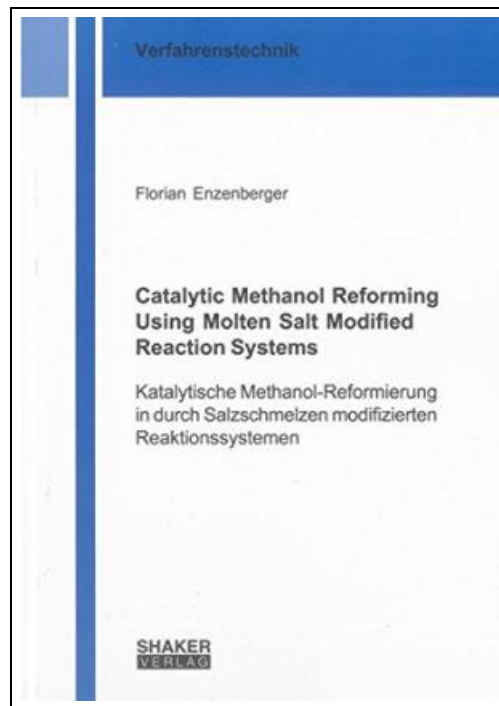


Catalytic Methanol Reforming Using Molten Salt Modified Reaction Systems



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Reviews

Very useful to all category of men and women. I actually have study and i also am certain that i am going to going to read through again once more down the road. Its been written in an exceptionally simple way and is particularly only soon after i finished reading this publication by which basically altered me, modify the way in my opinion.
(Dr. Sarai Fisher DDS)

CATALYTIC METHANOL REFORMING USING MOLTEN SALT MODIFIED REACTION SYSTEMS



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Shaker Verlag Okt 2012, 2012. Taschenbuch. Condition: Neu. Neuware - The aim of this work was the development of novel catalytic concepts based on molten salts for hydrogen production from methanol. As methanol represents a potential energy carrier for the convenient storage of hydrogen, the optimization of catalytic systems for hydrogen generation from methanol is of particular interest. In the first part, the influence of alkali acetates on liquid phase reforming of methanol and water was investigated in a continuous stirred tank reactor. Good activities and a low content of by-products methane and carbon monoxide were achieved using a heterogeneous platinum/palladium catalyst. However, it was assumed that the kinetics is affected by the vapor liquid equilibrium of methanol and water. Therefore, the reaction system used for liquid phase reforming was considered unsuitable for the characterization and development of catalysts. In a second approach, the concept of molten salt modified catalysis was transferred from liquid phase reforming to gas phase steam reforming of methanol using a fixed-bed reactor. Heterogeneous Pt and Pt/Pd catalysts were coated by a thin film of alkali acetate salt according to the concept of Solid Catalyst with Ionic Liquid Layer (SCILL). Thereby the activity could be increased by a factor of up to 6 compared to the uncoated catalyst. The salt showed also a tremendous impact on the CO₂ selectivity. The stability of the catalyst was demonstrated by a long-term experiment for about 500 hours time on stream. Upon coating with a less hygroscopic and less basic salt, the increase in activity and selectivity was less pronounced. In a first interpretation the positive effect of the molten salt coating was attributed to an increased substrate concentration at the active center as well as a promotion of the water gas shift reaction by a basic environment. Additionally, there...



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