# Slurry phase Fischer-Tropsch synthesis on Co/P-$Al_2O_3$: effect of calcination temperature of support

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The effect of calcination temperatures from 300 to 700 ℃ of the phosphorus-modified $Al_2O_3$ support (2wt.%P/$Al_2O_3$ denoted as P-$Al_2O_3$) has been evaluated by using cobalt-based Fischer-Trosch catalyst with the composition of 20wt.%Co on P-$Al_2O_3$. The catalyst was prepared by stepwise impregnation and tested in continuous stirred tank reactor (CSTR, I.D = 800 mm) under the following reaction conditions; T = 230 ℃, SV = 2000 L/kgcat/h and P = 20 bar. The different calcination temperature influenced the physicochemical properties such as surface area, pore size, particle size of cobalt and reducibility. The proper calcination temperature of P-$Al_2O_3$ is found to be around 500 ℃ to obtain high catalytic performance.