Supplementary material

Coffee rings from cellulose nanocrystals and visual designs from drying flux inhomogeneities

Konrad W. Klockars^a (0000-0003-1496-4348), Noora E. Yau^{a,b}, Blaise L. Tardy^{a,*} (0000-0002-7648-0376), Johanna Majoinen^a, Tero Kämäräinen^a (0000-0001-8333-4900), Kati Miettunen^a (0000-0002-6564-6262), Elisa Boutonnet^c, Maryam Borghei^a (0000-0003-1286-6648), Jaana Beidler^{b,d}, Orlando J. Rojas^{a,*} (0000-0003-4036-4020)

^{*}Authors for correspondence: Blaise L. Tardy, E-mail: blaise.tardy@aalto.fi . Tel+358 505 979 156 and Orlando J. Rojas, E-mail: orlando.rojas@aalto.fi, Tel.: +358 505 124 227

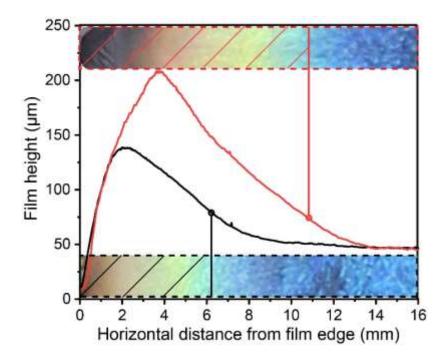


Figure S1 Height profile data identical to that shown in Figure 2a, measured from the film in Figure 2b. The diagonally dashed area corresponds to the color threshold generated by the color mask. The lengths of these areas indicate the coffee-ring widths for W_{corner} (red dashes) and W_{edge} (black dashes). The vertical lines indicate the thickness of the films at the position of the color mask cut-off.

^a Department of Bioproducts and Biosystems, School of Chemical Engineering, Aalto University, FI-00076 Aalto, Finland

^b Color and Material Design, Department of Design, Aalto University, FI-00076 Aalto, Finland

^c University Grenoble Alpes, CNRS, Grenoble INP, LGP2, F-38000 Grenoble, France

^d Converse Inc., 1 Lovejoy Wharf, Boston, MA 02114, U.S.A.

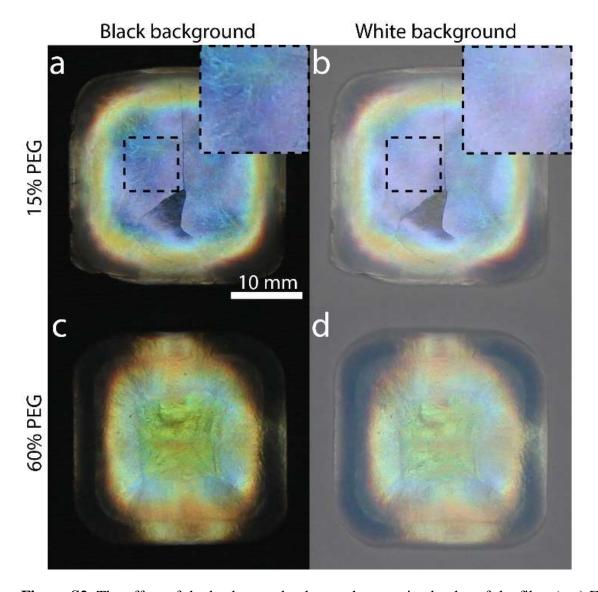


Figure S2. The effect of the background color on the perceived color of the film. (**a,c**) Freestanding CNC films on a black cotton fabric background. (**b, d**) The same free-standing CNC films placed on a white (CMYK white) paper surface. Identical light intensity was used to acquire the photo images. The images with white background appear grey due to the minimized intensity used for the images obtained using the black background. Insets in (**a-b**) emphasize a shift towards red color due to reflections from the underlying white background. The film in (**a-b**) contains 15% PEG while that in (**c-d**) contain 60% PEG. Both films are $30 \times 30 \text{ mm}^2$ in size. All photographs were taken under identical illumination conditions.