CHAPTER 7
SUMMARY AND CONCLUSIONS

From the analytical and experimental investigations reported in the foregoing, the following major conclusions are drawn.

(1) The local heat transfer coefficients around a horizontal tube are found to significantly vary with circumferential positions and are influenced by fluidizing velocity, bed temperature, particle size and tube size.

(2) The results obtained in the analysis are in close agreement with the experimental values in the fluidized and stagnation regions. These results can be used for estimating the local heat transfer rates in these regions.

(3) In the defluidized region, the deviation of analytical values with experimental values is much wider. This is due to the restrictive assumptions made in the analysis. As detailed information about the bed behaviour in this region is not available in the literature, this analysis provides a reasonably good approximation of the heat transfer in this region.
(4) At the bed temperatures considered, radiation contributes between 20 to 40 percent of the total heat transfer.