Accepted Manuscript

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PII: S0266-3538(17)32368-0

DOI: 10.1016/j.compscitech.2017.12.001

Reference: CSTE 6989

To appear in: *Composites Science and Technology*

Received Date: 28 September 2017

Revised Date: 30 November 2017

Accepted Date: 1 December 2017

Please cite this article as: Nissilä T, Karhula SS, Saarakkala S, Oksman K, Cellulose nanofiber aerogels impregnated with bio-based epoxy using vacuum infusion: Structure, orientation and mechanical properties, *Composites Science and Technology* (2018), doi: 10.1016/j.compscitech.2017.12.001.

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Abstract: Cellulose nanofiber aerogels were used as preforms that were impregnated with a bio-epoxy resin via a widely used vacuum infusion process. The simple and straightforward nanocomposite processing approach resulted in an almost 70 % improvement in the storage modulus of the polymer with only an 11.7 wt% cellulose nanofiber content. The nanofibers were well dispersed in the polymer matrix and the fiber structures were anisotropically aligned. The impregnation time of the aerogels was also significantly lower than that of the more commonly used nanopapers. It was thus shown that environmentally friendly and mechanically robust nanocomposites could be produced by impregnating cellulose nanofiber aerogels with a thermosetting resin using a processing approach that has potential to be scaled up for commercial use.

Keywords: A. Nano composites; B. Mechanical properties; C. Anisotropy, Aerogels