

### Direct methanol synthesis from water soluble cellulose by metallic catalyst and hydrogen peroxide

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Depolymerization and liquid phase radical oxidation was conducted with water soluble cellulose such as methyl cellulose(MC), carboxy methyl cellulose(CMC), hydroxypropyl methyl cellulose(HPMC), hydroxyethyl cellulose(HEC) with the hydrogen peroxide and iron ions in the rotary evaporator by controlling the pressure and temperature. From the each compounds many volatile carbons, such as formed and major product is methanol through the GC-MS analysis. Among the water soluble cellulose, the highest yield of methanol show in MC reaction by analysed internal standard quantitative method. The reactions of MC were performed with concentration in the range of 1% to 15% dissolved in water added hydrogen peroxide and iron sulfate(III) by weight, reaction temperature varied from 90 to 140°C step by increased 10°C, reaction pressure was varied 300-500 mbar, and reaction time was 1 to 4 hour. The highest methanol yield was earned at the 90°C with 350 mg/L while the portion of methanol was increased with up to 140°C among the other volatile compounds. The concentration dependency for methanol forming increased from 1wt%-6wt%.