel wires, fibre ropes or similar devices. The loops of the FIBC could tear due to such handling.

Several FIBC can be lifted simultaneously – as long as this is technically feasible. The vertical position of the loops is crucial in this case (see figure 2).

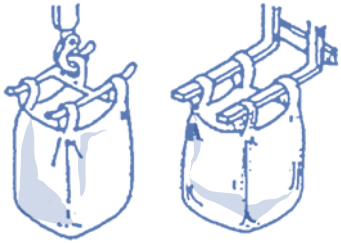
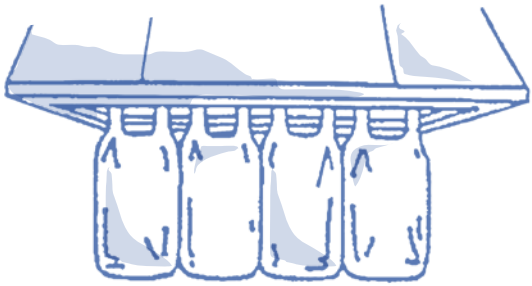


Figure 2: The vertical position of the loops is crucial when lifting FIBC.



8. What do I need to consider when handling FIBC by forklift?

In order to avoid damage to the loops, the forks should be free from sharp edges and, if necessary, covered with suitable material. When driving FIBC hanging from a forklift, the vehicle is in danger of tipping over. As a precaution, the FIBC should be transported close to the pole at the lowest level possible and with the pole bent slightly backwards. The FIBC should be positioned on the forklift so that the wheels of the forklift do not damage the FIBC and the driver's view is not obstructed.

9. How do I safely transport FIBC by truck or in a freight container?

When transporting FIBC by truck or in a freight container, the cargo must be stowed in a safe and stable fashion. FIBC must not be stowed next to cargo with sharp edges or rough surfaces which might harm the FIBC. Legal regulations and recommendations for the transport (e.g. according to VDI 2700) must be followed.

Storage and Stacking

10. How do I stack filled FIBC?

Stability has to be considered when stacking FIBC. Generally speaking, pyramid-shaped stacking is most favourable (see

figure 3). If possible, FIBC should be stacked next to two walls for support. The general rule is: the higher the stack, the more supporting walls are necessary.

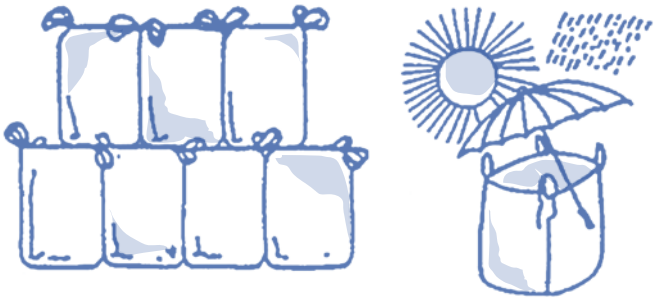


Figure 3: A pyramid-shaped stacking ensures stability. Furthermore, FIBC should be protected from UV radiation and weather impact.

Be sure to consider the special characteristics of the material filled in the FIBC before stacking to avoid undesired effects (e.g. compression). Please make sure that the FIBC at the base are able to bear the pressure of those stacked upon them. If in doubt, please ask your supplier.

11. How do I store FIBC?

FIBC are not intended for storage outside since they get damaged by UV radiation and weather conditions (see figure 3). It is of utmost importance to follow the recommendations of the supplier in order to achieve the maximum life span and performance of the FIBC and to avoid damage to the FIBC and its contents.

If the FIBC must be stored outside, they should be protected from UV radiation and weather, e.g. by a black polyethylene film or other suitable protective devices. Furthermore, not all FIBC are designed for storage at extreme temperatures. Please contact your supplier if in doubt.

12. How do I securely discharge FIBC?

In order to discharge a single-trip FIBC, its bottom should be opened using a cutting device equipped with a suitably long grip. If the FIBC has a discharge spout, this spout should be opened only when the FIBC is hanging over a safety support (see figure 4). This support prevents injury to persons in case the lifting device fails. Persons should under no circumstances stand or hold body parts under any lifted or non-secured FIBC.

Note: While filling or discharging a FIBC, an electrostatic charge may occur, which under certain circumstances can lead to an explosion. For more information, please refer to question 16 of this booklet.

Figure 4: When discharging an FIBC with a discharge spout, it is important to use a safety support.

Repeated Use

13. How often and how long can I reuse FIBC?

The life span of FIBC depends on the usage and storage conditions but should normally not exceed two years from the date of manufacture. Only bags with a minimum safety factor of 6:1 are reusable. Before reuse, ensure that reusable FIBC still meet the same requirements as before the first use. When examining FIBC, control for both visible and non-visible damage which may have resulted from previous use and storage of the FIBC (e.g. UV damage).

The user bears the responsibility for the examination of the FIBC and the decision for repeated use. Single-trip FIBC must not be reused under any circumstances.

The FIBC label contains relevant information to help determine the reusability of your FIBC, e.g. safety factor, class of FIBC and date of manufacture.

14. How does reconditioning of FIBC work?

Reconditioning of FIBC comprises of taking back, cleaning, sorting out, damage control, and exchange of service equipment (e.g. document pouch, ribbons, label, and liner). A change in construction or repair is excluded.

For safety reasons reconditioning of FIBC for the transport of dangerous goods is not recommended. Further, FIBC which contained hazardous material are not suitable for reconditioning.

Recycling

15. Can FIBC be recycled?

FIBC are constructed out of polypropylene fabric and can be recycled. The raw material (polypropylene) can be mechanically processed without changing the chemical structure. The new material obtained through recycling can be used in diverse applications and replaces new granules. However, FIBC with hazardous material contact must not be recycled.

FIBC can also be used energetically, i.e. the energy content of the material can be recovered through combustion.

Safety

16. How can electrostatic charging be avoided?

Untreated polypropylene is an electrical insulator, as is often the case with the products placed in FIBC. In unprotected FIBC an electrostatic charge can be generated during filling and emptying operations. If this occurs, electrostatic discharges are inevitable and can be a severe hazard when FIBC are used in explosive atmospheres. Such an atmosphere can be generated when handling fine powders or when using gases or volatile solvents.

A thorough risk assessment should always be conducted before using FIBC in potentially hazardous situations. The IEC 61340-4-4 describes a system of classification, test methods, performance and design requirements and safe use procedures that can be used by manufacturers, suppliers and end-users for this purpose.

To enable your supplier to offer the safest FIBC class for your application, it is strongly recommended to discuss your environment, product MIE (Minimum Ignition Energy) and specific end-user requirements.

Corporate Social Responsibility

17. Which ethical and social aspects should be considered concerning the production of FIBC?

FIBC organizations and their customers are becoming increasingly aware of the need for and benefits of socially responsible business conduct. This comprises of the respect for law and internationally recognized standards regarding organisational governance, fair competition and anti-corruption, human rights and fair labour practices as well as the protection of the environment. Companies may use ISO 26000, a company code of conduct or similar approaches to help with the implementation of these ethical principles. Ask your supplier how he assures business ethics in his company and the supply chain.

Pending Questions

Your supplier or EFIBCA will be pleased to respond to all your questions.

EFIBCA Code of Conduct

The subscribing companies of EFIBCA Code of Conduct are committed to their social and environmental responsibility. The EFIBCA Code of Conduct is a voluntary agreement, through which EFIBCA member companies wish to guarantee particularly the observance of globally recognised principles of ethical and moral behaviour as well as the standards of proper business conduct in the areas of competition and antitrust law (compliance). This also means promoting fair and sustainable standards dealing with suppliers and customers as well as own company personnel.

For more information and subscribing companies see

http://efibca.com/efibca-code-of-conduct.html

EFIBCA-Q Quality Pledge

EFIBCA-Q is an iniative of EFIBCA that aims to raise awareness amongst users of FIBCs about quality and safety standards relevant for different types of FIBCs. FIBC manufacturers and distributors signing the EFIBCA-Q Quality Pledge commit to comply with all specifications listed in the EFIBCA-Q Quality Criteria. Users of FIBC are encouraged to engage with their FIBC supplier on the EFIBCA-Q Quality Criteria and to include these criteria in their supplier audits.

The EFIBCA-Q Quality Criteria and subscribing companies are listed on **http://efibca.com/efibca-q-quality-pledge.html**

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