

## TECHNICAL TEXTILES – PART III

REF: TT/ NOV 2021/ WK 5

### PackTech (Continued.)

#### Flexible Intermediate Bulk Containers (FIBC)

A flexible intermediate bulk container (FIBC), which is also known as bulk bag is an industrial container made of flexible fabric that is designed for storing and transporting dry, flowable products, such as sand, fertilizer, and granules of plastic.

FIBCs are made up of **polypropylene woven fabric**, either coated or uncoated.

**Polypropylene Fabric** is a fabric used for industrial, upholstery and manufacturing applications. As a fiber, polypropylene is strong, fade-resistant, and inherently stain resistant. This is because polypropylene has no active dye sites after it is synthesized. It is not possible to dye or change the color of the polypropylene after it has been extruded. Only when polypropylene is in a hot liquid form is it able to change colors with organic and inorganic pigments.

POLYPROPYLENE
Polypropylene is also known as Olefin.
It is a synthetic thermoplastic polymer derived from oil and natural gas production.
Polypropylene is made from the polymerization of Propylene gas in the presence of a catalyst system.

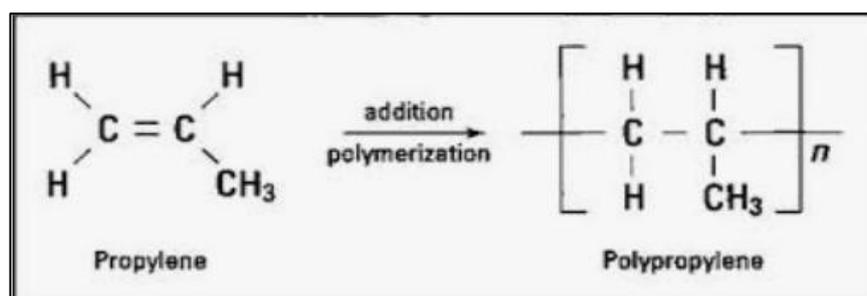


Fig 1.1 Polymerization of Propylene

Ref: .brainly.in

Polypropylene is then extruded through a spinneret. The spinneret creates the shape and length of threads. After the threads cool, they are spun together in various color and size combinations to make yarns. The polypropylene yarns are then woven into fabric.

The production of a bulk bag starts by loading polypropylene and additional materials into an extruder to convert it into PP tapes that have varying sizes. It is then stretched further before being cut to the desired length. Afterward, they are weaved to create the FIBC material.



This process uses special looms to make a bag-like structure. Some types of bulk bags need to be coated before they are distributed since they will be used for more specialized items. If a bag needs to be breathable since it will be used to carry perishable goods, it remains uncoated.

**Styles of Bag Construction**

Various styles of Flexible Intermediate Bulk Containers (FIBC) or bulk bag are:

1. **Circular** – This style of bag is made on the loom as a tube and is the lowest standard of FIBC. It does not maintain its shape when loaded and sits down and bulges out in the middle. The product loaded in the bag stretches the fabric.
2. **U-Panel** – A U-panel bag is a step up from a circular bag, as it will have two pieces of fabric resembling a U shape those are sewn together to make the shape of the bag. It will maintain its square shape. These bags are much better than the circular style to maintain their shapes after loading.
3. **Four-Panel** – The four-panel bag is the best bag for staying square other than a baffle bag. It is made of up four pieces of fabric that make up the sides and one for the bottom. These are all sewn together which resists the stretching tendencies of the bag and holds it in a cube shape.
4. **Baffle** – This style is the best to maintain its shape when the bag is loaded. It has additional baffles sewn down each corner to act as a pocket to fill each corner. In addition, there are other pockets sewn on each side for the entire product to gather around the baffles and pockets. These bulk bags will be easier to stack. Baffles are extra fabric panels of string sewn into each of the bag’s four corners. This reinforcement allows the bag to better hold its square shape when filling.

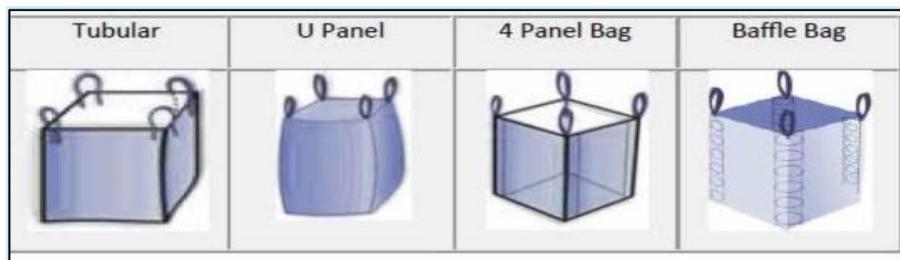


Fig 1.2 Different styles of FIBC or Bulk Bags

Ref: whfpackage.com/

References:

1. <https://www.johnpac.com/>
2. <https://revolutionfabrics.com/>
3. <http://texmin.nic.in/>
4. <http://www.ittaindia.org/>

.....To be continued.....

UNSCRAMBLE THE JUMBLE WORDS
LUCARRIC
FEFLAB
AHSEP
OOTTBM

Last week`s Answers: 1) FLEXIBLE 2) WRAPPING 3) POLYPROPYLENE 4) DUFFLE

Wishing you a great week ahead!

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