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Abstract

With a type of capacitatively coupled plasma enhanced chemical vapor deposition (PECVD) technique, where two specially designed electrodes face to each other, the inner surface of hollow 3-dimensional objects such as poly(ethylene terephthalate) (PET) bottles can be coated with diamond-like carbon (DLC) thin film. DLC-coated PET bottles obtained with this technique have an enhanced gas barrier property, and therefore are applicable to industrial use such as for the extension of the shelf-life of contents sensitive to gas permeation. In this paper, the impact of power frequency ranging from 2.5 MHz from 13.56 MHz was studied in order to research the behavior of plasma inside PET bottles and resultant properties. Different power frequency turned