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고체산 촉매에 의한 XYLOSE로부터 FURFURAL의 탈수반응

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Dehydration of D-xylose in the presence of solid acid catalysts

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key words : xylose, furfural, dehydration, solid acid catalysis, water solvent

Abstract : Dehydration of xylose into furfural was performed in a batch mode in the presence of Beta zeolite and H-form faujasites as solid acid catalysts, using water as a pertinent solvent for a further development at pilot plant scale. In water as solvent only, the xylose conversion and selectivity to furfural were found to depend on Si/Al raio as acidity, reaction temperature and time. Beta zeolite with a Si/Al ratio of 5.2 was found to be more selective for the formation of furfural from xylose than H-Y faujasite with a Si/Al of 11. The better selectivity of beta zeolite, as compared to H-Y faujasite, results from the higher acidity of the catalyst. These reactions were achieved after 4~8h of reaction in water solvent under batch operation at 120℃ ~200℃.

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