Global warming due to increased atmospheric CO_2 concentration resulting from fossil fuel combustion presents an important environmental issue today. Many efforts are devoted to capturing CO_2 in order to stabilize greenhouse gas levels in the atmosphere. Recently, several researches have demonstrated some synthesized ionic liquid-modified materials to have high capacities for CO_2 capture. In this case, the ionic liquids were modified on silica and its capability was investigated. Amino-imidazolium silica shows a better adsorption of carbon dioxide than that of normal silica.