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Abstract of the Disclosure

A multilayer preform having at least a medium or intermediate gas barrier layer is prepared in advance by the injection molding of this preform in a predetermined shape that corresponds to the shape of a finished molded product. The body portion of this preform is heated to a blow moldable temperature. The heated preform is set in a primary blow mold (12), and is blow molded in the biaxial orientation to give a primary molded intermediate (5). The primary intermediate (5) is then heated to deform it forcibly by thermal shrinkage and thereby to give the secondary molded intermediate (6). The shrunken secondary intermediate (6) is set in a secondary blow mold (13), and is subjected to the secondary blow molding in the biaxial orientation to obtain a finished molded product, which is fixed thermally to give heat history to the PET resin. As a result, the PET resin layers are given a high degree of crystallization, which serves to complement the function of the gas barrier layer or layers in such a way that the container has high and effective gas barrier properties.

LAMINATED POLYESTER RESIN CONTAINER AND METHOD OF MOLDING SUCH A CONTAINER

Technical Field

This invention relates to a laminated polyester resin container and the method of molding such a container. More particularly, this invention relates to a laminated, biaxially oriented container of a thermoplastic polyester, including polyethylene terephthalate as the major component, which is laminated with a thin, clear film layer having high gas barrier properties; and to the method of molding such a container.

Background of the Invention

The polyethylene terephthalate resin (hereinafter referred to as PET resin) is a representative thermoplastic polyester resin known to have stable physical properties, antipollution property, an outstanding degree of transparency, and a high mechanical strength. Because of these favorable properties, the PET is used in large amounts in various fields of application as the biaxially oriented, blow-molded bottles and hollow containers in other shapes.

Especially because these PET containers contain no additive such as plasticizer or stabilizer and are hygienic and harmless to the human body, they attract attention, and are in wide use, as quite useful containers for medical use and for foods and drinks.

Although PET resin containers have so many quite excellent properties, even PET resin containers fall short of the gas barrier property against oxygen in the air, especially in cases where the foods, with which bottles are filled, require a high air-blocking property. Because of such low gas barrier properties, the food may lose its taste or food spoilage may result. Thus, an unsatisfactory point still remains.

One of the methods of solving these various problems is to mold a multilayer preform by laminating a layer of a different type of resin having a high air-blocking property on the outer surface of the polyethylene terephthalate resin layer and then blow molding this preform in the biaxial orientation to obtain a multilayer container.

However, the hollow containers thus obtained were not acceptable as commercial products because the crystallizing and/or clouding phenomenon occurs between the inner and outer layers when the preform is obtained by laminating different resins, one by one, by the conventional injection molding method. As a result, the blow

subjected to the secondary blow molding at a blow ratio smaller than used in the primary blow molding.

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