

ABSTRACT

DUAL CATALYST SYSTEM FOR PROPYLENE PRODUCTION

Embodiments of processes for producing propylene utilize a dual catalyst system comprising a mesoporous silica catalyst impregnated with metal oxide and a mordenite framework inverted (MFI) structured silica catalyst downstream of the mesoporous silica catalyst, where the mesoporous silica catalyst includes a pore size distribution of at least 2.5 nm to 40 nm and a total pore volume of at least 0.600 cm³/g, and the MFI structured silica catalyst has a total acidity of 0.001 mmol/g to 0.1 mmol/g. The propylene is produced from the butene stream via metathesis by contacting the mesoporous silica catalyst and subsequent cracking by contacting the MFI structured silica catalyst.

Fig. 1