

# Berkey® PF-2 Fluoride and Arsenic Reduction Elements

**PF-2 reduction elements are designed for use in conjunction with Black Berkey® water purification elements to adsorb the following unwanted elements found in drinking water.**

- Fluoride
- Arsenic V and pre oxidized Arsenic III
- Other residual heavy metal ions

## **Technical Information**

**Fluoride:** Testing for fluoride was based on 20-30 ppm of the ion in the influent aqueous solution at a flow rate of no more than 3 gpm per cubic foot of media. Results of < 1 ppm of the fluoride ion in the effluent were typical for the media(>95% reduction). Under optimum conditions, effluent concentrations of less than 50 ppb were readily achieved(>99.75% reduction).

**Arsenic:** This product uniquely targets the entire family of arsenic oxide anions as well as the arsenic cations.

## **Replacement**

Under normal conditions it is recommended that each set of two PF-2 elements be replaced after 1000 gallons\**(The Berkey Light™ system is about 2.75 gallons, therefore the PF-2 Filters should be replaced after 363 refills. If the system is refilled 1 time per day, the PF-2 fluoride filter should be replaced annually. If the system was refilled 2 times per day the filters would need replaced every 6 months).*

## **Notes**

1. Do not boil this element.
2. PF-2 element reduce flow of your system by 15-20%
3. The media used within the PF-2 water filter elements contained high grade activated alumina oxide, which currently is the most efficient media available for extracting fluoride from the water. We have been informed that aluminum oxide differs from aluminum in that it is inert although lab tests cannot distinguish between the two. Below are the results we obtained when testing our PF-2 elements (water was not pre-filtered through the Black Berkey elements). The reduction over time is due to additional residual process dust being washed free from the PF-2 water filter elements as the system is used. To give a scale for comparison purposes we include test results from a national brand toothpaste and water boiled in an aluminum pan.

National Brand Toothpaste	52.878 ppm aluminum oxide
Water boiled in aluminum pan for 5 minutes	2.791 ppm aluminum
PF-2 after conditioning (5 cycles)	.178 ppm aluminum oxide
PF-2 after 10 cycles	.037 ppm aluminum oxide
PF-2 after 20 cycles	.029 ppm aluminum oxide

While the above results indicate that the residual dust adds a minute amount of aluminum oxide to the water, Black Berkey purification elements reduce aluminum from water. We tested water that naturally contained .320 ppm aluminum and filtered it through the combination of the Black Berkey and the post conditioned PF-2 water filtration elements (5 cycles). The results showed a net reduction in detectable aluminum (both aluminum and aluminum oxide) contamination (raw influent .320 ppm—Effluent after passing through the Black Berkey and the PF-2 elements: .232 ppm).

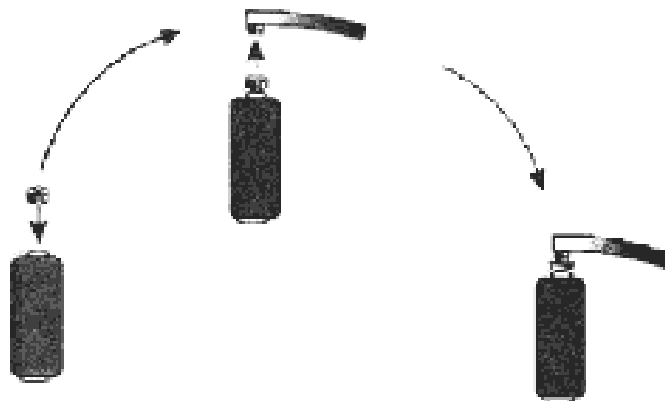
### **Berkey PF-2 Elements (set of two)**

**Size:** Length 6", Width 2.5" **Color:** White **Replacement:** 1000 Gallons\*

**Caution:** Filters must be primed prior to use. **Do not install before reading installation procedures** - do not screw the PF-2 elements on more than eight revolutions or the core of the filter could be damaged.

### **PF-2 Fluoride filter priming Procedure**

1. With the blue caps in place wash the exterior of each PF-2 fluoride element with water and mild dish washing soap.
2. With clean hands, remove both blue caps from each end of both filter elements.
3. Place the rubber priming button (tan colored) onto one end of a PF-2 and align the hole of the filter with the hole of the rubber washer.
4. Press the priming button up against the sink faucet so that the priming button creates a seal between the faucet and the PF-2 element.
5. While holding the priming button against the faucet, turn on the cold water slowly, allowing water to fill the cavity of the filter and discharge from the opposite end. Allow water to flow for at least 30 seconds or until water runs clear whichever is longer. *Hint: place thumb on top of the faucet to apply pressure, this creates a better seal.*
6. **Turn the Pf-2 filter over and prime the opposite end** (reversing the flow of water) repeating steps 3 thru 5 until water runs clear from both directions. *Hint: when you think the filters are flushed long enough run some of the water that is being flushed through the filter into a clear glass and hold it up to the light to see if all of the cloudiness is gone from the water, if not continue priming until water is clear.* This filter is now primed and ready to install.
7. Prime each of the PF-2 elements following steps 3-6.



### **Installation Procedure**

1. Remove the upper chamber from the filtration system and place it upside down on a counter so that the threaded stems of the Black Berkey purification elements are facing upwards.
2. With the water flow arrow pointing away from the upper chamber. (the PF-2 elements only have threads on one end) Screw the PF-2 elements onto the stems of each Black Berkey element **8 full revolutions**. Notes: a) **Do not screw on more than eight revolutions as this may damage the internal media screen.**
3. Replace the upper reservoir onto the lower reservoir. ( the Pf-2 elements should now be hanging down inside the lower reservoir) Fill the upper reservoir with water and let it drain into the lower reservoir. When the lower reservoir is full, discard the first batch of water, which may contain residual process dust. Your water purification system is now ready for use.

#### **Notes:**

1. When the lower water reservoir is full the Pf-2 elements will be submerged.
2. When the water level rises above the bottom of the PF-2 fluoride filter it is normal for a small amount of water to burp through the threaded connection between the Black Berkey water filter elements and the PF-2 filters.
3. The lower container in most systems holds between 2 and 3 gallons of water and the typical household will refill the container with water about one time per day. We recommend that the upper unit be filled at night. The water should be purified and in the bottom container by morning. It is normal for the purification process to slow down considerably when the water level in the lower container rises above the level of the PF-2 elements. Households requiring more water can speed up the flow rate by drawing off some of the water to a pitcher or other container when the water level rises above the bottom of the PF-2 Fluoride filter elements.

New Millennium Concepts, Ltd. warrants this product to be free from defects in material and workmanship for a period of 6 months from the date of purchase. New Millennium Concepts, Ltd will replace or repair that it deems is not properly functioning during the stated warranty period. Relief under this warranty is limited to the replacement or repair of defective materials or workmanship only. New Millennium Concepts, Ltd shall not be held liable for incidental or consequential damage to personal property from, but not limited to, a defective unit, improper use, abuse, accident or neglect, etc. No warranty will apply to units which have been used for purposes not intended, which have been altered so as, in the manufacturers judgment, to affect adversely its performance. This warranty is for the original retail purchaser only, and cannot be transferred. Repair or replacement will be made upon delivery to manufacturer's plant or authorized service dealer at customer's expense. The laws of the state of Texas, USA will govern any disputes regarding this warranty or any claim made. This warranty which is given expressly in lieu of all warranties expressed or implied, or merchantability and fitness for a particular purpose, constitutes the only warranty made by New Millennium Concepts, Ltd.

*For maximum removal efficiency, maintain the water being treated between a PH ph level of 5 and 8. Actual capacity is dependant on the level of contamination of arsenic, fluoride and other heavy metal ions. Unusually high levels of these contaminants may reduce the capacity and efficiency of the elements*