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Manufacture of Low-density, Fine-celled PBS Sheet Foams Blown with CO₂ Using an Annular Die

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This paper presents strategies for the manufacture of low-density and fine-celled biodegradable polyester foam sheets blown with CO₂ using an annular die. The basic approach is to prevent gas loss by completely dissolving gas, suppressing initial hump, promoting the number of cell layers across the foam thickness and optimizing processing temperature. Parametric experiments with annular dies have been performed to verify the feasibility of the proposed strategies. Low-density biodegradable polyester sheet foams with a volume expansion ratio of over 20 have been successfully achieved.