

Efficient conversion of glycerol into high value-added chemicals by partial oxidation

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Abstract

Glycerol can be effectively converted to glyceric acid, a high value-added pharmaceutical raw material, through its partial oxidation over an Au catalyst under strongly basic conditions. The factors important for the highly selective production of glyceric acid were investigated experimentally. It was clarified that NaOH was involved in the glycerol activation step to a glycerol alkoxide intermediate in the liquid phase, then glyceric acid was formed by OOH species derived from O₂ on an Au catalyst in the partial oxidation step. We have newly discovered the concerted effect of NaOH and O₂ in different reaction steps.

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