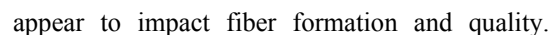


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higher polymer concentration and deposition rates lowered overall size of beads. Observed weak trends suggest that CBA deposition could be more reproducible and efficient if applied at higher PCL polymer concentrations. Resulting polymer solution viscosity was calculated at: 100 and 8000 η , and therefore required energy for the solution break up was same for both tested devices. Although the fiber formation efficacy is defined by polymer solution characteristics our results suggest that brush design is also very important. Material processing parameters such as: polymer-gas mixing mechanism, solution feed rate or nozzle design (solution break up)



Conclusions: Results from this study indicate that (1) CBA appeared to be more effective in breaking up the PCL/chloroform solution and delivering better quality fibers (smaller bead size) than CA at set pressures and concentrations (2) for both CA and CBA bead number was unaffected by pressure, polymer concentration, deposition rate or device type (3) solutions with lower polymer concentration broke up easier, formed less beads and smaller diameter fibers for both devices (4) higher pressures were more effective at breaking up PCL in concentrated polymer solutions to deliver smaller fibers in CBA than in CA. This study suggests that proper brush design has an effect on polymer fiber synthesis, efficacy and final fiber quality. **References:** [1] Tutak, W. et al. *Biomaterials* 34.10 (2013): 2389-2398. [2] Behrens, A. et al. *ACS Macro Letters* 3.3 (2014): 249-254. [3] Hoffman, K. et al. *Tissue Engineering Part C: Methods* (2014).