**Highlights**

- Ni-P coating was deposited by electroless process on 3D printed PLA and PLA-flex

- Etching conditions influence the deposition rate and composition of the Ni-P coating

- The roughness, contact angle and adhesion of the Ni-P coating were determined

- Optimal etching solution concentrations are from 100 to 200 g L-1 NaOH

- Best results were obtained at a temperature of 20-40oC of the etching solution