

Title (en)

Method for the preparation and regulation of thermobonding skin-core type polyolefin fibers and of nonwoven fabrics made therefrom

Title (de)

Verfahren zur Herstellung und Regelung von wärmeverbindbaren Kern-Mantel-Polyolefinfasern und daraus hergestellte Vliesstoffe

Title (fr)

Procédé de fabrication et régulation de fibres de polyoléfine âme-gaine thermosoudables et non-tissés fabriqués à partir de celles-ci

Publication

EP 0915192 A2 19990512 (EN)

Application

EP 98660111 A 19981030

Priority

FI 974169 A 19971107

Abstract (en)

The first object of the new innovation is both to improve and regulate the production conditions for skin-core type polyolefin fibers so that the product fibers have better physical characteristics than before. The second object of the innovation is to manufacture from the said fibers nonwoven-fabrics with strength and softness characteristics that are better than before. The method is especially adapted for large-scale productional melt spinning apparatuses having a short cooling system. One part of the method is aimed at controlled molten-state polymer oxidation and the other part at the control and modification of the molecular weight distribution of the said polymer, by adding thereto, if necessary, prior to the spinning nozzle, a very short chain polymer of the same quality. Characteristic features of the regulation method are in addition a low draw ratio, temperature and nozzle diameter at spinning, measurement of the dynamic deformation of the molten filament as a function of time and distance, in order to ensure the supply of oxygen to the filament in the correct place, quantity and temperature, carrying out the oxidation of the filament using an oxidation nozzle separate from the quenching nozzle as a targeted oxidation and, if necessary, using oxygen enriched air increase of the dispersion value of the molecular weight distribution of the product filament when the molecular weights decrease as the oxidation degree increases, decrease of the thermobonding temperature for the product fibers, regulation of the product fabric strengths and their relationship as a function of the degradation degree of the polymer.

IPC 1-7

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IPC 8 full level

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CPC (source: EP US)

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Cited by

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