

# FOULING RATES OF MODEL CARBOHYDRATE MIXTURES AND THEIR INTERACTION EFFECTS

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## ABSTRACT

*Fouling resistances of carbohydrate mixtures were measured using an annular probe at bulk fluid temperatures of 75°C and initial probe surface temperature of 120°C. Induction period, maximum fouling resistance and mean fouling rates were determined. Short chain carbohydrates, corn syrup solids (CSS) and glucose (GLU) showed no fouling, whereas starch (STA), a long glucose polymer, showed marked fouling. Added CSS and GLU to pure starch mixture decreased the mean fouling rate and maximum fouling resistance. Between CSS and GLU, STA fouling rates were mitigated significantly with the effect of added GLU. Induction period of pure mixtures of either GLU or CSS were longer than the test period (5 h). Pure starch mixture had no induction period. Maximum fouling resistance was higher for mixtures with higher concentration of longer polymers. Increasing order of maximum fouling resistance: 1% starch > 1% starch + 6% corn syrup solids > 1% starch + 3% corn syrup solids + 3% glucose > 1% starch + 6% glucose.*