



EnviroLab Services Reference: 43987

Reference: AlkaStream Filtration Test
 Tests: Various Analytes as per tables below

Methodology

A one litre volume of synthetic solution was prepared in the laboratory from certified standard solutions using ultra high purity water as the base. The analytes added where are described in the table below. Approximately 800ml of this solution was processed through the filter unit. The first 50ml or so of solution was discarded and the next 500mL was collected for analytical testing – this portion of the solution is labeled as the ‘AFTER FILTRATION’ solution in the tables below. The remaining 200mL of solution was collected for analytical testing and is labeled as the ‘BEFORE FILTRATION’ in the tables below.

Results

Table 1: Analyte Concentrations before and after filtration - miscellaneous

Analyte	BEFORE FILTRATION/(mg/L or ppm)	AFTER FILTRATION/(mg/L or ppm)
Fluoride	1.7	<0.1
Aluminium	0.983	0.03
Iron	0.638	<0.01
Mercury	0.0053	0.0001
Copper	0.108	0.008
Lead	0.088	<0.001
Zinc	0.106	0.152
Chlorine	3.8	0.1
Organo Chlorine Pesticides	See table below	See table below
VOCs	See table below	See table below
pH (pH units)	5.01	9.85
Electrical Conductivity (µS/cm)	867	99
Total Dissolved Solids	520	59

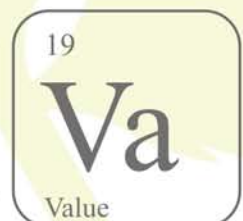




Table 2: Analyte Concentrations before and after filtration – Volatile Organic Compounds

Analyte	BEFORE FILTRATION/(mg/L or ppm)	AFTER FILTRATION/(mg/L or ppm)
1,1-Dichloroethene	0.014	<0.001
Trans-1,2-Dichloroethene	0.016	<0.001
1,1-Dichloroethane	0.016	<0.001
Cis-1,2-Dichloroethene	0.015	<0.001
Bromochloromethane	0.018	<0.001
Chloroform	0.018	0.002
2,2-Dichloropropane	0.015	<0.001
1,2-Dichloroethane	0.019	<0.001
1,1,1-Trichloroethane	0.014	<0.001
1,1-Dichloropropene	0.013	<0.001
Cyclohexane	0.011	<0.001
Carbon Tetrachloride	0.012	<0.001
Benzene	0.017	<0.001
Dibromomethane	0.019	<0.001
1,2-Dichloropropane	0.018	<0.001
Trichloroethene	0.015	<0.001
Bromodichloromethane	0.017	<0.001
Trans-1,3-Dichloropropene	0.016	<0.001
Cis-1,3-Dichloropropene	0.017	<0.001
1,1,2-Trichloroethane	0.019	<0.001
1,3-Dichloropropane	0.017	<0.001
Dibromochloromethane	0.015	<0.001
1,2 -Dibromoethane	0.016	<0.001
Tetrachloroethene	0.012	<0.001
1,1,1,2-Tetrachloroethane	0.015	<0.001
Chlorobenzene	0.016	<0.001
Ethyl benzene	0.013	<0.001
Bromoform	0.013	<0.001
m,p-Xylene	0.013	<0.001





Table 3: Analyte Concentrations before and after filtration – Organochlorine Pesticides

Analyte	BEFORE FILTRATION/(mg/L or ppm)	AFTER FILTRATION/(mg/L or ppm)
a-BHC	0.0027	<0.0002
g-BHC	0.0034	<0.0002
Heptachlor Epoxide	0.0014	<0.0002
Dieldrin	0.0010	<0.0002
Endrin	0.0013	<0.0002
Endosulfan II	0.0027	<0.0002
Endosulfan Sulphate	0.0039	<0.0002
b-BHC	0.0061	<0.0002
d-BHC	0.0046	<0.0002
Endosulfan I	0.0017	<0.0002
Endrin Aldehyde	0.0053	<0.0002
Endrin Ketone	0.0041	<0.0002

Comments

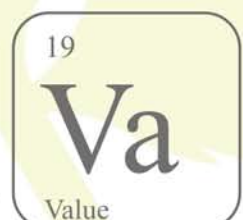
- Removal of Organics is effective
- The initial pH is slightly lower than typical potable water due to the residual acid from the metals standards used to prepare the solution
- the Zinc has increased slightly but is within typical drinking water ranges (0.05-0.26mg/L as quoted in the Australian Drinking Water Guidelines)
- the test is a snapshot of the performance of the filter unit; given the experience the lab has with purifying water the performance will inevitably vary over time.
- The volatile organics reported are indicative as these analytes are volatile and degassing may have occurred during the process
- please note the analyses here are not covered by NATA accreditation

Reported by: Simon Mills

Authorised by: David Springer

Date:29/07/2010

Date:29/07/2010





EnviroLab Services Reference: 44679

Reference: Alkaway Filtration Test

Tests: Various Analytes as per tables below – samples prepared 16th August 2010

Methodology

A two litre volume of synthetic solution was prepared in the laboratory from certified standard solutions using ultra high purity water as the base. The analytes added where are described in the table below.

Approximately 1200ml of this solution was processed through the filter unit. The first 50ml or so of solution was discarded and the next 7-800mL was collected for analytical testing – this portion of the solution is labeled as the ‘AFTER FILTRATION’ solution in the tables below. The remaining unfiltered solution was collected for analytical testing and is labeled as the ‘BEFORE FILTRATION’ in the tables below.

Results

Table 1: Analyte Concentrations before and after filtration - miscellaneous

Analyte	BEFORE FILTRATION/(mg/L or ppm)	AFTER FILTRATION/(mg/L or ppm)
Fluoride	1.8	0.8
Aluminium	0.95	0.007
Iron	0.77	<0.01
Mercury	0.005	<0.0005
Copper	0.087	<0.001
Lead	0.058	<0.001
Chlorine	1.90	<0.1
Polycyclic Aromatic Hydrocarbons	See table below	See table below
VOCs	See table below	See table below
pH (pH units)	6.20	9.54
Electrical Conductivity (µS/cm)	554	398
Total Dissolved Solids	349	251





Table 2: Analyte Concentrations before and after filtration – Volatile Organic Compounds

Analyte	BEFORE FILTRATION/(mg/L or ppm)	AFTER FILTRATION/(mg/L or ppm)
1,1-Dichloroethene	0.041	<0.001
Trans-1,2-Dichloroethene	0.046	<0.001
1,1-Dichloroethane	0.022	<0.001
Cis-1,2-Dichloroethene	0.023	<0.001
Bromochloromethane	0.098	<0.001
Chloroform	0.045	0.004
2,2-Dichloropropane	0.019	<0.001
1,2-Dichloroethane	0.024	<0.001
1,1,1-Trichloroethane	0.017	<0.001
1,1-Dichloropropene	0.017	<0.001
Carbon Tetrachloride	0.016	<0.001
Benzene	0.638	<0.001
Dibromomethane	0.014	<0.001
1,2-Dichloropropane	0.014	<0.001
Trichloroethene	0.012	<0.001
Bromodichloromethane	0.014	<0.001
Trans-1,3-Dichloropropene	0.015	<0.001
Cis-1,3-Dichloropropene	0.015	<0.001
1,1,2-Trichloroethane	0.013	<0.001
1,3-Dichloropropane	0.014	<0.001
Dibromochloromethane	0.013	<0.001
1,2 -Dibromoethane	0.014	<0.001
Tetrachloroethene	0.011	<0.001
1,1,1,2-Tetrachloroethane	0.013	<0.001
Chlorobenzene	0.016	<0.001
Ethyl benzene	0.015	<0.001
Bromoform	0.016	<0.001
m,p-Xylene	0.030	<0.001





Table 3: Analyte Concentrations before and after filtration – Polycyclic Aromatic Hydrocarbons

Analyte	BEFORE FILTRATION/(mg/L or ppm)	AFTER FILTRATION/(mg/L or ppm)
Naphthalene	0.017	<0.001
Acenaphene	0.004	<0.001
Fluorene	0.005	<0.001
Phenanthrene	0.005	<0.001
Anthracene	0.001	<0.001
Fluoranthene	0.005	<0.001
Pyrene	0.003	<0.001
Benz(a)anthracene	0.004	<0.001
Chrysene	0.004	<0.001
Benzo(b,k)fluoranthene	0.014	<0.002
Benzo(a)pyrene	0.002	<0.001
Indeno (1,2,3 – cd) pyrene	0.007	<0.001
Dibenzo (a,h) anthracene	0.007	<0.001
Benzo (g,h,i) perylene	0.006	<0.001

Comments

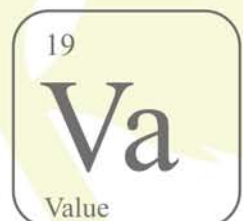
- Removal of Organics is effective (note different standard mix used to previous)
- The initial pH is was adjusted up with
- The volatile organics reported are indicative as these analytes are volatile and degassing mat have occurred during the process
- please note the analyses here are not covered by NATA accreditation

Reported by: Simon Mills

Authorised by: David Springer

Date:19/08/2010

Date:19/08/2010



InHouse Test: AlkaStream 19 October 2010

Test consisted on continual running at 1 litre per minute with periodic stop, wait 5 mins and test for pH and ORP. The test was designed to assess the AlkaStream's ability to supply acceptable ORP and pH over the life of the filter. The test was carried to 10% above recommended filter liife of 5000L.

