ION EXCHANGE (INDIA) LTD
THE POWER BEHIND WATER
Total Environment Solutions

Update

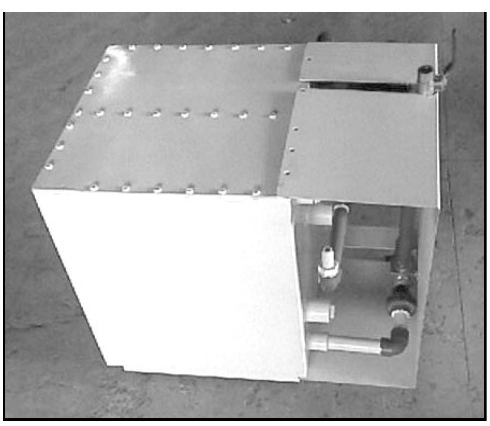
No.7 June 2009

This issue of Update spotlights the INDION fluoride removal hand pump attachment that was successfully demonstrated and subsequently supplied to Madhya Pradesh Laghu Udyog Nigam (MPLUN)). It also features the INDION continuous sand filter, ideal for canal water treatment for drinking water requirements as well as for tertiary treatment of treated sewage.

INDION® Fluoride Removal at Madhya Pradesh

High concentration of fluoride in ground water beyond the WHO limit of 1.5 ppm poses a major health problem in India. Nearly 90% of our country's rural population uses ground water for drinking and domestic purposes and, due to the excess fluoride content, this huge population is threatened with the health hazards of fluorosis. A crippling bone disease, fluorosis weakens dental and skeletal structures causing mottled teeth, tooth decay, stiffened joints and brittle bones and, in severe cases, leads to paralysis and death. Prevention is the only cure as fluorosis has no medical treatment.

To solve fluoride contamination problems, Ion Exchange had developed the user friendly INDION fluoride removal process, available as point-of-use units for homes, attachments to hand pumps or power pumps and community level systems. These treatment solutions keep in mind rural needs in terms of affordability, sturdiness, ease of operation and maintenance, and are also completely self contained, making them ideal for use in rural India.



INDION® Fluoride Removal Hand Pump Attachment

In Madhya Pradesh, excessive levels of fluoride in water affect the health of more than 50 lakh people. In many areas, such as Shivpuri, Jhabua, Mandla, Dindori, Chhindwara, Dhar, Vidisha, Sehore, Raisen, Mandsour, Neemuch, Ujjain, Seoni, the fluoride content in ground water ranges from 1.5 ppm to as high as 18 ppm in some areas.

To overcome this problem of fluoride contamination, the Government of Madhya Pradesh invited various parties to showcase their technologies. Ion Exchange successfully demonstrated the INDION fluoride removal hand pump attachment at Kailash Wada, Tehsil Asta, Dist. Sehore where the fluoride level was 17 ppm. Following is the analysis of input and output water quality :

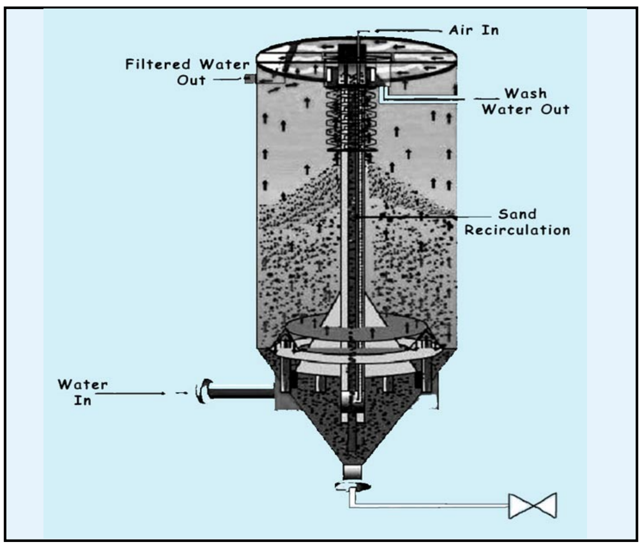
Parameter	Inlet Water Quality	Treated Water Quality
pH	9 - 9.5	8.3 - 8.5
TDS (ppm)	440	410 - 430
Fluoride (ppm as F)	17	0.48 - 0.89

Based on this validation of our treatment technology, the Government awarded the contract for supply and maintenance of 200 fluoride removal hand pump attachments to us, through MPLUN.

Our local representative, in coordination with the local authorities, are identifying various sites where the fluoride level from hand pumps is higher than1.5 ppm for installing our units; we have already installed 50 units in Mandla and Raisen areas. The department is satisfied with the product features and the treated water quality.

INDION® Continuous Sand Filter for Drinking Water Treatment in Rural Punjab

The INDION continuous sand filter being promoted by Ion Exchange for various filtration applications has significant advantages over conventional systems. Its unique moving bed filtration system, where the sand is constantly washed, ensures that there is no stoppage for backwashing as in conventional systems, while eliminating the need for extensive backwash water pumps and tank etc. as well as the need for constant operator assistance. Because of the continuous washing of the media, these filters can also operate on higher feed loads and provide consistently good treated water quality.



Canal Water Treatment

Many rural areas in Punjab have access to fresh water from various canals running through the state. While the canal water has low dissolved salts, the suspended solid levels is very high, necessitating robust filtration systems which can operate in rural areas without extensive pumping and constant supervision, and yet provide consistent quality of treated water. We installed the continuous sand filter for this application at a village near Ferozepur, Punjab and the system has been performing well, meeting the requirements of providing clean drinking water.

The power requirement is extremely low as compared to conventional rapid/slow sand filters which need pumping of large volumes of water for backwash. The continuous sand filter uses only small amount of compressed air obtainable from a locally available compressor for its working.

Tertiary Treatment of Sewage

The other application of the continuous sand filter is in the area of tertiary treatment of treated sewage. Here again the continuous sand filter provides significant advantages over conventional systems because of its ability to take higher loads from the sewage treatment plant. The use of compressed air in the filter ensures continuous aeration in the sand bed resulting in better treated quality and lower maintenance cost. The treated water can thus be reused for various applications.

This process is also ideal for high flow rates because this filtration system can be installed in a tank constructed out of RCC, thereby reducing significantly the capital cost. Higher velocities of operations also ensure lower overall foot print.

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