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 20-30ppm 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 < 1ppm 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 1,000 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 about one time per day, the PF-2's should be replaced annually, if the system is refilled about twice per day, the PF-2's should be replaced about every six months).*

NOTES:

1) Do not boil this element.
2) PF-2 elements reduce filtration flow rate by 15-20%.
3) The media used within the PF-2 filter elements contains high-grade activated aluminum oxide, which currently is the most efficient media available for extracting fluoride from water. We have been informed that aluminum oxide differs from aluminum in that it is inert although the lab tests cannot distinguish between aluminum and aluminum oxide. Below are the results we obtained when testing our PF-2 elements (the 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 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 an aluminum pan for five minutes: — 2.791 ppm aluminum
- PF2 after conditioning (5 cycles): — .178 ppm aluminum oxide
- PF2 after 10 Cycles: — .037 ppm aluminum oxide
- PF2 after 20 Cycles: — .029 ppm aluminum oxide

While the above results indicate that the residual process 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 .320ppm aluminum and filtered it through the combination of the **Black Berkey**® and the post conditioned PF-2 filtration elements (5 cycles). The results showed a net reduction in detectable aluminum (both aluminum and aluminum oxide) contamination (Raw influent: .320ppm - Effluent after passing through the **Black Berkey**® and PF-2 elements: .232ppm).

Berkey® PF-2 ELEMENTS (*Set of Two*):
SIZE: Length 6", width 2.5", **COLOR:** WHITE, **REPLACEMENT:** 1,000 GALLONS

* Actual capacity is dependent on the presence of other competing contaminants in the source water. High levels of Fluoride, arsenic and heavy metals may reduce the capacity and efficiency of the elements.

CAUTION: **FILTERS MUST BE PRIMED PRIOR TO USE. Do not install before reading installation procedures - Do not screw on the PF-2 elements more than eight revolutions.**

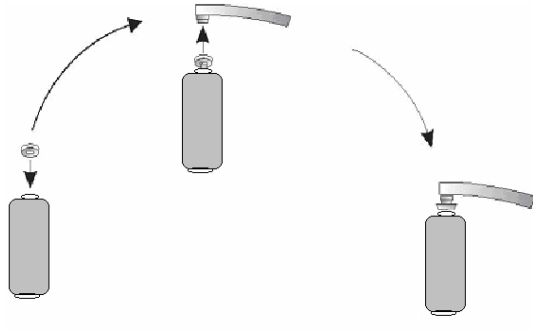
PRIMING PROCEDURE

The media within your PF-2 elements contains micro fine process dust that can cause the purified water to have a bitter taste. To dislodge the process dust from the PF-2 elements, it is necessary to prime each element. To prime your filters, use the following procedure:

1) With blue caps in place wash the exterior of each PF-2 element with mild dish soap.

2) With clean hands, remove both blue caps from each end of each PF-2 filter element.

3) Place the rubber-priming button (tan colored) onto one end of a PF-2 element and align the hole in the button with the hole in the PF-2 element.



4) Press the priming button up against a sink faucet so that the priming button creates a seal between the faucet and the PF-2 element.

5) While holding priming button against faucet, turn on the cold water gently, allowing water to fill the cavity of the PF-2 element and discharge from the opposite end. Allow water to discharge for at least 20 seconds or until water runs clear whichever is longer. *Hint: Place thumb on top of faucet to apply pressure and create a better seal.*

6) Turn the PF-2 element the other direction and prime the other end repeating steps 3-5. The element has now been successfully primed.

7) Prime each additional PF-2 element repeating steps 3-6.

INSTALLATION PROCEDURE

1) Remove upper chamber from filtration system and place it upside down on a counter so that the stems of the **Black Berkey**® purification elements are facing upward.

2) With the water flow-arrow pointing away from the upper chamber *(the PF-2 elements have threads on one end only)* screw the PF-2 elements onto the stems of each **Black Berkey**® element **eight full revolutions**. Notes*: a) **Do not screw on more than eight revolutions as this may damage the internal media screen.** b) The flow arrow should point away from upper reservoir).*

3) Replace the upper reservoir onto the lower reservoir *(the PF-2's should now be hanging 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 purification system is now ready for use.

Notes:

1) When lower reservoir is full of water, the PF-2 filters will be immersed.

2) When water level in lower reservoir rises above the bottom of the PF-2 elements, it is normal for small amounts of water to burp through threads connecting PF-2 elements to **Black Berkey**® purification elements.

3) The lower reservoir in most gravity purification systems has a two to three gallon capacity and a typical household uses about one refill per day. We recommend that the upper reservoir be filled at night. The water from upper reservoir should be purified by morning. It is normal for the purification process to slow down significantly when water level in lower reservoir rises above the bottom of the PF-2 elements. Households requiring more water can speed up the flow rate by drawing off the purified water into a water pitcher or other container when water level in lower reservoir rises above the bottom of the PF-2 elements.

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