

What is a FIBC / Bulk Bag?

A flexible intermediate bulk container (FIBC) is defined as an intermediate bulk container, having a body made of flexible fabric, which

- Cannot be handled manually when filled
- Is intended for shipment of solid material in powder, flake, or granular form.
- Does not require further packaging
- Is designed to be lifted from the top by means of integral, permanently attached devices (lift loops or straps)

Flexible intermediate bulk containers (FIBCs), also known as "big bags," "bulk bags," and "bulk sacks," were first manufactured in the late 1950s or early 1960s. There is some controversy as to where the first FIBCs were made; however, it is known that FIBCs were made in the United States, Europe, and Japan during the time period mentioned above. The first FIBCs were constructed with heavy-duty PVC-coated nylon or polyester where the cut sheets are welded together to form the FIBC. These FIBCs were made with integrated lift slings around the container, or attached to a specially made pallet, or a metal lifting device that the container sat on. The handling devices allowed the container to be filled from the top and discharged from the bottom.

The initial cost of these heavy-duty PVC containers is high; therefore, they are designed to be reused many times in a closed-circuit system, where problems of control logistics, prevention of contamination, cleaning, and liability for loss or damage can be agreed on by the shipper and receiver of the product.

Flexible intermediate bulk containers manufactured with polyolefin fabrics were experimented with in England, Japan, Canada, and the United States all at about the same time in the late 1960s to the early 1970s. It was the development of these high-strength light weight fabrics (i.e., polypropylene) that spurred the growth of the flexible intermediate bulk bags that are universally used today.

The rapid growth in Europe in the manufacturing of FIBCs occurred in the mid 1970s during the oil crisis. The oil-producing countries building program required large quantities of cement. The demand for cement was shipped in FIBCs at the rate of 30,000-50,000 metric tons per week from Northern Europe, Spain, and Italy to the Middle East.

The demand for bulk bags in the United States grew slower than in Europe until 1984, when the U.S. Department of Transportation (DOT) agreed to grant exemptions for the shipment of hazardous products in FIBCs. Performance standards for FIBCs were established and issued by the Chemical Packaging Committee of the Packaging Institute, USA under T-4102-85. These standards were used to obtain exemptions until DOT included flexible containers with the other types of IBCs in the Title 49 CFR for hazardous products.

The flexible bulk container offers features that are unique to this package. It can be folded flat and bailed for shipment to the user. The weight of a bulk bag used to ship one metric ton of product weighs 8-10 lb, offering a low package: product weight ratio. The cost of FIBCs is competitive with other forms of packaging as it is usually utilized without pallets. They are easy to store and handle in warehouses with standard equipment. When shipping by boat the FIBCs are gang-loaded with up to 14 bulk bags on a spreader bar, and are shipped as break bulk.

The standard filled diameter of FIBCs is 45-48 in., designed to fit two across in a truck or a shipping container. Special configured containers are made to meet specific requirements of the container user.

FIBCs generally are manufactured to meet specific requirements of the container users. The height of the container, the diameter and length of the spouts, coated or uncoated fabric, and whether a polypropylene liner is necessary will be specified according to the type of product that will be shipped.

When hazardous products are shipped in FIBCs, the UN mark for the product must be printed on the container body. In the United States the manufacturer or a third party lab may certify the container according to the regulations in Part 178 of the Title 49 CFR. All other countries require a third party lab to certify the container.

FIBCs containing non-hazardous or non-regulated product when shipped export from the United States must have performance testing certification if destined for a country that requires performance standards for bulk bags. This material is used by permission of John Wiley & Sons, Inc. A. Brody and K. Marsh, "Flexible Intermediate Bulk Containers," Wiley Encyclopedia of Packaging Technology, 2nd Edition, Wiley-Interscience, New York, 1997, pp. 448-449. Copyright © 1997 John Wiley & Sons, Inc.