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Author chason son wang
Author's Email Address No Public.
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Abstract
Pt/C is the main catalyst of the proton exchange membrane fuel cells. Most commercial Pt/C is costly, therefore, many researchers have synthesized home-made Pt/C to substitute commercial products and save the budget. Pt/C producing are primarily by colloid, micro emulsion, and impregnation methods. Producing Pt/C by impregnation method is simple and activated area for Pt/C is bigger. Impregnation method is often used. However, to produce Pt/C by impregnation method, the mass transfer condition is poor during the process and the chemical reaction is not very active. This study combines ultrasonic with impregnation method in order to improve this problem. The ultrasonic will raise the mass transfer rate, increase the dispersion condition of Pt on carbon (Vulcan XC-72) and also reduce Pt particle size.

From the experiments, some results were obtained. Producing Pt/C by combining ultrasonic with impregnation method will not only increases the dispersion of Pt on the carbon (Vulcan XC-72), but also reduces the size of Pt particle to 5 nm. The acidity of resolution will influence the dispersion of Pt on carbon, and particle size. The effects of reaction temperature and time were examined too, the results showed no effects were found when producing Pt/C by using the combination method of ultrasonic and impregnation. Therefore, the major advantages of adopted method in this study are to increase Pt dispersion on carbon and reduce Pt particle size.
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