

Application of convective mass transfer correlations

- In a humidification apparatus, water flows in a thin film down the outside of a vertical, circular cylinder. Dry air at 100 °F and 1 atm flows at right angle to the 3-in diameter, 4-ft cylinder at a velocity of 15 ft/s. the liquid temperature is 60 °F. Calculate the rate at which liquid must be supplied to the top of the cylinder if the entire surface of the cylinder is to be used for the evaporation process.
- Assume the properties at average temperature of $(100+60)/2=80$ °F, $D_{AB}=1.016$ ft²/h.

