

**ZMENY ROZMEROVÝCH CHARAKTERISTÍK VLÁKIEN
SULFÁTOVÝCH LISTNÁČOVÝCH BUNIČÍN V PROCESSE
RECYKLÁCIE**

**THE CHANGES OF DIMENSIONAL CHARACTERISTICS OF SULPHATE
HARDWOOD PULP FIBERS IN RECYCLING PROCESS**

Jarmila Geffertová – Zuzana Rázgová

ABSTRACT

The changes of dimensional parameters of pulp fibers in recycling process are associated with the changes of their utility properties that is presented in their lifetime.

The aim of this work was to follow the changes of dimensional characteristics of bleached sulphate hardwood pulp fibers in the process of 8-time recycling.

To analyse the fiber dimensional characteristics there was used Fiber Tester that evaluated at least 20 000 fibers within single measurement at the concentration of 0,1 g of fibers in 100 ml of suspension.

There were evaluated length, width and fiber shape, distribution of length and width, fines, local deformation of fibers and rate of vessels.

Key words: sulphate hardwood pulp fibers, recycling, dimensional characteristics.

SUMMARY

By repeated using of secondary fibers form paper, carton and cardboard it is necessary to take into consideration that paper production properties of fibers vary with increasing numbers of recycling in consequence of irreversible wearing. Depth of changes depends on the amount of fibers using cycles and on application method.

The changes of dimensional parameters of pulp fibers in recycling process are associated with the changes their utility properties that is presented in their lifetime.

In single recycling pulp slushed, refined and dried that resulted in the changes of dimensional characteristics of fibers. In the process of 8-time recycling fibers of sulphate hardwood pulp:

- average fiber length decreased by 9,7 %,
- average fiber width decreased by 4,8 %,
- fines till length 0,2 mm increased by 27,6 %,
- distribution of the fiber length decreased from 0,7 mm to 0,6 mm,
- distribution of the fiber width decreased from 20 μm to 18 μm ,
- average kink angle ranged from 47° to 50°,
- numbers of local deformations increased,
- number of kinks per fiber increased.

The changes of dimensional characteristics in the process of 8-time recycling have negative influence on strength properties in consequence of interfiber bonds decreasing.

Ing. Jarmila Geffertová, PhD.

Katedra chémie a chemických technológií, Drevárska fakulta Technickej univerzity vo Zvolene
jgeffert@vsld.tuzvo.sk

Ing. Zuzana Rázgová

MONDI BP SCP Ružomberok

zuzana.razgova@mondigroup.com