

ANTIOXIDANT ALKALINE WATER FILTER SYSTEM

1. TECHNICAL FIELD OF THE INVENTION

The present invention relates to an antioxidant alkaline water filter system comprising of at least one first filter of 1-Micron carbon block filter with magnesium, at least one second filter of natural alkaline mineral bio-balls, at least one third filter of post carbon filter with process medium and at least one fourth filter of UV light.

2. BACKGROUND OF THE INVENTION

There are many ways to configure a water filter system for domestic use. The most common configuration used is as shown in FIG 1. It may comprise of 6 basic filters: sediment filter, pre-carbon filter, alkaline mineral balls filter, post carbon filter, UF 0.01 Micron Filter and UV light. Liquid, preferably water is being channelled in a sequence order from one filter to another. Generally, the liquid, preferably water is being supplied to the first filter and will be channelled in a sequential order from one filter to another before being channelled out as treated liquid. Generally, the water is being channelled into the top part of the first filter and released at the bottom part of the first filter before being channelled to the bottom part of the second filter. This type of filter is called I-filter. Thereafter, the water will be released from the top part of the second filter before being channelled to the top part of the third filter. This arrangement continues until the water passes through all the necessary filters. Water needs to pass through a long route in the filter, making the filtering process slower.

Another type of filter is the U-filter, whereby water goes in from the side of the filter through the outer wall of the cylindrical filter towards the inner portion of the filter at the axis of the filter before being channelled out of the filter through the top side of the filter. This type of filter has bigger surface filtering, shorter route for said water and therefore has better water flow.

The first filter of sediment filter is used to remove sediment particles like rust, sand and others. The second filter of pre-carbon filter is to remove organic chemical substances such as chlorine, detergent, pigment, cancer causing substances and bi-products of chlorine such as trihalomethanes (THM). The third filter of alkaline filter is to increase the water pH to above 7.4pH up to 10.0pH. The fourth filter of post carbon filter is to remove unpleasant taste, odour and other organic compounds from the water. The fifth filter of UF 0.01 Micron filter is to remove any particles, bacteria or viruses which is more than 0.01 Micron in size. The sixth filter of UV light is to sterilize the water up to 99.9%.

It would hence be extremely advantageous if the above shortcoming is alleviated by having an antioxidant alkaline water filter system and method thereof, which comprises of 1 Micron carbon block filter with magnesium, natural alkaline mineral bio-balls, post carbon filter and UV light.

3. SUMMARY OF THE INVENTION

Accordingly, it is the primary aim of the present invention to provide filter system which is able to produce natural antioxidant alkaline water.

It is yet a further object of the present invention to provide automated UV light to optimize electricity usage for said filter system.

Additional objects of the invention will become apparent with an understanding of the following detailed description of the invention or upon employment of the invention in actual practice.

According to the preferred embodiment of the present invention the following is provided:

A water filter system, comprising of:

at least one filter with natural alkaline mineral bio-balls;

characterized in that

said filter system further comprises of at least one filter with carbon block and magnesium ingots;

said filter system further comprises of at least one filter with mixture of post activated carbon and process medium;

said filter system further comprises of at least one UV light chamber.

In another embodiment of the invention there is provided:

A method of filtering water, comprising of the steps of channeling water to all the following filters sequentially and in all possible sequence:

- i. at least one filter with carbon block with magnesium ingots;
- ii. at least one filter with natural alkaline mineral bio-balls;
- iii. at least one filter with mixture of post activated carbon and process medium;
- iv. at least one UV light chamber.

4. BRIEF DESCRIPTION OF THE DRAWINGS

Other aspect of the present invention and their advantages will be discerned after studying the Detailed Description in conjunction with the accompanying drawings in which:

FIG. 1 shows a block diagram of conventional water filter systems.

FIG. 2 shows a block diagram of the water filter system of the present invention.

FIG 3A shows the carbon-magnesium filter (203) while FIG 3B shows the carbon block sub-filter (302) of said carbon-magnesium filter (203).

FIG 4 shows the post activated carbon-process medium mixture filter (207).

5. DETAILED DESCRIPTION OF THE DRAWINGS

5 In the following detailed description, numerous specific details are set forth in order to provide a thorough understanding of the invention. However, it will be understood by the person having ordinary skill in the art that the invention may be practised without these specific details. In other instances, well known methods, procedures and/or components have not been described in detail so as not to
10 obscure the invention.

The invention will be more clearly understood from the following description of the embodiments thereof, given by way of example only with reference to the accompanying drawings, which are not drawn to scale.

15 The present invention relates to an antioxidant alkaline water filter system (201) and method thereof, as shown in FIG 2. The water filter system (201) of the present invention is preferably able to provide natural antioxidant alkaline water up to 50,000 litres with multiple pieces of filters ranging from size of 6" to 20" and an
20 auto UV lamp. For example, 9" filters are able to provide up to 3,500 litres of water while 11" filters are able to provide up to 5,000 litres of water. An example of configuration of filters in the water filter system (201) is such that the first filter (203) having carbon and magnesium, the second filter (205) having natural alkaline mineral bio-ball, the third filter (207) having post activated carbon filter and at least
25 one auto UV light chamber (209).

As seen in FIG 3A, the water filter system (201) of the present invention comprises of at least one filter (203) of 1 Micron carbon block filter with alkaline pH booster. The filter (203) comprises of at least one first inlet (306), at least one first
30 outlet (306), at least one sub-filter cartridge containing compressed carbon with particle size of between 1-10 Micron (302) and at least one sub-filter cartridge

containing magnesium (304). The carbon (302) and magnesium sub-filters (304) can be either combined into a single filter or arranged in separate filters.

FIG 3B depicts the carbon sub-filter (302). The magnesium filter cartridge (304) preferably contains magnesium ingots of preferably magnesium 99.92 weight % and magnesium powder ranging from particle size -40mesh to +10mesh. Preferably, water is channelled into the carbon-magnesium filter (203) through said first inlet (306) to pass through the magnesium sub-filter (304) before being channelled to the carbon block sub-filter (302). The carbon block sub-filter (302) comprises of at least one hollow cylindrical core (311). The arrangement of the hollow cylindrical core (311) is such that water is channelled from the outer wall (308) of said hollow cylindrical core (308) inwards towards the inner wall (309) of said hollow cylindrical core (311) before being channelled out from said carbon block sub-filter (302) and first filter (203). It is to be appreciated that the above arrangement of sub-filters is just one example of how the sub-filters of the first filter (203) can be arranged. Any other possible arrangements of the sub-filters can also be made as long as water is channelled through the carbon (302) and magnesium sub-filters (304). Both the I-filter and U-filter configuration can be used for this filter (203).

The sub-filter of carbon block (302) functions like a 2-stage filter to remove sediments (such as rust, particle, sand and lead) and organic chemical substances (such as chlorine detergent, THM, pigment and cancer causing substances. The sub-filter of magnesium powder (304) is added as a natural alkaline pH booster and antioxidant while adding magnesium mineral to the filtered water. Drinking naturally alkaline water (as a result of using naturally alkaline minerals such as calcium and magnesium) enables the body to adsorb the necessary minerals and will not overly alkalinize the body, as opposed to ionized water or artificially alkaline water which does not have the necessary minerals that the body expects to adsorb, causing the body to be overly alkalinized.

The said filter system (201) also comprises of at least one filter containing at least one inlet, at least one outlet and at least one cartridge of natural alkaline mineral bio-balls. This filter makes the water to be antioxidant in nature and increases the pH of the water. It also decreases the size of the water molecule clusters and supplies essential minerals such as potassium, sodium, silica, magnesium and calcium. Details of this filter can be obtained from Korea patent 1006470360000.

As shown in FIG 4, the filter system (201) also comprises of at least one post activated carbon filter (207). This filter comprises of at least one third inlet (411), at least one third outlet (413) and at least one third cartridge (409) containing a mix of activated carbon (405) and process medium such as Kinetic Degradation Fluxion (KDF-55) (407) to eliminate algae and fungi, control bacteria growth, remove chlorine, pesticides, unpleasant taste and odour and other organic compounds. The said carbon can be in the form of granules, powdered, extruded, bead, impregnated, polymer coated carbon, carbon block or any form as long as suitable for water to pass through. This filter is able to sterilize / disinfect the water up to 99.9%. One example of the arrangement of the post carbon block-process medium mix filter (207) is such that water is channelled into the post activated carbon filter (207) through said third inlet (411) to pass through the process medium (407) block before filtering past the activated carbon mix (405) before being channelled out of the post activated carbon filter (207) through the third outlet (413). It is to be appreciated that the above arrangement of activated carbon (405) and process medium (407) is just one example of arrangement. Any other possible arrangements can also be made as long as water is channelled through the activated carbon (405) and process medium (407). Both the I-filter and U-filter configuration can be used for this filter (207).

The filter system (201) also comprises of at least one auto-UV light chamber (209) which removes viruses, bacteria and other microorganisms from said water. The said chamber (209) comprises of at least one water inlet, at least one water outlet and at least one UV light emitter. It also sterilizes the water up to 99.9%. The light

chamber (209) preferably is made of stainless steel, but other suitable materials can also be used. This chamber further comprises of at least one automated mechanism such as gear system or turbine to turn on the UV light when water is passing through said chamber and to turn off the UV light when no water flow is detected in
5 said chamber.

The filter system is arranged such that water is channelled according to the below sequence:

1. 1-Micron carbon block filter with magnesium powder;
- 10 2. Natural alkaline mineral bio-ball filter;
3. Post activated carbon filter with process medium;
4. Auto UV light chamber.

However, it should be appreciated that the filters in the filter system (201) can
15 be arranged in any order or sequence as long as water passes through all of the filters (203, 205, 207, 209).

While the preferred embodiment of the present invention and its advantages have been disclosed in the above Detailed Description, the invention is not limited
20 thereto but only by the scope of the appended claim.

CLAIMS

1. A water filter system (201), comprising of:
at least one filter with natural alkaline mineral bio-balls (205);
5 characterized in that
said filter system (201) further comprises of at least one filter (203) with
carbon block (302) and magnesium ingots (304);
said filter system (201) further comprises of at least one filter (207) with
mixture of post activated carbon (405) and process medium (407);
10 said filter system (201) further comprises of at least one UV light chamber
(209).
2. The water filter system (201) as claimed in Claim 1 wherein the carbon block
(302) of said carbon-magnesium filter (203) is compressed carbon with particle
15 size between 1-10 Micron.
3. The water filter system (201) as claimed in Claim 1 wherein the process
medium (407) of said carbon-process-medium filter (207) is Kinetic
Degradation Fluxion (KDF-55).
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4. The water filter system (201) as claimed in Claim 1 wherein said UV light
chamber (209) further comprises of at least one automated mechanism to turn
on said UV light when water is passing through said chamber and turn off
said UV light when no water flow is detected in said chamber.
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5. The water filter system (201) as claimed in Claim 1 wherein said carbon-
magnesium filter (203) comprises of at least one first inlet (306), at least one
first outlet (306), at least one sub-filter cartridge containing said compressed
carbon (302) and at least one sub-filter cartridge containing said magnesium
30 ingots (304).

6. The water filter system (201) as claimed in Claim 1 wherein said carbon-process medium mix filter (207) comprises of at least one third inlet (411), at least one third outlet (413) and at least one third cartridge (409) containing said mix of activated carbon (405) and process medium (407).

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7. A method of filtering water, comprising of the steps of channeling water to all the following filters sequentially and in all possible sequence:
- i. at least one filter (203) with carbon block (302) with magnesium ingots (304);
 - 10 ii. at least one filter with natural alkaline mineral bio-balls (205);
 - iii. at least one filter (207) with mixture of post activated carbon (405) and process medium (407);
 - iv. at least one UV light chamber (209).

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