

Terafiled clay water purification media

Product/Process Profile

Terafil red clay is a low cost and sustainable water purification media (disc/candle) for efficient treatment and filtration of turbid and high iron containing drinking water. Pores in the Terafil disc are separated from one another by a ultrafine sintered clay membrane, but are connected through capillaries in the clay membranes whose openings are within 200 nm diameter; much smaller than iron colloids, turbid particles and most of the pathogens. Complete removal of iron and suspended particles from water is achieved along with significant removal of pathogens through this medium without clogging its core. The architecture of the disc (prepared by sintering a mixture of sand, red clay and wood saw dust) ensures a high rate of filtration and long operational life of 3-5yrs. Quality of filtered water falls within BIS limits, especially for turbidity and iron. Average rate of filtration is 13ml/hr per unit area (cm²) with input water having 50 NTU turbidity and 250mm water head. Fitted with food grade plastic or stainless steel containers it serves a point of use water filter for domestic purpose (50 lt/day). A battery of discs can be fitted to water tanks for community usage (1000-100,000 lt/day).

Application Area

- Drinking water purification for domestic and community usage.

Advantage

- Low cost water filtration, Suitable for MSME/Cottage industry, marketing in rural and urban sector, Use of local materials, Long life of product

Major Raw Materials/Plant Equipments/ Machinery/Gadgets

- Red clay (pottery clay), sand and wood saw dust for sintering of discs.
- Grinder, Pulverizes, Mixer, Sieving machine, Kiln/furnace, Jigs & fixture.
- Food grade plastic/stainless steel/earthen containers (for domestic purpose)
- Cemented tanks (round/square) for community use

Scale of Development

- 50 lt/day domestic and 1000 – 100,000 lt/day community size filters using 4”and 8”discs

Validation Level

- Laboratory and Field level - Turbidity removal: >99%; Iron removal: 90-95%; Micro-organism removal: Significant; Increase in pH: Nearly 1.0

Commercialization Status

- More than 100 licensees all over India. Marketing is supported by state and central government schemes as well as direct sale.

Techno-economics

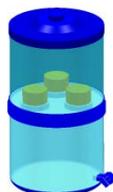
- Capital Investment of Rs 7.00 lakhs for production capacity: 5000 discs/months
- Approx. cost of food grade 30 lt. domestic filter unit and accessories: Rs 550-600/-
- Approx. cost of community filtration unit/plant of 10,000 lt/day community filtration plant: Rs 25,000

IP Status

- Know-how with lab

Technology Package

- Engineering drawings, Training & demonstration



Terafil water filters installed in Schools of Meghalaya for supply of clean drinking water under 'JALAMANI' Programme of GOI