

CHAPTER - I

SYNOPSIS

The results of experimental investigations, on the various aspects of the settling of flocculent suspensions, are presented in this thesis. Besides the findings, the thesis includes a brief review of the relevant literature and a detailed discussion on the experimental results.

Theoretical considerations as presented, show the inter-relations between various factors involved and (experimental verification thereof) contain the forms of suggested equations for the different aspects of the investigation.

The following aspects, influencing the settling properties of flocculent suspensions, have been included in the present investigation :

- i) Quiescent settling with low floc concentration by pipette sampling method.
- ii) Quiescent settling, with high floc concentration, for the settling velocity of the interface for various metallic flocs.
- iii) Influence of the concentration of the interacting chemicals on the nature of the floc formed.



- iv) Falling-rate settling of the interface, for the floc bed consolidation.
- v) Up-flow tube studies on floc concentration, overflow rate, temperature and depth of the suspended floc bed.
- vi) Up-flow tube studies, on removal of suspended flocs in influent, in its passage through a floc blanket.
- vii) Tracer studies in up-flow tube, on velocity of flow of the influent through the pores of a floc blanket.

Apart from these the thesis contains the detailed experimental procedure for the standardisation of a laboratory set-up for testing a floc suspension.

Data obtained, have been presented, both numerically and graphically. A summary of the conclusions, arrived at, has been included in the thesis.

The phenomenon of settling of flocculent suspension is extremely complex and so far has eluded a satisfactory theoretical approach. The present investigation is an attempt to obtain an insight into the process experimentally.