The use of starch in the food industry is very broad however native starches have certain characteristics that hinder several applications. In order to increase its industrial use starches are subjected to different modifications. The use of oxidizing agents such as hydrogen peroxide is of interest even if this chemical is a weak oxidant when compared with others but its advantage is that it decomposes into oxygen and water, being environmentally correct. Another example of starch modification is the acid-alcohol that results in different products if compared with aqueous acid-modification. In this paper, in order to promote the oxidation of cassava starch hydrogen peroxide in the presence of anhydrous methanol was employed. Sixteen experiments were performed to investigate the effects of pH, H$_2$O$_2$ concentration, and the catalysts FeSO$_4$·7H$_2$O or CuSO$_4$·5H$_2$O, considering the aqueous reaction as control. The experiment of oxidation in the presence of anhydrous methanol with the highest content of carboxyl, highest specific volume and altered pasting properties was that with the following conditions: 0.75% H$_2$O$_2$, pH 3.0 and FeSO$_4$·7H$_2$O as catalyst; in the case of oxidation in aqueous environment, the best conditions were: 1.5% H$_2$O$_2$, pH 5.0 and FeSO$_4$·7H$_2$O as catalyst. The methodology using anhydrous methanol presented good results, noting that half of the oxidizing agent in lower pH has an effect similar to that found in the aqueous reaction however further studies are under development in order to determine which are the dependent variables and thereby improve the characteristics of technological interest of modified starches.