

## Abstract Details

**Title:** Design and Control of a CSTR for Production of Ethyl Acetate

**Authors:** Salma Omer Alhag Ali, Maab Salah Mohamed and Gurashi Adalla Gasmelseed

**Abstract:** Ethyl acetate is produced by the reaction of ethanol and acetic acid in presence of sulphuric acid as a catalyst. The reaction is exothermic and the temperature of the reaction should be controlled at the desired value for optimum conditions. The level of the reactants and composition of the product should also be tightly controlled. A cascade control is used to control both the reaction and the jacket temperatures, so the rise in temperature will not affect the quality of the product. A control strategy was developed, the transfer functions were specified and use for simulation for each loop and selection of a controller that gives the best performance.

**Keywords:** Control Strategy, Design and Simulation, CSTR, Tuning, Control Loop, Cascade Control, Transfer functions.