

## Solvothermal synthesis of Co and Ni particles in supercritical methanol

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Alcohols play crucial roles in the formation of metals not only as a reaction medium, but also as a reducing agent. In this study, Co and Ni particles were synthesized in supercritical methanol. The formation of both metal particles were successfully achieved within 15 min. In the case of Ni, it was confirmed that starting materials ( $\text{Ni(OH)}_2$  and  $\text{Ni(CH}_3\text{COO)}_2$ ) affects the crystalline structures of Ni, such as fcc and hpc. The effect of the reaction temperature (200 ~ 400 °C) was observed, and the reduction mechanism of metal ion was investigated by varying the reaction time (0.5 ~ 15 min). The results suggested that metal alkoxides formed by alcoholysis converted to metal oxides, and then to metal particles. The products were characterized by XRD, FT-IR, SEM and TEM.