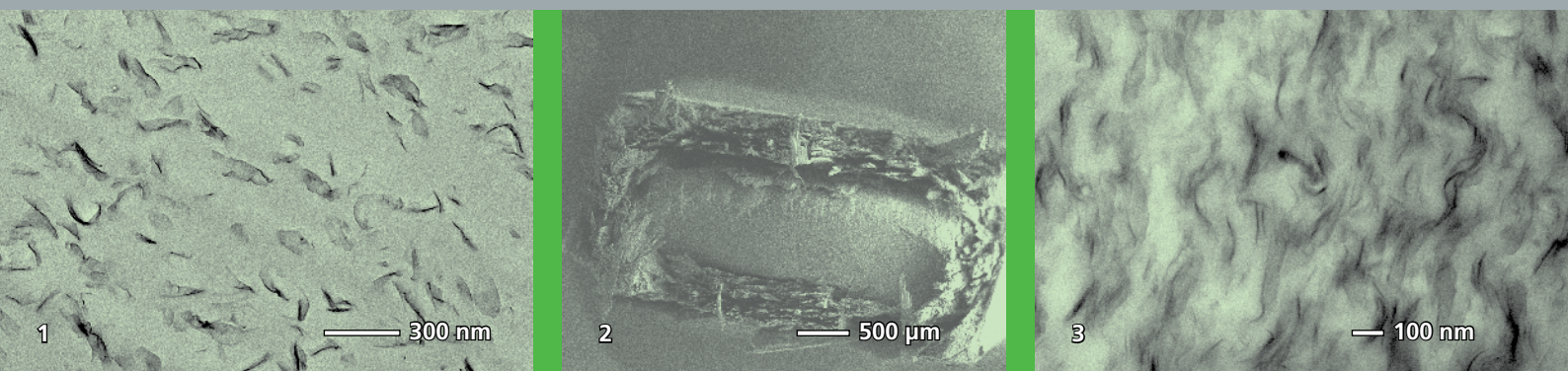




- 1 Dispersed OMMT layers in starch propionate acetate laurate.
- 2 Fracture morphology of MMT filled cellulose acetate.
- 3 Dispersed OMMT layers in PLA.

NANO-REINFORCEMENT OF BIOBASED THERMOPLASTICS

Nanofiller:

organo-modified layered silicates (OMMT)

Matrix materials:

starch esters, cellulose acetate, PLA

Results (starch mixed esters as example)

- effects are obtained with a few percent of OMMT
- improved mechanical properties compared to matrix material, in particular impact strength

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Methods

- **compounding**
 - kneader, twin-screw extruder
- **injection molding**
- **mechanical and thermomechanical characterization**
- **structure characterization**
 - X-ray analysis
 - electron microscopy (SEM, TEM)
 - nuclear magnetic resonance (liquid, solid state)

