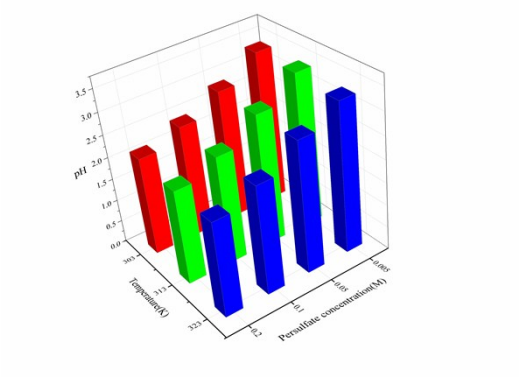
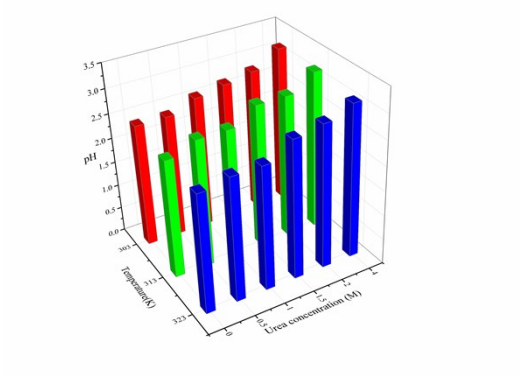
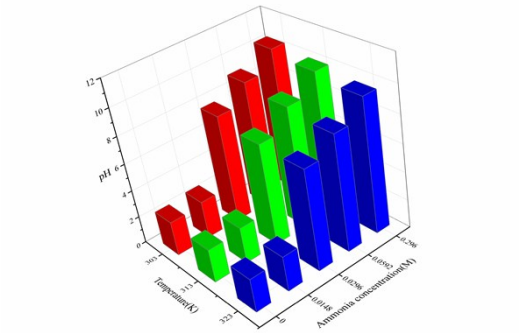
1 The dependence of pH on additive component, additive concentration and temperature



a



b



c

Fig. S1 The influence of components, proportion and temperature on the pH a): pH–ammonium persulfate; b) pH–0.1 M ammonium persulfate + urea; c) pH–0.1 M ammonium persulfate + ammonium hydroxide

The effects of additive component, additive concentration and temperature on solution pH were investigated and the results were showed in Figure S1. From Figure S1(a) ~ S1(c), the solution pH in different solution kept nearly constant with the solution temperature changed. From Figure S1(a), the solution pH decreased with the ammonium persulfate concentration increased. From Figure S1(b) and S1(c), with the different molar concentrations of urea and ammonium hydroxide added, the solution pH was enhanced to some extent. The more the additive concentration was the higher the solution pH was.

Besides, the pH of ammonium persulfate + urea aqueous solution enhanced a little while the pH of ammonium persulfate + ammonium hydroxide aqueous solution changed a lot. It was mainly ascribed to the strong alkalinity of ammonium hydroxide compared with urea. Without mentioned, all the concentration and temperature experiments were carried out at initial solution pH in Figure S1.