

Water Treatment: Ceramic Candle Filter



60 minutes total

Lesson Description



In this lesson, participants will study how to use and maintain a ceramic candle filter. This lesson will also focus on how a Community WASH Promoter can verify that a household is using their filter correctly, consistently, and continually.

Learning Outcomes



At the end of this session participants will be able to:

1. Demonstrate correct use of a ceramic candle filter
2. Demonstrate correct maintenance of a ceramic candle filter
3. Describe how a Community WASH Promoter can verify the correct, consistent, and continued use of a ceramic candle filter

Materials



- A Ceramic Candle Filter and Safe Storage Container
- Regional Poster “Ceramic Candle Filter Maintenance”. Posters can be found here: https://resources.cawst.org/poster_set/f7050959/water-sanitation-and-hygiene-poster-set-images-only
- Flip chart paper
- Markers

Preparation



- Set up a Ceramic Candle Filter and safe storage container
- Print copies (1 per 4 people) of ‘Ceramic Candle Filter Maintenance’ poster (see end of lesson plan)
- Optional: Write the learning outcomes on flip chart paper

Introduction

5 minutes



1. Ask the participants to discuss with a partner: “What do you know about a ceramic candle filter?” If they don’t know what it is, ask them to discuss what they think it could be.
2. Ask the larger group: “What can you tell me about a ceramic candle filter?” *A ceramic candle filter is a hollow cylinder that is usually made from clay mixed with a combustible material like sawdust, rice husks, or coffee husks. Silver is sometimes used to help with pathogen removal. One or more candles are attached to the bottom of a container. Water is poured into the container and flows through the*

candle and is used directly above a safe storage container. It is usually used primarily at the family or household level.

3. Present the lesson description or learning outcomes.

How to Use a Ceramic Candle Filter

15 minutes



1. Bring a ceramic candle filter (or display a picture of a ceramic candle filter) to the front of the group.
2. Ask participants: “Can someone describe to me how to use this filter?”
3. Clarify any questions by giving directions or demonstrating how to use the filter:
 - I. Prepare the filter: make sure that you have a storage container that is very clean and has a tap.
 - II. The ceramic candle filter should be already attached to the bottom of a container. Place that container on top of the open safe storage container.
 - III. Pour water into the top of the container which contains the ceramic candle filter (up to 10 litres)
 - IV. If the water is too turbid, it may need to go through sedimentation before pouring it in.
 - V. Explain to participants that a ceramic candle filter has very small holes and filters out the pathogens very effectively. Some ceramic candle filters have silver as part of the ceramic to help eliminate viruses from the water.
 - VI. Explain to participants that the ceramic candle filter can filter 0.1-1 L per hour.
 - VII. Explain to participants that although the filter is very effective, it is not 100% effective. It is very important to always add chlorine to the safe storage container, or use other means of disinfection, to make sure the water is fully safe to drink
 - VIII. Use the tap on the safe storage container for filtered water.
 - IX. The filter is usually good for 6 months to 1 year and the candle should be replaced if there are cracks or leaks.

How to Maintain a Ceramic Candle Filter

15 minutes



1. Explain to participants that sometimes the dead pathogens and organic material can build up so much on the ceramic candle filter that it can slow down the flow rate of water. When it’s filtering the water too slowly, the filter will need to be cleaned.
2. Explain to participants that they will now work in groups to discuss and write down the different steps for cleaning and maintaining a ceramic candle filter.
3. Divide the participants into small groups of 3-4.



4. Hand out a “Ceramic Candle Filter Maintenance” poster to each group.
5. Ask the participants to write down on flip chart paper the different steps and rules to cleaning and maintaining the ceramic candle filter.

6. Once the groups have finished writing down the steps and rules of cleaning the ceramic candle filter, ask the groups to take turns in presenting the steps.
7. As the groups describe the steps, demonstrate the step in front of the group using a real filter. The steps are:
 - a. Wash your hands with soap before beginning
 - b. Wash the lid with soapy water and let it dry. Place the lid with the clean side facing up
 - c. Remove the top basin and place it on the clean lid
 - d. Fill the top basin with filtered water
 - e. Using a clean brush, scrub the outside of the ceramic candle to remove sediment on the candle walls
 - f. Do not use chlorine or soap when cleaning the ceramic candle – filtered water and the brush are good enough
 - g. Rinse the ceramic candle with filtered water
 - h. Place the ceramic candle basin on a clean surface
 - i. Clean the storage container and tap with soapy water and rinse with treated water
 - j. Place the top basin back on top of the storage container immediately after cleaning to prevent recontamination
 - k. The ceramic candle does not have to be dried after cleaning

How a CWP Can Verify the Correct Use of a Ceramic Candle Filter



15 minutes



1. Explain to participants that they should now know how to use and maintain a ceramic candle filter effectively. In their role as Community WASH Promoters, it will be up to them to motivate beneficiaries to use and maintain their filters correctly, consistently, and continually.
2. Explain to participants that for any water treatment technology to be effective, it needs to be used correctly, consistently, and continually. We call this the 3 'C's.
3. Write the words: correct, consistent, and continued on a flip chart paper and explain their meaning:
 - a. Correct: the household is using and maintaining the technology, following the instructions by the manufacturer.
 - b. Consistent: all members of the household are using water treated by the technology throughout the day and from season to season.
 - c. Continued: all members of the household are using treated water every day over the long-term.
4. Explain to participants that as Community WASH Promoters, they need to also be "WASH Detectives". As a "WASH Detective" they need to try to find out if the user is using their filter correctly, consistently, and continually. Explain to participants that you will be practicing being a WASH Detective later in the week.

5. Ask participants: "What are some ways that we can check if the user is using their filter correctly, consistently, and continually?" *To collect that information, you can either make observations or ask questions.*
6. Put two flip chart papers on the wall in the front of the group. Draw an eye at the top of the first paper, and a question mark at the top of the second.
7. Explain to participants that sometimes, asking people questions is not enough. Many people may want to tell you information that is not necessarily true because they want to impress you on how well they have been using their filter. At this point, it is important to acknowledge that you are there to help them use their filters correctly. You will need to make observations to make sure that the user is using it correctly, regardless of what the user is telling you.
8. Divide the participants into 2 large groups. Assign 1 group 'observations' and the other 'questions'.
9. Ask participants to work with a partner to make a list of either: things you can observe, or possible questions (depending on their assigned group) to ask the user that would indicate if the user is using and maintaining the filter.
10. Ask the participants to share their answers with the larger groups. Write their answers down on the respective flip chart papers.

Possible answers:

Observations 	Questions 
<ul style="list-style-type: none"> -The candle filter in the top container is wet -There is water in the bottom container -The tap is clean -There is no bacterial growth on the candle -The filter is in a permanent place (not on the floor) -The filter is not being exposed to sunlight -The filter is not cracked -The safe storage container looks clean and not cracked -You can see the user demonstrating how to use and maintain the filter correctly 	<ul style="list-style-type: none"> -Are you using the filter every day? -How often are you using the filter? -What water do you drink when you are not at home? -What water do your children drink when they are at school? -What source of water do you use? (during the wet / dry season?) -How do you maintain the filter? -How often should you change your filter? When did you last change it? -When you leave the house, where do you get your water from? -How do you feel about your filter? -How much chlorine do you use?

Review

5 minutes



1. Take down the posters of the observations and questions.

2. Ask the participants to work with a partner and discuss how the filter works to remove pathogens from contaminated water.

Reflections on Lesson