Title (en)

PROCESS FOR THE PRODUCTION OF HIGH-STRENGTH POLYESTER YARN

Publication

EP 0089912 A3 19840328 (EN)

Application

EP 83630028 A 19830222

Priority

US 35077182 A 19820222

Abstract (en)

[origin: EP0089912A2] A process is described for the production of high strength polyester yarn wherein the conventional spin draw process has been modified. Yarn having a tenacity of at least 7.5 g/d and an elongation of at least 9% may be spun using this process at a speed of at least 1900 meters per minute. The yarn may be used in tire cord and other industrial applications. Figures 1 and 2 illustrate in schematic form the general process steps of spinning and drawing respectively. Polyester in the form of melt extrudable polyethylene terephthalate (PET) is charged to a hopper 12 which empties into a screw extruder 14 which thereupon mixes and heats the polyester to a temperature of about 287 DEG C. The now molten polyester is pressure fed by the extruder to a spinnarette 16 having a plurality of capillaries 17 through which the polyester is extruded. The number of capillaries can vary from about 50 to over 100. The extruded filaments are maintained at a temperature near the melting point of PET by a quench delay collar 20 often referred to simply as a quench collar. The filaments are then quenched by an inert gas or air stream 22 of ambient temperature before passing though a chute 24. The filaments 18 are now in a solid state. At the end of the chute 24 is a tray and kiss roll 26 which applies a conventional spin finish compound to the filaments. The filaments are then converged at point 28 into yarn 30, which is thereafter transported by a pretension godet 32, godets 34 and guide rolls 36 to winder 38, where the yarn is wound and may be either stored for future drawing or may be used as feed immediately to the drawing process in continuous fashion. The drawing process is illustrated in Figure 2. Yarn 30 from winder 38 passes between pretention rolls 42 and over guide roll 44 to top godet 46. The yarn then travels around draw pin 50 which localizes the draw at a point just below top godet 46. The amount of draw is governed by the relative rotational speeds of top godet 46 and a bottom godet 56, the latter rotating at a high speed than top godet 46. After passing over draw pin 50, the yarn 30 passes over a platen 52 before being wound on the bottom godet 56. Rolls 48 and 58 separate the wraps and keep them from rubbing against each other. Platen 52 is heated to a temperature of about 215 DEG C. to about 230 DEG C. From the bottom godet, the now drawn yarn passes through guide loops 60 and is wound onto a spool 62. The yarn is now ready for use at this point.

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CPC (source: EP)

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Citation (search report)

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