

ABSTRACT

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This invention provides a method for preparing a polyoxymethylene dimethyl ether carbonyl compound and/or methyl methoxyacetate as intermediates for producing ethylene glycol, which comprises passing a raw material: polyoxymethylene dimethyl ether or methylal together with carbon monoxide and hydrogen gas through a reactor carrying an acidic molecular sieve catalyst, and performing a reaction to prepare a corresponding product under an appropriate condition where no other solvent is added, wherein the process of the reaction is a gas-liquid-solid three-phase reaction. In the method of this invention, the raw material of polyoxymethylene dimethyl ether or methylal has a high conversion rate, each product has a high selectivity, the catalyst has a long service life, additional solvents are not required to be used, and reaction conditions are relatively mild. The method of this invention enables continuous production and has the potential for industrial application. Also, ethylene glycol may be produced by subjecting the resultant product to hydrolysis after hydrogenation or hydrogenation after hydrolysis.

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