

ABSTRACT

MULTILAYER PREFORM AND CONTAINER WITH POLYETHYLENE
NAPHTHALATE (PEN), AND METHOD OF FORMING SAME

A multilayer preform and container, and method of forming the same, having at least one layer including polyethylene naphthalate (PEN) to provide enhanced oxygen barrier performance and thermal stability. The PEN layer may be a homopolymer, copolymer, or blend of PEN. In a first high-PEN embodiment, the exterior layer contains on the order of 80-100% PEN and 0-20% PET by total weight of the layer, and a core layer of a nonstrain hardenable polyester such as PETG. In a second low-PEN embodiment, the exterior layer includes a strain hardenable low-PEN copolymer or blend including on the order of 1-20% PEN and 80-99% PET, and the core layer is a strain-hardenable polyester such as a low-copolymer PET. In a third mid-range PEN embodiment, the exterior wall includes a substantially amorphous PEN copolymer or blend containing on the order of 20-80% PEN and 80-20% of another polyester such as PET, and a strain-hardened core layer of polyester such as a low-copolymer PET. To further enhance the oxygen barrier and thermal stability properties, the core layer may further include a copolymer or blend of PEN. Alternatively, PEN may be provided in an interior layer only.

(Figure 1)