Up-scaling of the filament spinning process

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DESIGN DRIVEN VALUE CHAINS IN THE WORLD OF CELLULOSE DWOC

Flow rates (ml/min) & their control (accuracy) Agitation of suspension (thermal, ultrasound, mechanical) Conductive/convective/radiation Air flow / pressure Drying time Drying temperatures



Spinneret diameter (mm) Air gap (mm) Spinneret geometry / type (cylindrical, conical, double conical, hyperbolical, etc.) Bath liquid Bath temperature Drawing ratio Drawing sequence Compression / twisting Roll / godet geometry, surface, configuration Plying Coating Post-treatment

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Visualisation: Maya Pillai, Aalto ARTS

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Coaxial CNF





Submerged roll - CNF





Inclined channel spinning









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- We have demonstrated spinning with • with several prototypes
- Technological readiness has been raised • and the transition to yet larger scales can be started
- Promising results justify further research •

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