

SELECTIVE HYDROGENOLYSIS OF GLYCEROL TO PROPYLENE GLYCOL BY USING CU/CR/ZN/ZR MIXED METAL OXIDES CATALYST

Opportunity

This invention is a method to convert a sugar alcohol, glycerol, to propylene glycol in high yield.

Our Solution

- Improved propylene glycol yield
- Reduced yield of undesirable products
- Improved reaction at a moderate temperature and pressure

Publications

Lekha Charan Meher, Rajesh Gopinath, S. N. Naik, and Ajay K. Dalai Catalytic Hydrogenolysis of glycerol to Propylene Glycol over Mixed Oxides Derived from a Hydrotalcite-Type Precursor *Industrial & Engineering Chemistry Research* **2009** 48 (4), 1840-1846

Patent status

PCT application # PCT/CA2014/050183 was filed on March 6, 2014.

Background

The increased production of biodiesel has resulted in a concomitant increased availability of glycerol, a byproduct of the production process.

As a result, the price of glycerol has experienced a sharp downward spiral. Challenges have confronted biodiesel producers who have pursued glycerol conversion to the propylene glycol, a more desirable and higher priced chemical that is used in a wide range of industrial and consumer products.

Conversion of glycerol in a cost effective manner is encumbered by low yield and the presence of undesirable contaminants. In this invention copper, chromium and zinc mixed oxide catalysts supported on zirconia are used at a moderate temperature and pressure to selectively produce propylene glycol at enhanced yield.

The process reduces the yield of undesirable products such as ethylene glycol, lactic acid and one-carbon molecules.

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