

Effect of ambient environment on the reaction of CO₂ and CH₄ in a non-thermal plasma system

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Non-thermal plasma is a method attracted on the gas treatment because the method can be performed under low temperature, fast and high conversion of reactants by the electron impart reactions. A common non-thermal plasma is a dielectric barrier discharge system. The system has been proposed for CO₂ reforming of CH₄. However, the often dielectric barrier discharge reactor exposed in an air ambient. This condition can be lose energy and harmful to sustain dielectric materials such as quartz by the micro-arcing on the reactor surface. In this study, CO₂ reforming of CH₄ performed in two conditions for comparing, namely, the reactor immersed in an electrically insulating oil bath or total exposure in an air ambient. The effect of environmental conditions on the reaction will be presented in the oral presentation.