CHAPTER 3

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A detailed survey of the reclamation has indicated that the information available on the reclamation of sodium silicate / CO₂ molding sand is limited. A committee was initially appointed by British Technical Council to deal with “Reclamation of Sands”. This working group P7 also agreed that there were insufficient information available regarding sand reclamation on silicate bonded sands.

However, CO₂ sodium silicate process is most widely used in the foundries because of its simplicity, quality and safety. Therefore this work concentrates on the reclamation of CO₂ sands considering all the above facts.

From the literature survey it is clear that due to the inorganic nature of the binder, CO₂ sand reclamation by thermal method was difficult. Limited amount of literatures of information are available in thermal. The effective reclamation of sodium silicate bonded sands and their reuse is more difficult to achieve than for resin bonded sands by thermal method. To provide a solution to this serious problem, this investigation was carried out with the following specific objectives for the reclamation of sodium silicate / CO₂ molding sand:

1. Design and fabrication of an experimental thermo-pneumatic reclamation cell for reclamation studies and generate useful data in the design of large scale industrial thermo-pneumatic reclamation plants.
2. Determination of the feasibility of reclaiming sodium silicate / CO₂ sand using thermo-pneumatic reclamation.

3. Identification of the parameters in the thermo-pneumatic reclamation cell which affect the quality of reclaimed sand in thermo-pneumatic reclamation.

4. Evaluation of the properties of sand before and after reclamation.

Studies were carried out on the recycling and reuse of CO₂ molding sand and investigation regarding the reusable quality of sand has been carried out with the following factors in view:

1. Reclaimed sand should be processed to have almost the same quality as that of the new sand.

2. The process must be pollution free as much as possible.

3. The process must be quite economical when compared to new sand, with regard to transport, storage, disposal, loading and unloading costs.