

Hydraulic Transportation of High Concentration Slurry

Product/Process Profile

In order to transport powdery materials (Ores, Minerals & Industrial wastes such as coal ash, red mud etc.) in slurry form at high solids concentration (>50% by weight), the pipe loop test facility is used for providing basic design parameters for commercial slurry pipelines. The pipe loop test facility consisting of 50 mm NB and 100 mm NB pipes of 20 m long each run by progressive cavity pump and Triplex plunger pump. Two nos. of slurry flow meters (magnetic type) and two nos pressure transducers are mounted on each pipe loop to evaluate the pipe flow characteristics of minerals/ores/industrial waste slurries at high solids concentrations. Based on the experimental data, scale-up design of commercial slurry pipelines can be provided to the clients

Application Area

- Ores & Mineral Processing Industries, Coal based Thermal Power plants etc.

Advantage

- Substantial energy savings to run the system as the Specific Energy Consumption (SPC) is lower
- The volumes transported are smaller and pipeline sizes can be reduced by more than 50%
- High availability, low parts usage, low maintenance
- Dusting is substantially reduced
- Water consumption is reduced as the high concentration slurries use up to a factor of 12 less water than dilute slurries

Major Raw Materials/Plant Equipments/ Machinery/Gadgets

- High concentration slurry pump, Piping & Valves, Dosing, Mixing and homogenization unit, Instrumentation (Size & Specifications as per solids tonnage transport rate)

Scale of Development

- Pilot Scale

Validation Level

- Lab and Field scale demonstration of High Concentration slurry disposal systems:

Commercialization Status

- Many coal based power plants have adopted our scale –up designs including JSPL and NTPCs

Techno-economics

- Transport cost as low as Rs. 2.00 per ton/km

IP Status

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Technology Package

- Know-how, basic design engineering packages

