

## SUMMARY

Mass transfer between a liquid film and fully developed laminar air flowing in a 0.5-inch inside diameter vertical tube was studied. Results were obtained on rates of vaporization of isopropyl alcohol and methyl alcohol as they flowed countercurrently to the air flowing in a wetted-wall column. Tests were made at room temperature and atmospheric pressure.

The ratio of partial pressure differences of the vapor between the outlet and inlet of the test pipe, and the Graetz numbers were calculated from the measured rates of air flow and from the amount of liquid evaporated. These results were compared with Gilliland and Sherwood's study [1934] and Boelter's note [1943] which found the measured transfer rates to be more closely represented by a theoretical solution assuming rod-like flow (constant velocity across the diameter of the pipe) than by a solution obtained assuming a parabolic velocity profile.

The results obtained during this experiment were found to be in general agreement with the theoretical equation for parabolic velocity profile. The liquid flow rate was found to have an effect on the results.

RATES OF VAPORIZATION INTO LAMINAR AIR STREAMS

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In Partial Fulfillment  
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MASTER OF SCIENCE  
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by  
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