

ABSTRACT

A method comprises continuously supplying an alcohol to a pressurized reaction system, pressurizing carbon monoxide with a compressor 8 attached to a first feed line 22, for continuously supplying carbon monoxide to the reaction system via a second feed line 23 with a reference flow rate F , and converging excess carbon monoxide in the reaction system in the first feed line via a branched circulation line 24 for allowing to react alcohol with carbon monoxide. The reference flow rate F in the second feed line 23 is a total rate of a reference consumption flow rate F_{cs} in the reaction and a flow rate F_1 in excess rate over a fluctuation consumption flow rate ΔF_{cv} in the reaction system ($F = F_{cs} + F_1$, $F_1 > \Delta F_{cv}$). According to the pressure fluctuation of the gaseous phase in the reaction system, the flow rate in the circulation line 24 is controlled to a flow rate $F_r = F_1 - \Delta F_{cv}$ and the feed flow rate in the first feed line 22 is controlled to a flow rate $F_{su} = F_{cs} + \Delta F_{cv}$, for compensating a consumption rate variation in the reaction system with the feed flow rate of carbon monoxide. This ensures discharge inhibition of the gaseous reactant in a liquid phase pressurized reaction system (such as carbonylation reaction system) and effective utilization of the reactant for the reaction.