

Size effect of Ni-supported SiO₂-catalysts covered by porous SiO₂ for dry reforming of methane

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Recently, greenhouse gas issue is being magnified as a new controversy. Greenhouse gas is composed of CO₂ and CH₄. So a demand for reduction of greenhouse gas is increased. Among various reforming reactions, dry reforming of methane (DRM) reaction has studied actively. In comparison with the noble metals (Rh, Ru), Ni catalysts show good activity for this reaction and have very cheap cost, but have poorer durability than noble metal catalyst. And Ni size effect is not yet established because of particle sintering and coke formation.

Here, we have synthesized Silica-coated Ni/SiO₂ catalyst with various size of Ni nanoparticle, showed high durability for DRM reaction performed at 1073K. The catalyst maintained its initial activity for 100hrs. And these catalysts show no particle sintering and coke formation.