

Chapter4_example3

The value of diffusivity is 2.55×10^{-6} sq.m/s

The Biot number is 5.76,

Since value of Biot number is greater than 0.1, Lumped capacity approach would not give accurate results, so figure 4.6 is to be used

The required time is 9022 s = 2.5 hr

The chosen values of x/L are:

0. 0.2 0.4 0.6 0.8 0.9 1.

Values for dimensionless temperature for corresponding values of x/L :

1. 0.97 0.86 0.68 0.48 0.36 0.24

the temperature profile with distance is

x/L	0.00	0.20	0.40	0.60	0.80	0.90	1.00
$(T-T_{\text{inf}})/T_i-T_{\text{inf}}$	1.00	0.97	0.86	0.68	0.48	0.36	0.24
x, cm	0.0	4.8	9.6	14.4	19.2	21.6	24.0
$T, \text{degree celsius}$	150	163	213	294	384	438	492