

8.1 Overall Conclusions

Based on the present studies following fruitful conclusions may be drawn as follows:

1. The characteristics of fluidize bed combustion (FBC) bottom ash materials is found to be a suitable material for using as bed filter in ash dyke.
2. The both type (FBC and PCC) of bottom ash have been found to be a suitable material for making lightweight building bricks using geopolymer techniques.
3. The iron ore slime and pulverized coal combustion (PCC) bottom ash mixture has been found to be more suitable for making insulation bricks compared to FBC bottom ash.
4. The limited experiments conducted has given the feasibility of smelting iron ore slime and bottom ash in a plasma arc furnace to produce iron-aluminium-silicon alloy.
5. The significant recovery of aluminium and silicon in the melt is indicative of carbothermic reduction of alumina and silica in the mixture of iron ore slime and bottom ash. However, further work is required to optimize the recovery of metals during smelting process.

8.2 Scope for future work

In the light of the observations made during present investigation, further work may be undertaken in following areas:

- The field trials may be conducted while making dykes using FBC bottom ash as filter bed materials in place of conventional sand particles

- In light of the encouraging results of making building bricks using FBC and PCC bottom ash by geopolymeric technique, the further work may be conducted in making required size bricks to test its properties as lightweight bricks as a building bricks.
- The preparation of insulation bricks using PCC bottom ash may be undertaken for making regular sized bricks in large numbers to test its techno-economic feasibility for industrial application.
- In view of the feasibility of smelting, mixture of iron ore slime and bottom ash in plasma arc furnace to produce iron aluminium silicon alloy, further work may be undertaken in exhaustive manner to observe the effect of various smelting parameters in enhancing the recovery of reduced metals by regulating operating parameters. During such studies, an efforts may also made to study the kinetics of smelting reduction process.