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APPENDIX

Product Analysis

The chemical products of CuZnO/MgO (IWI), CuZnO/MgO (COP), CuZnO (COP) catalysts on 3 h TOS were analyzed by gas chromatograph equipped with an FID detector (Agilent 6890) to identify peaks of compositions of feedstocks, intermediates, and products. A chromatogram of glycerol dehydroxylation to propylene glycol analyzed is shown in figure A1-A3 respectively.

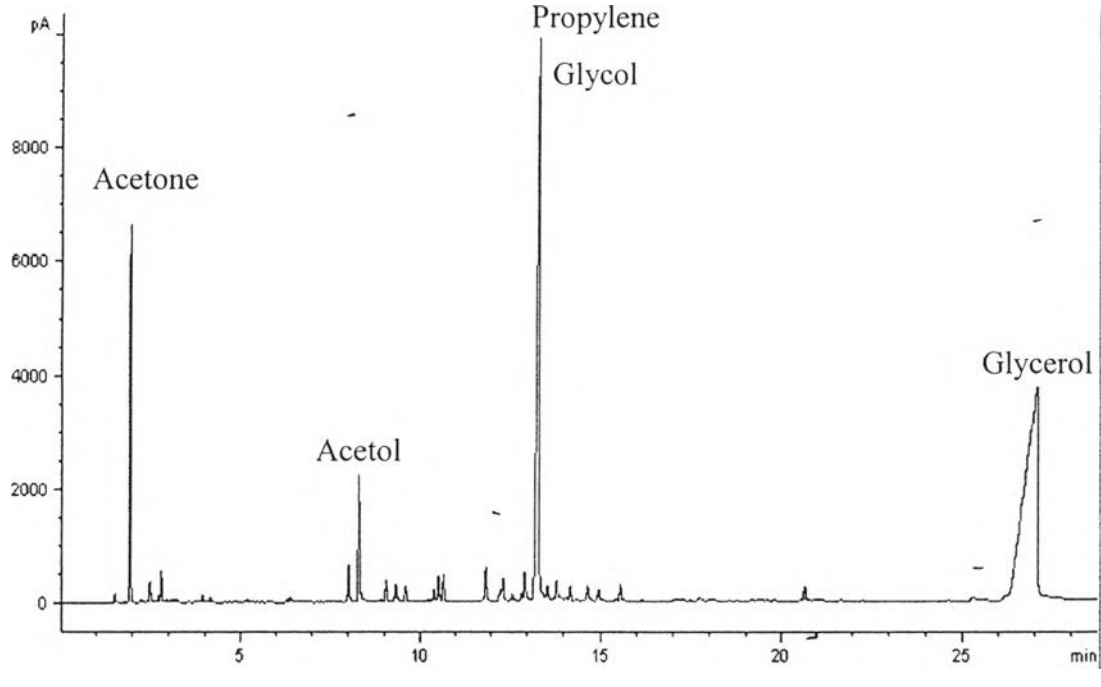

Figure A1 Chromatogram of CuZnO/MgO (IWI) on 3 h TOS. analyzed by a GC/FID (Agilent GC 6890)

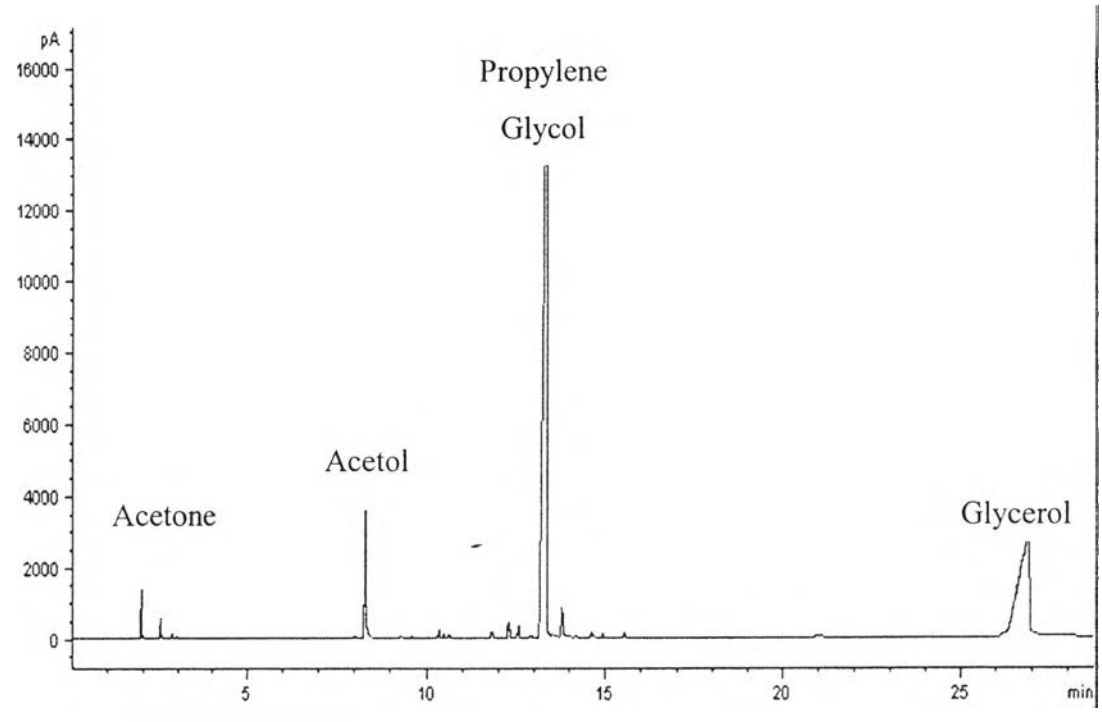

Figure A2 Chromatogram of CuZnO/MgO (COP) on 3 h TOS. analyzed by a GC/FID (Agilent GC 6890)

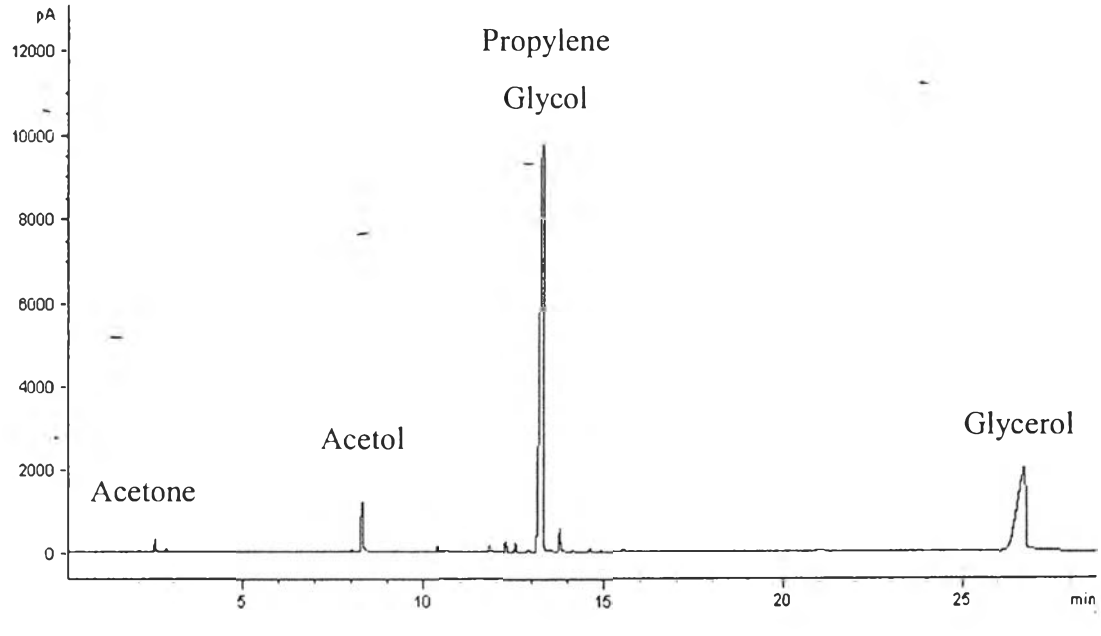

Figure A3 Chromatogram of CuZnO (COP) on 3 h TOS. analyzed by a GC/FID (Agilent GC 6890)

The chemical standards were analysed by GC/FID detector (Agilent 6890) to identify peaks of compositions of feedstocks, intermediates, and products. The retention time and response factor for the standards are shown in Table A2.

Table A1 Retention times and response factors of standard chemicals analyzed by a GC/FID (Agilent GC 6890)

Standard chemical	Retention time (min)	Response factor
Hexane	1.43	1.00
Acetone	2.50	0.35
Methanol	3.78	0.13
2-propanol	4.57	0.37
Ethanol	4.74	0.26
1-propanol	7.65	0.42
Acetol	13.30	0.54
Propylene glycol	18.07	0.27
Ethylene glycol	18.60	0.16
Glycerol	27.73	0.25

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Presentations:

1. Paengsri, S.; Tamiyakul, S; Jongpatiwut, S. and Rirksomboon, T. (2014, March 12) Improved Alkali Resistance by CuZnO/MgO catalyst for Dehydroxylation of Glycerol to Propylene Glycol. Poster presented at Netherlands Catalytic and Chemistry Conference 2014, Noordwijkerhoust, Netherlands.
2. Paengsri, S.; Tamiyakul, S; Jongpatiwut, S. and Rirksomboon, T. (2014, April 22) Catalytic Dehydroxylation of Glycerol to Propylene Glycol over Copper/Zinc Oxide Magnesium Oxide Catalysts: Effect of Catalyst Preparations. Proceedings of the 4th Research Symposium on Petrochemicals and Materials Technology and the 19th PPC Symposium on Petroleum, Petrochemicals, and Polymers, Bangkok, Thailand.