

# Calculation of the overall heat transfer coefficient in a radial system with fouling factors

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Determine the overall heat transfer coefficient,  $U_o$ , based on the outer surface of a brass tube with  $D_i = 2.5\text{cm}$  and  $D_o = 3.34\text{cm}$  [ $k = 110\frac{\text{W}}{\text{mK}}$ ] for the following conditions: The inside and outside convective heat transfer coefficients are, respectively,  $h_i = 1200\frac{\text{W}}{\text{m}^2\text{K}}$  and  $h_o = 2000\frac{\text{W}}{\text{m}^2\text{K}}$ , and the fouling factors for the inside and outside surfaces are  $F_i = F_o = 0.00018\frac{\text{m}^2\text{K}}{\text{W}}$ .