

A man in a green shirt with 'WATER + HEALTH STANDARDS' on it, standing next to a faucet with water flowing out.

n-e-wcycles.org/train-the-trainers

Train-The-Trainer Program

**for
Faucet Mounted, Activated Carbon Block
Point-of-Use Filters**

Photo Credit: Marcin Szczepanski

This training material was developed
through the collaborative efforts of:
Greater Flint Health Coalition
Community Foundation for Greater Flint
US EPA
Flint Neighborhoods United
Genesee Health System
Wayne State University
University of Michigan



Funding was provided by:
Freshwater Futures
National Institute of Environmental Health Sciences
National Science Foundation
University of Michigan's Urban Collaboratory



January 2019

This document includes information on the installation, operation and maintenance of faucet-mounted, activated carbon block point-of-use filters and is designed for community trainers, who will go into their communities and train others. We recommend that trainers also receive training on Home Safety (e.g., identifying all potential sources of lead, other safety elements designed to help residents) and Effective Communications (e.g., how to talk with residents about filters). However, this training module is focused on technical training around filter use and can be used along with complementary training programs.

We would like to acknowledge those who worked to develop this document and accompanying materials:

Elizabeth Burtch, Genesee Health System
Richard Kelley, Genesee County Health Department
Rochelle Kelly, Genesee Health System
Carma Lewis, Flint Neighborhoods United
Lucinda Li, University of Michigan
Nancy Love, University of Michigan
Nick Lowe, University of Michigan
Shawn McElmurry, Wayne State University
Audrey Pallmeyer, University of Michigan
Janée Rankin, Greater Flint Health Coalition
Enrique Rodriguez, University of Michigan
Lydia Starrs, Community Foundation of Greater Flint
Audrey Rose Zarb, Wayne State University

This training program was developed and improved with the support of residents and community members in Flint, MI. We are grateful for their feedback, which made it possible for us to share the training materials publicly.

Available at:

<https://www.n-e-wcycles.org/train-the-trainers>

If you have recommendations for how to improve these training materials, please contact Dr. Nancy Love, University of Michigan, nglove@umich.edu

Table of Contents

Train the Trainers Curriculum	1
Suggested Materials List	2
Training Script	3
Welcome and Overview of Training	3
Program Overview - Activity	3
Module 1: Point-of-Use Filter Installation	4
Module 1 Introduction	4
Module 1 Instruction	5
Module 1 Activity	8
Module 2: Using Point-of-Use Filters	8
Module 2 Set-Up	8
Module 2 Instruction	8
Module 2 Activity	11
Module 3: Point-of-Use Filter Device Maintenance and Cleaning	12
Module 3 Set-up	12
Module 3 Introduction	12
Instructional Handout Packet	15
MODULE 1: Point of Use Filter Installation	Handout-1
MODULE 2: Using Point-of-Use Filter	Handout-3
MODULE 3: Point-of-Use Filter Device Maintenance & Cleaning	Handout-4
Frequently Asked Questions (FAQs)	Handout-5
Flushing: Recommendations and Cost	Handout-6
Dry-Block Faucet Boxes Reference Images	A-1
Training Material Supplies List	A-4
Workshop Progress Card	A-6
Workshop Certificate of Completion Template	A-9

Train the Trainers Curriculum

Suggested Materials List

1. White board / flip charts to write down questions about filters at start
2. Name tag for each participant
3. Handout packet (page 15) for each participant, containing:
 - a. Module Instructions
 - b. Frequently Asked Questions
 - c. Flushing Recommendation and Cost
- d. Copy of script (optional)
4. Certification card to mark off training tasks with stickers
5. Arrow stickers (if available; writing an arrow with sharpie is an option)
6. Laptop and one instructional team member assigned to type up notes and questions to answer during the training.
7. Video camera with connections to projector to project demonstrations by presenter for easier viewing by participants (recommended)
8. Dry-block faucet boxes (one per table of 6 to 8 participants); containing one faucet with internal threads and one with external threads (page A-1).
9. Box of extra extender fittings for “special cases”; it is helpful to have one dry-block faucet box that has faucets that need special extenders or consideration and can be used as a demonstration for all.
10. Training Supply Boxes (see Training Material List, page A-4).
 - a. PUR and Brita Flow Directing Units
 - b. PUR and Brita filter cartridges
 - c. PUR and Brita fittings in labeled and closable see-through baggies to keep parts separated.
 - d. Adjustable wrench
 - e. Filter cartridge with part of outer housing cut open by Dremel saw. Rough edges will need to be sanded down or taped with duct tape, to protect participants from cuts.

Training Script

Welcome and Overview of Training

Good morning and welcome to the Point-of-Use Filter Training Session. We would like to thank *<name funding and supporting institutions>* for their support that allowed this workshop to be offered.

The goal of this training is to provide experience and knowledge to volunteer trainers so they can effectively disseminate information to *<your city>* residents about point-of-use (PoU) filters in a way that results in the empowerment of residents to install, maintain and operate their PoU filters correctly and safely.

This technical training program is comprised of three modules centered on how to (1) install, (2) operate and (3) maintain faucet-mounted activated carbon block PUR and Brita PoU filters that are often recommended for use as “lead filters” because of their ability to remove lead from water. Those who satisfactorily complete all components of this technical training program will receive a certificate of completion.

Program Overview - Activity

Please partner with another person, preferably someone you don’t know. Take a moment to introduce yourselves to each other, and then I’ll give you further instructions.

<Give a few minutes for partnering / introductions>

Next, I want you to each identify up to three questions you have about PoU filter installation, operation or maintenance.

<Give about 3 to 5 minutes for discussion>

Let’s come back together and share our questions. We will work to address all questions at some point during the training.

<Call on tables to share their thoughts/questions; one person writes questions on white board or poster pad>.

Thank you for sharing your ideas and questions. We have recorded them and will attempt to address all questions at some point during or at the end of the training. We will now move onto Module 1, which will discuss the installation of Point of Use Filters.

Module 1: Point-of-Use Filter Installation

Module 1 Introduction

- A. We will complete this training using the two most common types of point-of-use filter systems: Brita and PUR. Both of these filters are certified to remove both aesthetic (NSF/ANSI 42) and health-related (NSF/ANSI 53) contaminants.

Based on the NSF/ANSI certification, laboratory testing confirms the filters will remove the chemicals reported by the manufactures on the packaging, such as lead, some types of disinfection-by-products and chlorine. The filters are not designed to remove bacteria or viruses.

We will also consider the two main types of faucet threading: internal threads (what plumbers call “female threads”) and external threads (what plumbers call “male threads”).

<Show each with the dry faucet training device, and also point out on the handout>

Both PUR and Brita filter systems provide you with fittings to accommodate either type of threading system and most installations; we’ll show you an example of an exception as well that requires additional fittings not included in the box.

- B. Point-of-use filter system kits have the following 4 major components – the *Four F’s* (can also think of *Flint*, which begins with F, or *Flint’s Four F’s*):
 - I. It all starts with a [Faucet](#).

- II. The piece that connects to the faucet is a [Flow Directing Unit](#). It directs water flow either to the filter cartridge to produce filtered water or to bypass the cartridge and allow tap water to pass without being filtered. It can be used multiple times and lasts approximately 2 years.
- III. A [Filter cartridge](#), which is where water filtration occurs. During the “maintenance and cleaning” module, we will talk more about how the cartridge works and when to replace them.
- IV. [Fittings](#) to connect the Flow Directing Unit to the faucet.

Module 1 Instruction

- A. During this module, each of you will assemble each faucet (internal and external threads) and filter system (PUR and Brita) combination for a total of at least four assembly events. We will show you all how to do this first, then each one of you will get a chance to do this yourself. We’ll coach you until you can do it on your own.

<See steps 1.B.I and 1.B.II; demonstrate process of proper installation. Align with step-by-step handout.>

B. PUR-specific installation instructions

- I. Remove everything from the box
 - a. Flow Directing Unit (1)
 - b. Filter Cartridge (1)
 - c. Adapters (Go over female/male) (4)
 - d. Gaskets/O-rings (4)
- II. Remove Aerator from faucet and inspect threading on faucet (is it male or female?)



<Review what to do when aerator is hard to get off>

- III. Find adapter that fits your faucet and screws into your faucet
- IV. Place rubber gasket/o-ring in adapter that fits your faucet and thread the adapter into your faucet

- V. With adapter in place, mount flow diverter on faucet/adapter. To do so, place flow diverter housing below faucet. Squeeze white buttons adjacent to connection point on flow diverter housing (notice inside of connection point walls expand, providing room to connect to adapter) and lift unit to faucet so that mounting adapter slides into filter housing. Once adapter is fully inserted, release white buttons and flow diverter should be firmly attached to faucet.
- VI. Unscrew the top of the Flow Directing Unit
- VII. Remove Filter Cartridge from plastic and place Filter Cartridge into Flow Directing Unit
- VIII. Make sure the front arrow is facing "front" on Filter Cartridge (some cartridges don't have arrows)
- IX. It is a good habit to write date of filter installation on filter in sharpie
- X. Screw the top of the Flow Directing Unit back on. Indicator light will flash if filter cartridge is attached properly
- XI. Push Flow Directing Unit onto the adapter until you hear a "click"
- XII. Upon Installation, run COLD water through filter for 5 minutes in order to "activate" the filter cartridge (wet the media and rinse out black carbon fines).
- XIII. Always turn the lever to bypass after using the filter.

C. **Brita**-specific Installation Instructions

- I. Remove Components from Box
 - a. Flow Directing Unit (1)
 - b. Filter Cartridge (1)
 - c. Adapters (2)
 - d. Gaskets/O-Rings (2)
- II. Place the green arrows on the Flow Directing Unit as shown in the Instructional Handout, with one of the green arrows pointing down on the diversion lever and the second green arrow pointing toward where water will exit the filter.
- III. Unscrew aerator from faucet and inspect threads on faucet (is it male or female?)



- IV. Find adapter that fits your faucet and screws into your faucet.
 - V. If male threading, check to see if unit will mount directly onto faucet. Adapter might not be necessary.
 - a. If Flow Directing Unit can mount directly onto faucet without adapter, then there is no need to use adapters. Mount unit to faucet.
 - b. If Flow Directing Unit will not mount directly, select appropriate adapter.
 - VI. If female threading, check and see which adapter fits into faucet
 - a. With proper adapter selected, place gasket/o-ring into adapter and screw onto faucet
 - b. Screw Flow Directing Unit onto adapter
 - VII. Attach Flow Directing Unit to faucet by screwing unit on until finger tight. Do not use tools to tighten.
 - VIII. Once attached, support Flow Directing Unit with one hand while inserting the Filter Cartridge into the Flow Directing Unit.
 - IX. Line up the two pegs on the bottom of the Filter Cartridge with the two holes in the Flow Directing Unit, then press Filter Cartridge into Flow Directing Unit.
 - X. Once inserted, gently attempt to remove cartridge to make sure it will not budge.
 - XI. Upon installation, write down date of installation on filter cartridge.
 - XII. Flush COLD water through filter for 5 minutes in order to “activate” the filter cartridge (wet the media and rinse out black carbon fines)
- D. Special fixes: some faucet types need special extenders, especially for PUR device installation. The best way to deal with this is to bring your faucet’s original aerator and the entire filter assembly box with all components to a local hardware store; the attendants will help find a fitting to make it work. It also helps to bring a photograph of the faucet and fitting to the store. In almost all cases, just a single adapter will be needed. If you run into problems finding a fitting, the manufacturers say they will assist in identifying a proper fitting.

<Demonstrate to everyone how to manage a special fitting situation>

Module 1 Activity

Now, go to an installation station (two people per dry faucet box minimum, four maximum). EACH of you must complete one of each assembly for a total of FOUR. Do NOT perform an assembly unless you have confirmed that you have identified a trainer or trainer assistant *<indicate who in the room is a trainer or trainer assistant>* who has agreed to watch you complete the assembly and confirm they are watching you!

<Each individual goes to an installation station and completes their four assemblies>

Module 2: Using Point-of-Use Filters

Module 2 Set-Up

- A. Need a room with at least two water-flowing faucets.
- B. Install a PUR and Brita point-of-use filtration unit to each of the faucets.
- C. Disassembled filter cartridges
- D. Maxlon media in a see-through tube or jar. This can be obtained by disassembling a Maxlon filter cartridge and drilling a hold in the end to allow the media to come out. Capture it in a jar with a tight fitting lid. The material is added so that it dissolves and adds salts and taste to filtered water.

Module 2 Instruction

- A. Water flow *<see handout; project images>*
 - I. Water flow is controlled by the lever below the faucet.
 - II. Water flows through the distribution unit and exits through one of two outlets.
 - III. If water is to be passed through the filter, it moves from the Flow Directing Unit into the filter cartridge, then through the filter from the outside inward to the center of the filter cartridge cylinder, then out the center core channel of the filter cartridge.
 - IV. When the lever is vertical, flow is directed to the filter.
 - V. When the lever is horizontal, the filter is bypassed.

- VI. To help quickly identify if the water will be directed through the filter, we have provided everyone a set of green stickers. Once these stickers are installed, when the arrows line up you will know that water will flow through the filter. <see Instructional Handout>

<Demonstrate with handout/projected image and disassembled filter>

B. Filter cartridges

- I. You can see the filter cartridge is composed of an outer housing, and a fabric wrap that goes around an activated carbon block cylinder that is hollow in the middle. The water flows radially (from outside the walls of the cylinder into the middle and out the channel).
- II. Some PUR filters are Maxlon variety. The Maxlon version does not provide more treatment. It includes solid granules of salt in the middle outlet channel of the filter that dissolve to add salt and improve the taste of filtered water.

<Pass around Maxlon media sealed in closed glass jar for viewing>

C. Impact of filters on water quality

- I. The PUR and Brita faucet-mounted filters do an excellent job removing lead, which they are certified to remove. The lead exists as both particulate and soluble forms; both are removed by the filter.
- II. Bacteria are a common constituent in all drinking waters. Maintaining a certain amount of a disinfectant chemical, like chlorine, keeps bacterial counts low. The presence of a disinfectant chemical in drinking water is called a disinfectant residual.
- III. When water sits in pipes and does not move, as it does in home plumbing (called premise plumbing) for hours at a time (stagnation), the disinfectant residual can decrease and bacteria can grow on the pipe surfaces in layers called biofilms. Flushing home water lines after a period of stagnation helps to remove most of the bacterial growth that formed on the pipes. This is one type of flushing.
- IV. Many studies have shown that typical drinking water bacteria grow in activated carbon block filters (such as PUR and Brita) over time. Research

conducted at the University of Michigan and Wayne State University has shown that the buildup of bacteria in the filter cartridge starts with the first use of the filter, and the build-up increases as the filter approaches the end of its use period. Flushing filters can reduce bacterial counts. Typical drinking water bacteria in a well-managed drinking water distribution system are not known to be harmful. However, we share flushing strategies that residents can use if they choose to reduce bacterial counts in filtered water. We acknowledge that flushing water adds cost to water bills. We recommend flushing, and acknowledge that it is a personal choice. For this reason, we provide information so that filter users can make the best choice for their use patterns and families.

D. Types of Flushing

- I. There are three types of flushing: one is a one-time flush and the other two are routine maintenance flushes.
 - i. “One-Time Flush”: As we demonstrated in module 1, when the filter is first installed it should be flushed by passing water through the filter for five minutes.
 - ii. “Long Flush”: The long flush is designed to clean out the stagnant water in the pipes leading to the point-of-use filter after extended non-use (e.g., overnight, after being gone from home for approximately 8 hours or more, after vacation), and before a Use Period (a period of frequent water use, such as when cooking or cleaning). A “long flush” brings fresh water from the distribution system that contains disinfectant into the house.
 - a. *Note for Presenter: This involves letting water run through the faucet (bypassing the filter) for a period of time that can vary significantly depending upon the city and neighborhood. If the drinking water utility is able to maintain a disinfectant residual in distributed water coming into the home, then it is sufficient to flush until the water coming out of the faucet is noticeably colder. If the city is not able to consistently maintain a disinfectant residual in the distribution system serving the home with a point-of-use filter, then flushing time*

will need to be determined by measuring the length of time it takes to measure adequate disinfectant residual inside the home.

- b. Note for Presenter: It can help to be prepared with an example calculation of how much money it costs to flush the average home in the community where the training is being conducted. See example for Flint, MI on Page Handout-6 of Handout Packet.*
- iii. “Short Flush”: The second type of routine flush involves passing water through the filter and disposing of the water leaving the filter. It is designed to clean out bacteria that grew in the filter during periods of non-use. Manufacturers recommend running water through the filter cartridge for 5 seconds prior to each use period. Researchers have shown that it actually takes about 15-20 seconds of running water through the filter cartridge to reach the lowest bacterial count. Residents can consider these two options when making their choice of how long to flush.
 - a. See Page Handout-6 of Handout Packet, which shows that performing a “short” filter flush for about 20 seconds reduces the number of live bacteria by over 10 times.

Module 2 Activity

- A. Place the green arrows on the Flow Directing Unit so that one of the green arrows points down on the diversion lever and the second green arrow points toward where filtered water exits the unit.
 - I. When both green arrows are pointing down the water is being filtered (water exits from under filter cartridge)
 - II. If the two arrows are not pointing in the same direction the water is NOT being filtered (water is bypassing the filter and exits from directly under the faucet)
- B. Water Temperature
 - I. Water hot to the touch should only be allowed through the filter system bypass (lever horizontal) and should never be sent through the point-of-use filter cartridge (lever down).

- II. If hot water is sent through the point-of-use filter cartridge by accident, we recommend replacing the filter cartridge. Hot water can negatively impact the activated carbon and might lead to a decrease in filter effectiveness.
- C. The pressure of filtered water will be lower than water that bypasses the filter cartridge. As the filter gets dirty, more pressure loss will be observed.

Module 3: Point-of-Use Filter Device Maintenance and Cleaning

Module 3 Set-up

- A. Dry Assembly with flow distribution units installed
- B. Filter cartridge

Module 3 Introduction

- A. Point-of-Use Filter Cartridge Lifespan
 - I. Most filter cartridges are tested and ensured to function properly up to ~100 gallons assuming a well-managed drinking water system, which for an average family of four is about 2-3 months. Please note that this may vary - please check the filter cartridge box. ***If in doubt, change it out!***
 - II. The filter capacity is based on laboratory tests using a model water solution with 150 ppb lead. In order to pass the test and become certified, filters must ensure the concentration of lead leaving the unit is less than 10 ppb. Field monitoring in Flint, Michigan after the peak of the water crisis showed that lead concentrations were routinely below quantification (< 1 ppb).
 - III. Because water conditions experienced in homes are different than what is used to certify the filters in the laboratory, it is also possible that the filter could become compromised before reaching the 100-gallon certification.
- B. If any of the following conditions are experienced, then the filter cartridge should be replaced:
 - I. More than 100 gallons of water have passed through the filter cartridge
 - II. Hot water was passed through the filter cartridge
 - III. An indicator light on the Flow Directing Unit changed from green to yellow, orange, or red

- IV. There was a disruption in water quality being delivered to the house (e.g., water main break nearby, a boil water advisory was issued)
- V. A below average flow is experienced, or the filter appears to be clogged
- C. Don't forget -- after replacing a filter cartridge, remember to apply a 5-minute cold-water flush (through the filter), which is recommended by the manufacturer to thoroughly wet the media and rinse out black fines from within the filter cartridge.
- D. PUR and Brita Filters both have clues to remind you when it is time to replace your filter cartridge.
 - I. Most PUR Filter Directing Units have a light that indicates the status of the filter (see Instructional Handout Packet, page 15).
 - a. Green Light: Good
 - b. Yellow Light: Filter nearing end of life, prioritize obtaining replacement cartridge
 - c. Red Light: Time to replace the filter cartridge
 - d. When the light no longer works on a PUR Flow Directing Unit, the battery in the unit has worn out and a new Flow Directing Unit is needed (lifespan approximately 2 years).
 - II. Brita Filters
 - a. Uses a dial indicator to track the volume of water that flows through device. When the dial reaches the red zone, it is time to replace the cartridge
- E. Cleaning your filter
 - I. It is best to clean the flow distribution unit whenever the cartridge is replaced. Based on manufacturer recommendations, clean with soap and water. Thoroughly rinse the Flow Directing Unit before using again. You can clean the aerators by flowing water backwards through the unit.

Instructional Handout Packet

MODULE 1

Point-of-Use Filter Installation

There are two main types of faucet threading: **internal threads** (what plumbers call “female threads”) and **external threads** (“male threads”).



Internal (Female) Threads



External (Male) Threads

What do I do if I have a PUR filter?

What's in the Box

Flow Directing Unit

Filter

1 PUR System

1 Filter Cartridge

4 Adapters and Washers
Choose the one that's right for your faucet

Fittings

A (all-metal adapter) **B** **C** **D**

External Threaded Faucets **Internal Threaded Faucets**

Adapter Installation Instructions

- 1 Remove your original aerator and its washer. Use a rubber jar opener if aerator is difficult to remove.
- 2 Choose your new adapter to match your faucet threading. Be sure black rubber washer is inserted into the threaded end of adapter.
- 3 For external threaded faucets, try adapter A. If A doesn't fit, try adapter B.
For internal threaded faucets, try adapter C. If C doesn't fit, try adapter D.

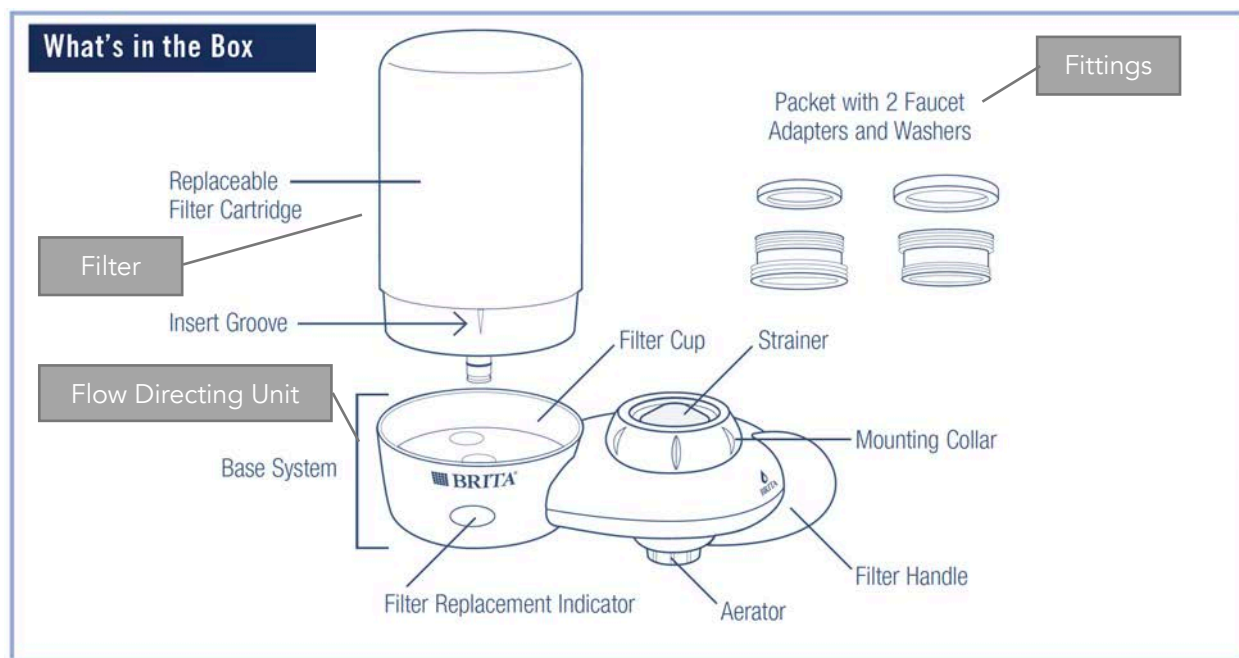
Finger-tighten your new adapter and washer to your faucet.

Filter Installation Instructions

- 1 Twist top cover off.
- 2 Insert filter into the device. (Don't worry, the filter will fit loosely.)
- 3 Replace top cover.
- 4 Install the PUR device with 1-CLICK.

Before using the filter for the first time, flush cold water through the cartridge for 5 minutes.

What do I do if I have a BRITA filter?

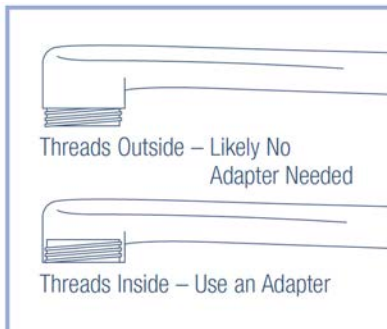
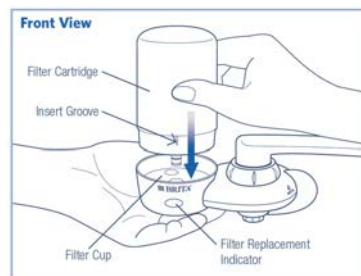
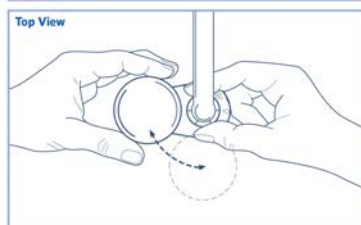
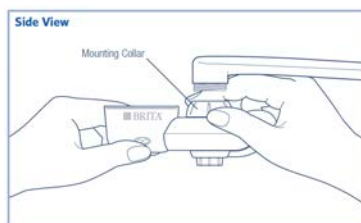


Filter Installation Instructions

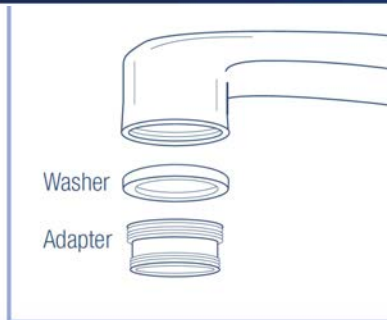
Attach Base System to the Faucet

Position the base system so that the filler cup is on the left side of your faucet and the filter replacement indicator is facing you. Twist the mounting collar onto the faucet and tighten by hand until snug. Make sure it is leveled, and don't force it to fit. **Do not tighten with pliers. Do not over-tighten.**

If you are having difficulty, rotate the base system backward and forward while further tightening the mounting collar.



Adapter Installation Instructions



Attach Filter Cartridge to the Filter Cup

Support the bottom of the filter system with one hand. Align the insert groove on the lower part of the cartridge with the filter replacement indicator at the front of the filter cup. Insert the filter cartridge into the filter cup. Lightly pull the filter back out, making sure it is engaged. Do not force the filter cartridge into the system base. Inserting the new filter cartridge automatically resets and activates the filter replacement indicator.

Before using the filter for the first time, flush cold water through the cartridge for 5 minutes.

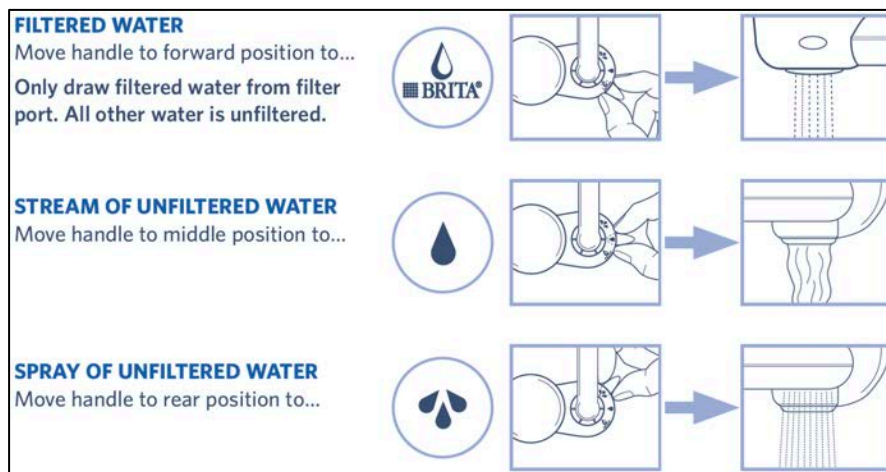
MODULE 2

Using Point-of-Use Filters

When using the filter, only send **COLD WATER** through the filter cartridge.



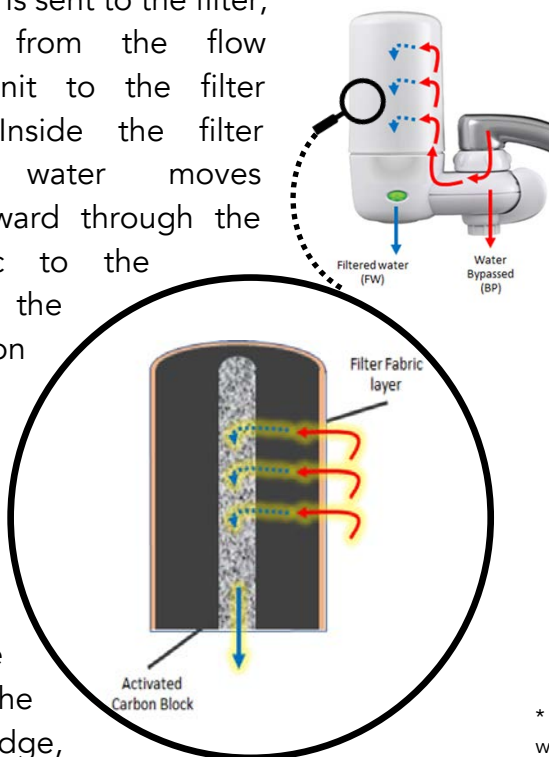
PUR Instructions



Brita Instructions

How water flows through the filter:

When water is sent to the filter, it moves from the flow directing unit to the filter cartridge. Inside the filter cartridge, water moves radically inward through the filter fabric to the center of the filter carbon block. Filtered water flows down and out the center core channel of the filter cartridge, through the filter port.



Flushing Recommendation

It is recommended to flush filters prior to use and after long periods of inactivity (>8 hours) to reduce bacterial levels in filtered water.

Greater than 8 hours of inactivity

• Flush water through bypass until cold or 1-2 minutes

Beginning of each use period*

• Flush water through filter cartridge for 15 seconds

Use filter

• Use water filter only with cold water**

* A use period is a period of frequent water use, such as when using filtered water while cooking or cleaning.

** If hot water is sent through the filter cartridge, it is recommended to replace the cartridge.

MODULE 3

Point-of-Use Filter Device Maintenance & Cleaning

BRITA



INDICATOR LIGHT



Flashing Green



Flashing Amber



Flashing Red

FILTER STATUS

Filter Working

When switched to the filtered Brita® water setting, the green light will flash to show your filter is working.

Change Filter Soon

When switched to the filtered Brita® water setting, the amber light will flash when your filter has 2 weeks or approximately 20 gallons/75 liters of life left. Your filter is working, but it has entered the **Replacement Warning Period** signaling that the filter will need to be replaced soon.

Change Filter Now

When switched to the filtered Brita® water setting, the red light will flash to indicate that your filter cartridge has reached the end of its life and needs to be replaced now.

If the filter replacement indicator appears solid red, it is time to replace the filter cartridge. To remove the old cartridge, turn water off, press the filter cartridge release button located at the back of the filter cup and pull the cartridge up to remove it. To insert a new cartridge, follow the directions in Module 1.

PUR

Indicates filter status and guarantees you will always have safer and healthier filtered drinking water. Green light will flash 6 times as you begin to use the filter. Replacement of filter cartridge resets the light.

Filter change light changes color depending on how long filter has been in use or how much water has been filtered. Filter will reach end of life at 100+ gallons filtered or 90+ days of use.

The filter change light contains a non-replaceable battery. The battery will eventually stop working but the filter is still functional.



FILTER IS WORKING



CHANGE FILTER SOON



END OF FILTER LIFE

Best Practices and Tips

Clean with soap and water. Make sure to thoroughly rinse the flow distribution unit before using again.

2. It is good practice to write the date of the installation with a permanent marker on each cartridge before installation.

Find more information:

Brita Filter: https://www.brita.com/wp-content/uploads/023_BRT_CBI_FF-100_UsersGuide.pdf

PUR Filter: https://www.pur.com/pub/media/catalog/product/file/fm_om_pds_classic_nki_04sep19_2.pdf

Frequently Asked Questions (FAQs)

How often do I need to replace my filter cartridge?

Change when indicator light flashes red or, for non-electric filters, when there is more red visible than green. Most filters are guaranteed to last for 100 gallons, which for an average family of four will be every 2-3 months. (Note: It is always a good idea to read the packaging to confirm that the filter you have has a 100 gallon lifetime.)

How often do I need to replace the system?

For battery powered filter housing, the batteries will die approximately every 2 years. The filter will still be functional, but there will be no indication of when the filter needs changed so it is advised to replace the system once the batteries die. The batteries are not replaceable.

Do filters filter out copper?

Activated carbon filters are capable of filtering out copper but have only been tested and guaranteed to remove what it states on the box/instructions. PUR and Brita faucet filters differ on the exact types of contaminants they filter out, but both are certified to remove lead, chlorine, and most disinfection byproducts. To be sure, check the box/instructions/website for more information.

What do I do if there is a Boil Water Advisory?

Change the filter once the Boil Water Advisory has been lifted.

Is it okay to run hot water through the filters? Are there any filters that you can run hot water through?

No, it is never safe to run hot water through activated carbon filters. There are probably some other filters on the market that do not utilize activated carbon that are capable of filtering hot water though.

Do shower filters work?

Some shower filters have activated carbon and some use other technologies (such as membranes). We would strongly advise against using activated carbon filters in the shower because, although they remove lead and chlorine, they can also breed harmful bacteria.

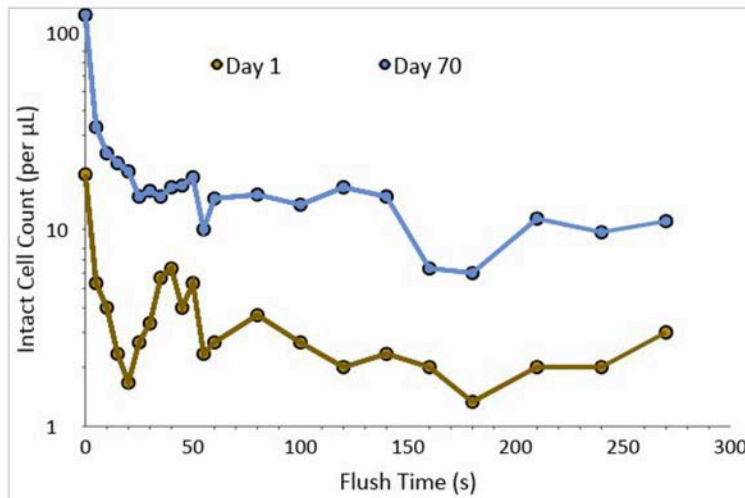
What if none of the adapters fit onto my faucet?

PUR and Brita can be contacted in order to provide the required adapter, or you can bring your faucet aerator and adapters from box to local hardware store and ask for help connecting the two.

Flushing: Recommendations and Cost

Why Flush?

The impact of flushing the filter cartridge on microbial counts in water leaving the filter



This figure shows us that performing a “short” filter flush for about 20 seconds reduces the number of live bacteria by over 10 times. After 8 or more hour of activity, we recommend flushing water from the pipe to the filter by bypassing the filter until the water feels very cold (about 2 or 3 minutes in most homes in Flint). We call this a “long flush.”

Note: This study completed by FACHEP.

Water can be expensive.

How much does it cost to flush a filter?

Based on our calculations (and assuming monthly residential water rates of \$4.312 per 100 cubic feet for sewer and \$6.187 per 100 cubic feet for water), we estimate that the average Flint resident who flushes for 1-2 minutes after every 8-hour period of non-use will **pay an additional \$24.85 each year** for flushing. **95% of Flint residents will pay \$51.86 or less** for a year’s worth of filter flushing.

How did we calculate this?

This cost is based on the following assumptions:

- Monthly residential rates of:
 - \$4.312 per 100 cubic feet (ccf) for sewer
 - \$6.187 per 100 cubic feet (ccf) for water
- Average flow rate of 1 Liter / 17.7 seconds
- The average Flint home has a volume of ~5.6L (requires 1.65 minutes (or 99 seconds) of flushing)
- 95% of Flint homes have a volume of ~11.7L (requires 3.45 minutes (or 207 seconds) of flushing)
- Our calculations do not include monthly service charges or regular water use

Dry-Block Faucet Boxes Reference Images

Please use these images as reference when creating your own dry-block faucet boxes. A local carpenter can assemble these boxes using wood, two externally (male) threaded faucets (can attach an internally-threaded adapter), and fasteners.



Image 1: Dry-block faucet box



Image 2: View from the underside of the box



Image 3: View from the top of the box (*note placement of nails*)



Image 4: Dry-block faucet box set up
Clear box contains assembly materials (page A-4)

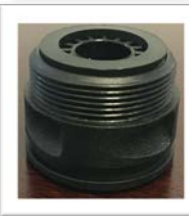
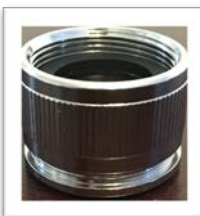
Training Material Supplies List



1. PUR housing unit



2. PUR filter



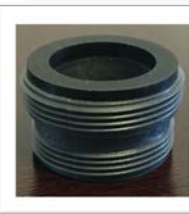
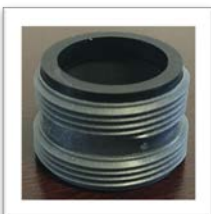
3. PUR fittings



4. Brita housing unit



5. Brita filter



6. Brita fittings

7. Adjustable wrench

8. Cloth

9. Sliced filter

Workshop Progress Card

Participants can use these cards to have activities marked as completed throughout the workshop. Completed postcards can then be submitted for a Certificate of Completion.

FAUCET FILTERS

Train-the-Trainer Workshop

PROGRAM COMPLETION CARD

Participant Name

Module 1

1	2
3	4

Module 2

Pür
Brita

Keep this card and submit for certificate upon completion

FAUCET FILTERS

Train-the-Trainer Workshop

PROGRAM COMPLETION CARD

Participant Name

Module 1

1	2
3	4

Module 2

Pür
Brita

Keep this card and submit for certificate upon completion

FAUCET FILTERS

Train-the-Trainer Workshop

PROGRAM COMPLETION CARD

Participant Name

Module 1

1	2
3	4

Module 2

Pür
Brita

Keep this card and submit for certificate upon completion

FAUCET FILTERS

Train-the-Trainer Workshop

PROGRAM COMPLETION CARD

Participant Name

Module 1

1	2
3	4

Module 2

Pür
Brita

Keep this card and submit for certificate upon completion

Workshop Certificate of Completion Template

Certificate of Completion

This certificate acknowledges that

Has successfully completed the
Point-of-Use Filter Train the Trainer Workshop

Awarded this day of , 20

