1. Results R1

The detection limit of XPS is generally 0.1 atomic percent, therefore a small increase in oxygen concentration on the SC film surface may not be detected above the random error in XPS elemental analysis [36,37]. Previous studies have also reported that partial surface hydrolysis by NaOH treatment of flat films of poly (lactic-co-glycolic acid) (PLGA) is not detectable via XPS since no new elements are introduced to the surface chemistry and only a small shift in oxygen to carbon ratio would be produced [38]. Similarly, detection of carboxylic acid groups using the toluidine blue-O assay is limited by the available surface area for carboxyl generation and detection where the linear region of carboxyl detection using toluidine blue-O is approximately 0.004 mmol/L to 0.125 mmol/L. Thus, on the flat 0.95 cm^2 SC film surface, carboxylic acid concentrations below approximately 0.0042 mmol/L/cm^2 would not be detected with the assay.