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Formulation of bio-based inks for direct printing on molded cellulose

Formulation d'encre biosourcées pour l'impression directe sur cellulose moulée

lgp²

Context / Objectives

Molded cellulose

- Sustainable material
- Alternative to single-use plastics
- 3D objects



Properties of the inks

- Rheological properties
- Printability
- Stability

Properties of the prints

Optical properties

- Low ΔE compared with the standard values
- Color strength
- Low gamut variation

Resistance/durability

- Lightfastness
- Rub-fastness

Funded by:



Methods

Raw materials selection

- Bio-based
- Binder, solvent(s), pigments

Pad printing

Formulation of inks

- Mixing (SpeedMixer)
- Grinding (Three-roll mill)

Testing

- Rheology
- Color



Manual Pad Printer

Inkjet

Formulation of inks

- Mixing
- Filtration

Testing

- Granulometry
- Rheology
- Surface Tension
- Color

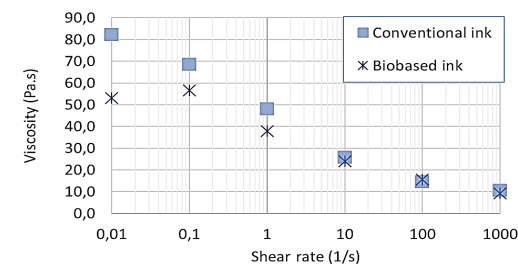


Dimatix Printer

Results

Rheology

- Shear-thinning behaviour
- Similar to conventional ink



4 Colors

- Black
- Primary colors : Blue (Indigo), Magenta (Red Madder), Yellow (Gaude)



Readable, functional prints

- 4 pt font size
- Flashable QR Code

