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(54) Title: CATALYST SELECTIVATION

(57) Abstract: It has been discovered that catalysts may be modified by depositing an agent derivative from an agent such as an organometallic compound upon them. Such a modification gives a catalyst useful in increased selectivity to para-substituted alkyl benzenes, such as para-xylene (PX), through reacting an aromatic compound such as toluene and/or benzene with a methylating agent from hydrogen and carbon monoxide and/or carbon dioxide and/or methanol. Using these selectivated catalysts, para-substituted alkyl benzenes can be recovered in a selectivity of 80 % or greater, significantly better than the equilibrium concentration of 24 %.

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