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(71)**Name of Applicant :**
1)INDIAN INSTITUTE OF TECHNOLOGY BHUBANESWAR
Address of Applicant :Indian Institute of Technology Bhubaneswar Argul, Jatni Khordha Odisha India Bhubaneswar ---------- ----------
Name of Applicant : NA
Address of Applicant : NA
(72)**Name of Inventor :**
1)Dr. Bendadi Hanumantha Rao
Address of Applicant :Associate Professor, Department: Infrastructure, Indian Institute of Technology Bhubaneswar Argul, Jatni Khordha Odisha India 752050 Bhubaneswar ---------- ----------
2)Kummari Sekhar
Address of Applicant :Ph.D. Scholar, Department: Infrastructure, Indian Institute of Technology Bhubaneswar Argul, Jatni Khordha Odisha India 752050 Bhubaneswar ---------- ----------

(57) Abstract :
Abstract Title: Method and Process of Making Fly Ash Based Sand (FAB Sand) The present invention discloses a method and process of manufacturing Fly Ash Based Sand (FAB Sand) with fly ash alone as a binder or precursor material. The present invention deals with a product that is manufacturing of fine aggregates of particle size range from 4.75 mm to 0.075 mm. To derive the sand particles as stated herein, disc pelletizer equipment is custom designed such that it rotates for a specific speed range (5-35 rpm) and tilt angle (0-90°) with a facility to auto spray the solution while the drum is in rotation. Geopolymerization method, which involves activation of binding material that is fly ash in the present invention with alkaline solutions such as sodium hydroxide and sodium silicate, is adopted to initiate the binding and bonding of ash particles. With the help of disc pelletizer, moistened fly ash is converted into FAB sand of desirable size range as stated above by rotating the drum for a duration from 5-40 minutes. To sustain particles agglomerations in the desirable particle size range and particle binding, alkaline activator solution to binder solids ratio is varied from 0.08-0.38. Cold bonded technology to harden the prepared FAB sand particles by maintaining the temperature less than 100°C is adopted. Subsequent to cold bonding, sand particles are cured at ambient temperature till 7 days. Figure 1

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