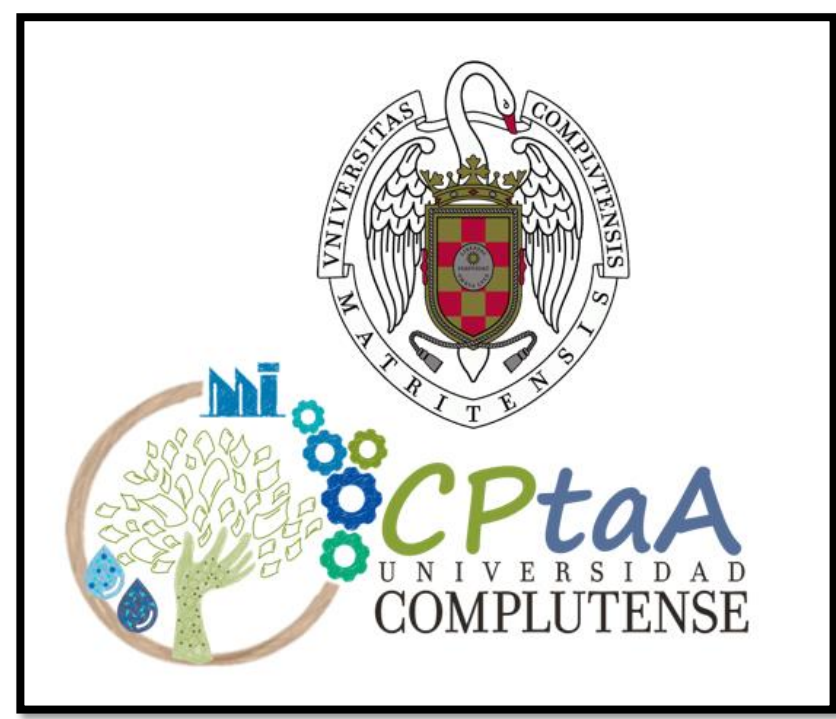


Enhancement of Hot-Pressed Papers by Fibrillated Cellulose

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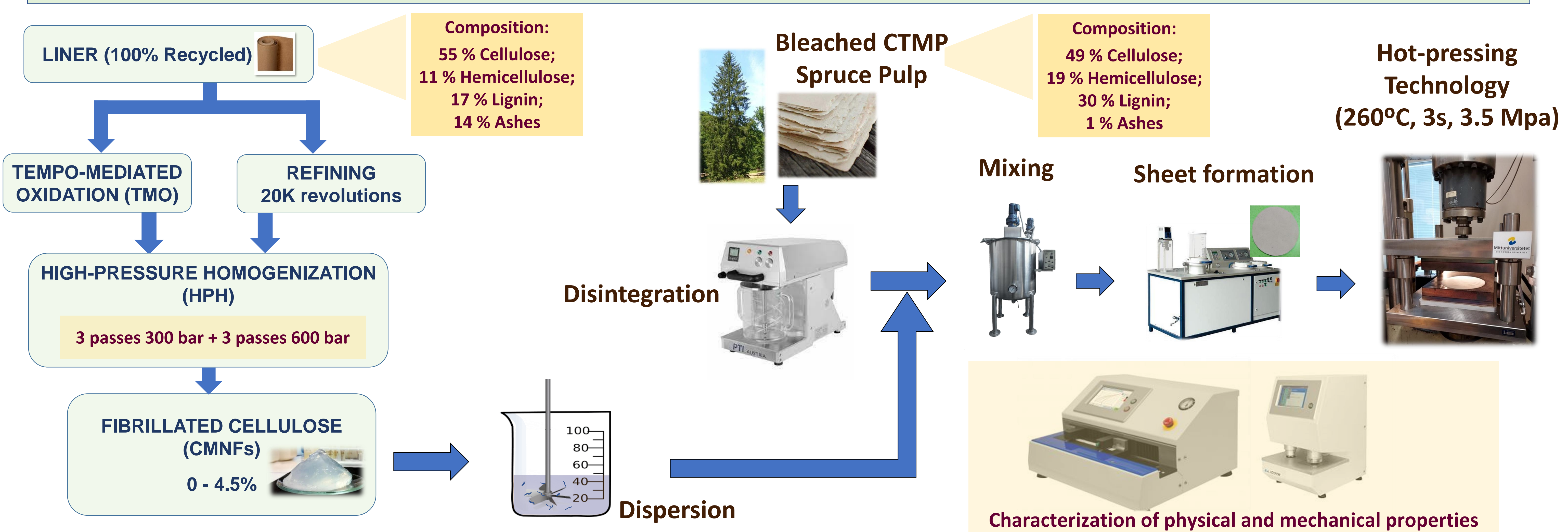
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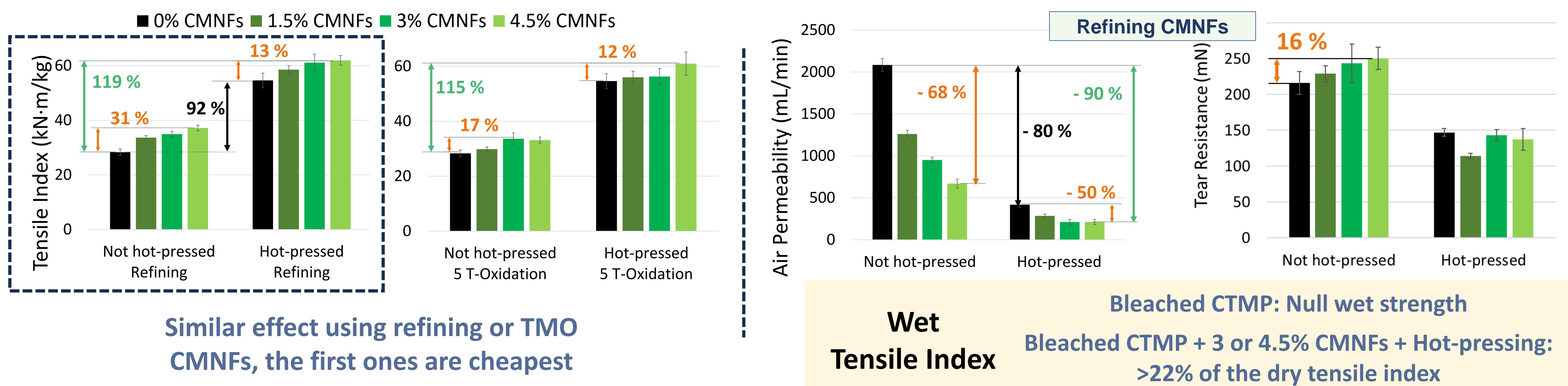


Society is demanding bio-based packaging materials with improved mechanical properties. High-yield pulps (>90%), such as bleached CTMPs, are excellent biomaterials for packaging products.

The synergistic effect to improve the mechanical properties of papers is evaluated by combining hot-pressing and fibrillated cellulose (CMNFs) as bulky additive. The effect of the CMNF pretreatment on paper properties is assessed.



CMNFs, combined with hot-pressing, enhance the mechanical properties of paper sheets



Conclusions

- The synergy between the use of CMNFs as bulk additive and hot-pressing has been identified. Enhanced products with a good strength and air barrier capacity are obtained even using low cost CMNFs (Refining).
- Dry strength improves by up to 119%, with individual improvements of 31% from CMNFs and 92% from hot-pressing.
- Air permeability decreases by up to 90% due to the increase in fiber flexibility, with individual effects of 68% from refining CMNFs and 80% from hot-pressing.
- Tear index increases with the addition of CMNFs, but this effect is lost after hot-pressing.
- The proposed treatment increases significantly wet strength, retaining more than 22% of the dry strength.

Acknowledgments

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