Numerical modeling of the machinability of biocomposites: Finite element analysis

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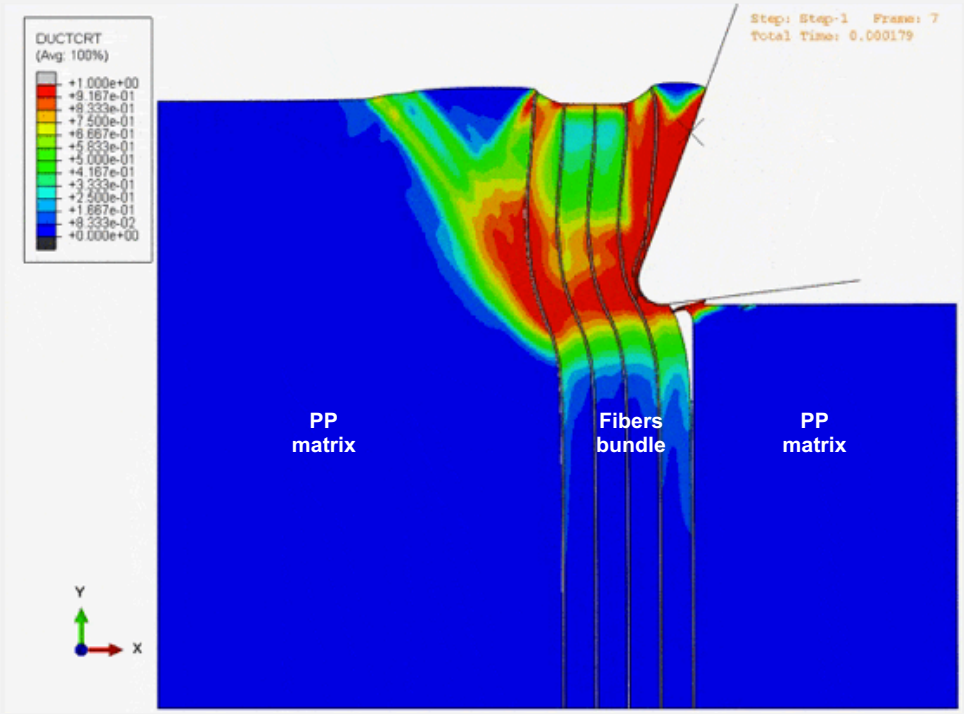
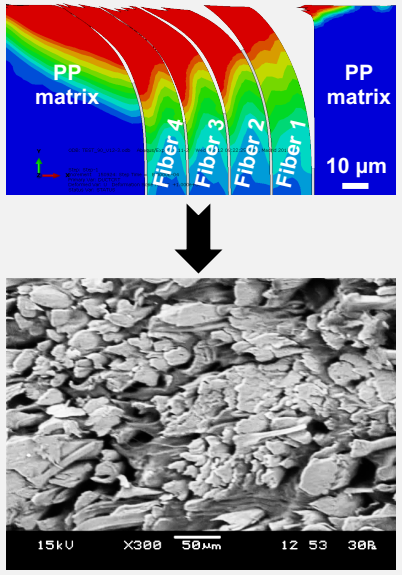
2D micromechanical model for cutting flax/PP



Experimental validation

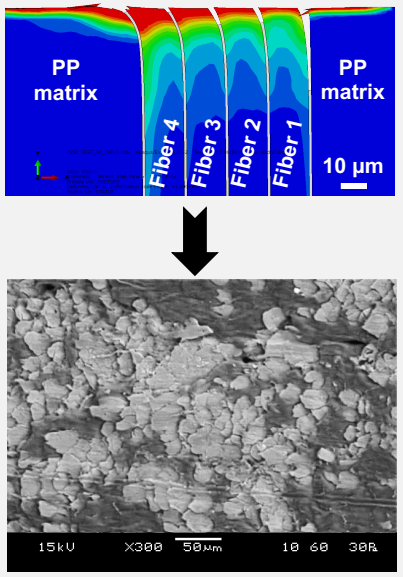
- ✓ Poor fiber shearing
- ✓ High fiber deformation
- ✓ High fiber damages
- ✓ High decohesion zones

V_c = 12 m/min



- ✓ Strong fiber shearing
- ✓ Low fiber deformation
- ✓ Low fiber damages
- ✓ High decohesion zones

V_c = 80 m/min



❑ Chegdani, F., El Mansori, M., Bukkapatnam, Reddy, JN. “Micromechanical modeling of the machining behavior of natural fiber-reinforced polymer composites”, International Journal of Advanced Manufacturing Technology, 105(1-4), 2019, pp.1549-1561