

AN ABSTRACT OF A THESIS

EFFECT OF DISSOLVED GAS EVOLUTION ON HEAT
TRANSFER IN A PIPE

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Master of Science in Chemical Engineering

The effect of dissolved gas evolution on heat transfer to a liquid flowing in a pipe was investigated. The test liquid was methanol containing dissolved carbon dioxide. Experiments were conducted at Reynolds numbers of 530 and 1060 for varying dissolved gas concentrations for upward flow in a 3/4 inch diameter glass pipe. The rate of heat transfer for a given temperature difference was found to be affected by both the test liquid flow rate and the dissolved gas concentration. The data were correlated to the equation $Q = C\Delta T_{i-t}^n$ with $C = 1339$ and $n = 0.261$ when $Re = 530$ and $C = 2063$ and $n = 0.332$ when $Re = 1060$. ΔT_{i-t} is the temperature difference between the inside wall of the pipe and the transition point.

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CERTIFICATE OF APPROVAL OF THESIS

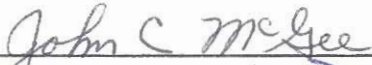
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