ABSTRACT

METHOD OF MODIFYING ZEOLITE CATALYST

A method of modifying a zeolite catalyst to increase para-xylene selectivity of the zeolite catalyst in toluene methylation reactions is provided. The method includes forming a slurry of a ZSM-5-type zeolite and an aqueous solution of a phosphorus compound. Water is removed from the slurry to provide a non-steamed, phosphorus treated ZSM-5 zeolite catalyst without deposition of phosphorus onto the catalyst by organophosphorus vapor deposition. The resulting non-steamed, phosphorus treated ZSM-5 zeolite catalyst has a pore volume of from 0.2 ml/g or less and provides greater than 80% para-xylene selectivity of mixed xylenes when used in toluene methylation.

Figure 5