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Influence of Cooling-Water Temperature on Primary Film of Random Polypropylene in Double Bubble Tubular Process

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Stretchability, thickness uniformity and physical properties of random-polypropylene (r-PP) for double bubble tubular process is investigated under the various conditions changing cooling water temperature of primary film sampled after cooling water process (position A in Figure 1).

Conventionally the primary film is cooled by chilled water, but its influence of cooling water temperature on the stretchability and physical properties are not reported.

From our experimental results, it is found that crystallinity, superstructure and stretchability of primary film and stretched film (tertiary film, position C in Figure 1) on double bubble tubular process were influenced by cooling water temperature on primary film producing process, but the influence is adjustable by preset modification of pre-heating process. It is found that thickness uniformity of primary film or tertiary film on double bubble tubular process aren't influenced by cooling-water temperature on primary film producing process. Also the physical properties of stretched film are scarcely influenced by cooling water temperature. Considering to this investigation, it is not necessary for the double bubble tubular process to cool the primary film beyond excess.