

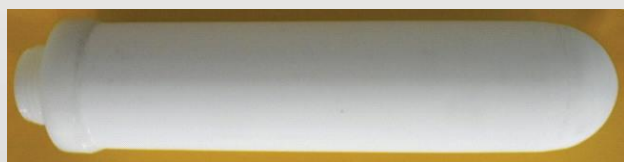


Nanocomposite Ultrafiltration Membrane Device for Domestic Drinking Water Purification with respect to Arsenic, Iron and Microbial Contaminations

Water quality problems exist nearly in all the parts of our country. Micro-biological contamination is a common problem in most of the parts. Specific regions have some predominant geogenic based contaminants like, iron in north eastern States and arsenic in the eastern part of the country. Considering limited infrastructure in rural areas, household level point-of-use (POU) water treatment methods are better alternative to community scale plant w.r.t. long term sustainability and maintenance.

BARC has developed a combo domestic water purifier device which is made of polysulfone based nanocomposite ultrafiltration membrane in cylindrical configuration. This configuration/device can be effective for removal of microbial contaminations, arsenic and iron without the need of any electricity and overhead water tank. The device is most suitable for rural and slum areas. The salient features of the device are:

1. The heart of the purifier is nanomaterial impregnated polysulfone ultrafiltration membrane in candle configuration (as shown in Figure).
2. The device stand alone can remove suspended materials and microorganism with bacteria removal efficiency: 99.99%.
3. The device can remove arsenic contamination by an in situ generated sorbent with simple addition of two pre-formed reagents and subsequent membrane filtration to provide product water with arsenic contamination < 10 ppb as per WHO standard.
4. The device can remove iron contamination by addition of slaked lime and subsequent membrane filtration to provide product water with iron contamination < 0.3 ppm as per WHO standard.
5. Electricity & tap water connection are not essential.
6. Extremely useful in Rural & slum Areas.
7. The simple two compartment device can treat 25-30 Liters of contaminated water per day and cost about Rs. 1500/- per unit with membrane life of about 3 years.



Polysulfone UF membrane candle



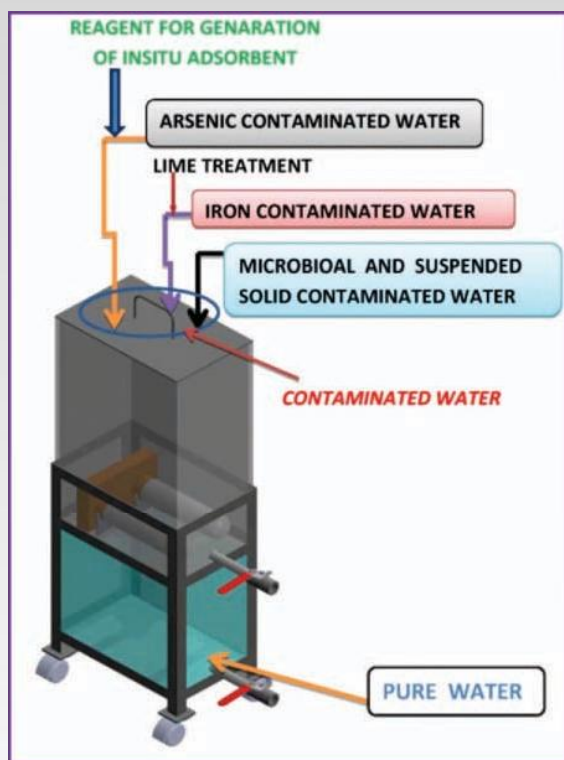
Nanocomposite UF membrane candle

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Methodology of Operation of Combo Membrane Device



Combo domestic water purification device marketed by M/s. Rupali Industries

Know-how of this technology has been transferred to Two private parties for commercialization:

- M/s. Rupali Industries, Mumbai (Tel.No. 09322008223; E-mail: rupaliaqua@gmail.com)
- M/s. Sonadka, Mumbai (Tel. No. 07666454577; E-mail: sonadka@yahoo.com)

Technical know-how of this technology is available with BARC on non-exclusive basis.

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