

**ABSTRACT SYMPOSIUM NAME:** Functional Structures from Wood-Based Materials (Oral)

**ABSTRACT SYMPOSIUM PROGRAM AREA NAME:** CELL

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**PRESENTATION TYPE:** Oral Preferred : Consider for Sci-Mix

**TITLE:** Characterization of the quality of pulp fines and their effect on paper properties

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**ABSTRACT BODY:**

**Abstract:** It is widely accepted that pulp fines (particles passing a 200 mesh screen, i.e. a 76 µm hole diameter; SCAN-CM 66:05) largely affect pulp properties, sheet consolidation and the final paper properties. Especially fines produced during refining of pulp - so called secondary fines – showing more fibrillar character compared to primary fines already produced in the pulping process have a positive effect on strength properties of paper. Although this is common knowledge within the pulp and paper physics community, it is still largely unclear how and to what extent the character of these pulp fines influences pulp and paper properties. As microfibrillated celluloses (MFC), having similar properties as pulp fines, are starting to be applied in the paper industry these questions are becoming relevant also for this type of cellulosic materials.

In this study we apply established and novel methods for pulp fines characterization such as fines content, water retention value (WRV) of the given materials and an image analysis based method to characterize the structure of pulp fines. A suitable experimental setup to isolate the technological impact of pulp fines on paper properties is presented. Using this approach we are able to selectively evaluate the effect of aforementioned characteristics of pulp fines on paper properties. The results clearly show that categorization in primary and secondary fines is insufficient when it comes to the technological impact and that only an in-depth analysis of the fines present in a given pulp allows to understand the full picture regarding their effect on paper properties.

