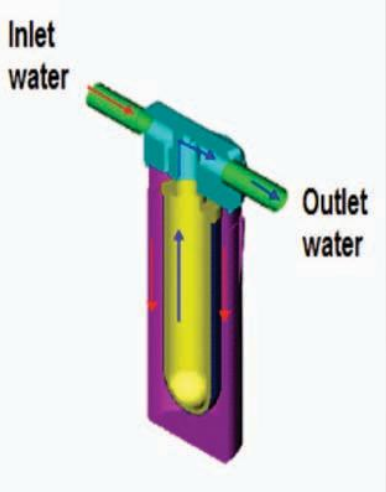
On-line Domestic Water Purifier Based on Ultrafiltration Polysulfone Membrane

Development and deployment of ultrafiltration (UF) membrane in innovative forms for the purification of drinking water is the most important areas of membrane application with direct societal implications. Keeping various constraints of existing processes and field conditions in mind, BARC has developed the "point of use" membrane devices with typical features like: 1) Affordability, 2) Minimal maintenance, 3) Independent of the power source, 4) Minimal wastage of water (almost 100% recovery), 5) Quality.

This device is based on polysulfone UF membrane in cylindrical, candle like configuration. It is an on-line device (as shown in the figure) for purification of domestic drinking water capable of removing microorganisms, suspended solids, colloids, colour, odour and organics.

This device consists of mainly two parts:

- A membrane candle comprising of a porous polypropylene candle laminated with a thin ultrafiltration membrane of polysulfone polymer.
- A housing unit, which is an outer container having provision to fix the membrane candle in it, with an inlet for supply water and an outlet purified water coming out as a product from membrane candle.



The device developed at BARC has got superior characteristics and advantages over all other competing devices, which are mostly based on ultraviolet radiations. The main advantages are:

1. The device is very effective as it almost completely filters out bacteria and turbidity thereby producing crystal-clear water.
2. The device is very compact, a small inexpensive portable gadget that can be easily installed and needs no electricity or addition of any chemicals.
3. As the device physically filters out bacteria, there will not be any dead or decayed bodies of bacteria in purified water unlike ultraviolet radiation or chemical addition devices.

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4. The operational cost of device is almost negligible as the device works on hydrostatic pressure head. The device is almost maintenance free except occasional cleaning of membrane surface to remove deposited suspended solids.
5. The device works in a dead-end manner and hence not a single drop of water is wasted.
6. Device can be manufactured with varying capacities.
7. Depending upon the type and capacity of the unit the price ranges from Rs. 1000 /- to Rs. 3000 /- per unit.

Know-how of this technology has been transferred to 25 private parties for commercialization and the prominent among them are:

- M/s. Rupali Industries, Mumbai (Tel.No. 09322008223, E-mail: rupaliaqua@gmail.com)
- M/s. Sonadka, Mumbai (Ph. 07666454577; E-mail: sonadka@yahoo.com)
- M/s. Fontek Corporation (Ph. No. 9820382765; Email: dolphinuf09@gmail.com)

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