



Table 25
Removal of Arsenate using NMRL-DRDO Polypropylene
Household Water Filter
(Without KMnO₄)

Sr. No.	Initial As(V) Conc. (ppb)	Sampling Interval (Hr.)	pH	Conductivity (μS/cm)	Turbidity (NTU)	Residual As(III) (ppb)	Fe (mg/l)
1	98	0	8.3	121	2	1.85	1.8
2		2	8.2	135	3	1.85	ND
3		4	8.1	160	4	0.92	0.7
4		24	8.1	140	3	0.92	0.1
5	514	0	8.0	119	2	1.85	2.0
6		2	8.0	131	4	ND	0.5
7		4	8.1	141	3	ND	ND
8		24	8.2	119	2	0.92	1.8
9	1069	0	8.0	112	4	ND	0.7
10		2	8.1	135	4	2.77	0.5
11		4	8.2	121	4	0.92	0.4
12		24	8.1	118	4	1.85	0.6

4.3.4 SONO Arsenic Mitigation Filter

To begin with the studies the filter was installed in the laboratory as per the instructions given in the manual provided by the supplier. However, the flow rate was found to be below normal. Hence the material inside the two containers of the filter was rearranged afresh. Trial runs were carried using ten litres water each of arsenite concentrations – 122 ppb, 462 ppb and 1038 ppb. The results of the removal of arsenite obtained are given in **Table 26**. The residual arsenite concentrations were found to be below the WHO guideline value for arsenic in drinking water. Iron concentrations in the filtered waters were found to be within the permissible limits given by BIS. The unit was again found to be blocked, hence the material inside the containers was rearranged again and the studies were continued further with initial arsenite concentrations of 2230 ppb and 3120 ppb. The residual arsenite



Similar runs were carried using ten litres water each of arsenate concentrations of 115 ppb, 563 ppb, 1131 ppb, 2112 ppb and 3080 ppb. The results obtained for the removal of arsenate are given in **Table 27**. The residual arsenate concentrations were found to be below the WHO guideline value for arsenic in drinking water. Iron and sulphate concentrations in the filtered waters were found to be within the permissible limits given by BIS.

Table 27
Removal of Arsenate using SONO Arsenic Mitigation Filter

Sr. No.	Initial As(V) Conc. (ppb)	Sampling Interval (Hr.)	pH	Conductivity (μ S/cm)	Turbidity (NTU)	Residual As(V) (ppb)	Fe (mg/l)	SO ₄ (mg/l)
1	115	0	7.8	145	6	ND	0.22	ND
2		2	7.7	166	6	ND	ND	ND
3		4	8.3	147	4	ND	0.11	0.48
4		24	8.0	150	2	ND	0.18	0.36
5	563	0	8.1	126	3	ND	ND	0.48
6		2	7.9	132	3	ND	0.03	0.36
7		4	7.9	130	2	6.26	0.07	3.61
8		24	8.2	127	3	ND	0.05	3.81
9	1131	0	8.3	115	2	7.75	0.02	0.48
10		2	7.8	115	3	7.75	0.03	0.36
11		4	8.0	113	3	4.63	0.07	ND
12		24	8.1	115	3	2.78	ND	ND
13	2112	0	7.8	121	3	9.25	0.11	0.48
14		2	8.2	117	3	4.6	0.04	ND
15		4	8.2	115	4	3.7	0.08	ND
16		24	8.1	119	4	3.7	0.1	0.38
17	3080	0	8.9	120	4	8.32	0.07	0.42
18		2	7.2	121	3	ND	0.11	0.56
19		4	7.5	126	4	ND	0.08	0.48
20		24	7.6	131	4	9.18	0.12	0.36

