Knowledge Domain: Plumbing
Unit: Filters
Skill: Cleaning

Tools and Parts Required:

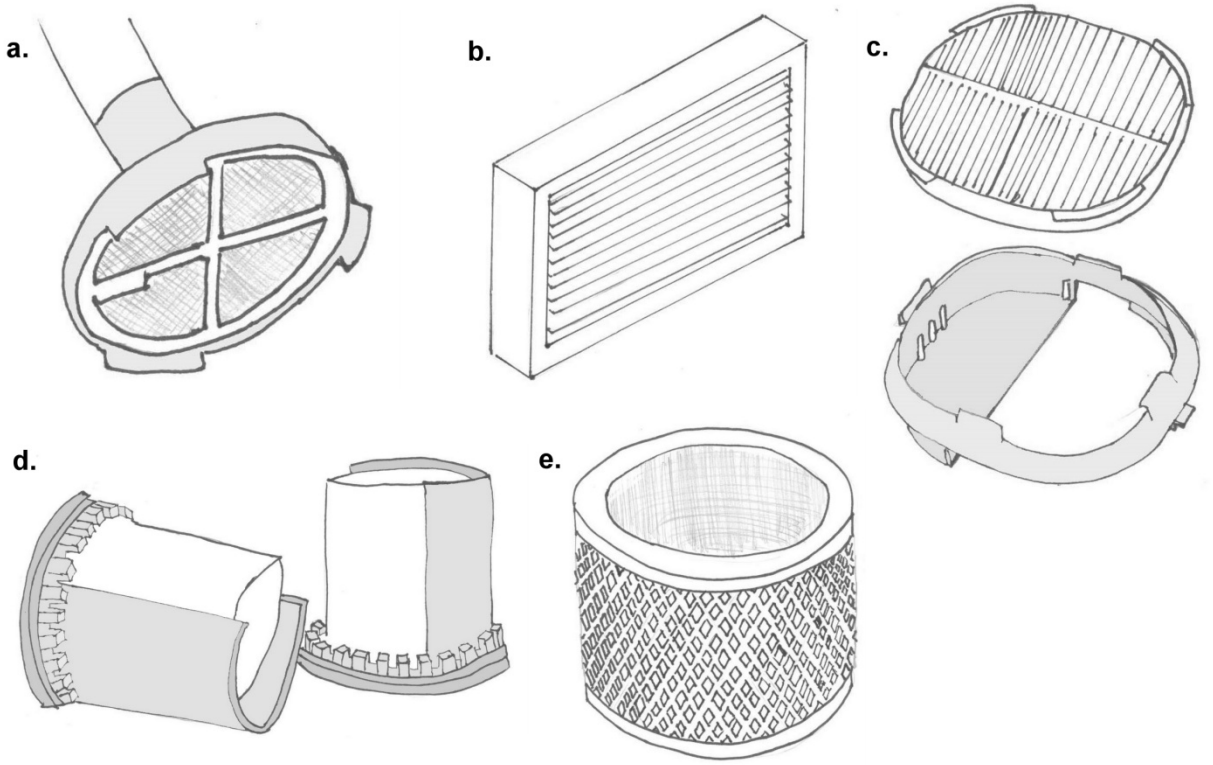
1) **Water**
2) **Soap, Bleach or Vinegar**
3) **Toothbrush, paintbrush**
4) **Sink or tub to hold filter**
5) **Dirty Filter (Car filter works)**

Introduction

Many pieces of medical equipment have filters. Ventilators, oxygen concentrators, incubators, and suction pumps all have filters. Cleaning filters is an important part of preventative maintenance. Dirty filters can reduce air flow and reduce the performance of medical equipment. Filters can be paper, plastic, or metal. Plastic and metal filters are more easily cleaned.

Example

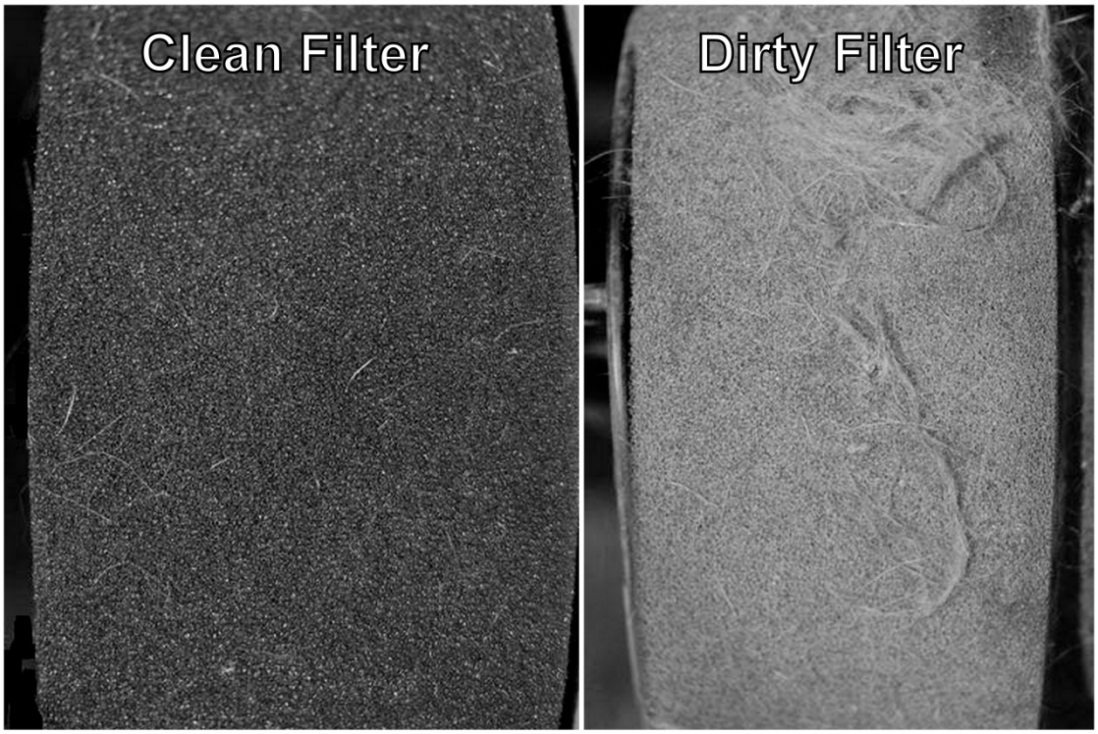
Filters come in all shapes and sizes, depending on the machine. Here are some examples of filters:



a. disc filter, common in suction machines, b. flat panel filter, common in incubators or ventilation systems, c. flat filter, shown with housing beneath, d. round sponge filter, common in nebulizers, e. cylindrical filter, common in engines and compressors.

Here is a picture of clean filter and a dirty filter:

Dirtier filters are not always darker. Here's another example of a clean and dirty filter:



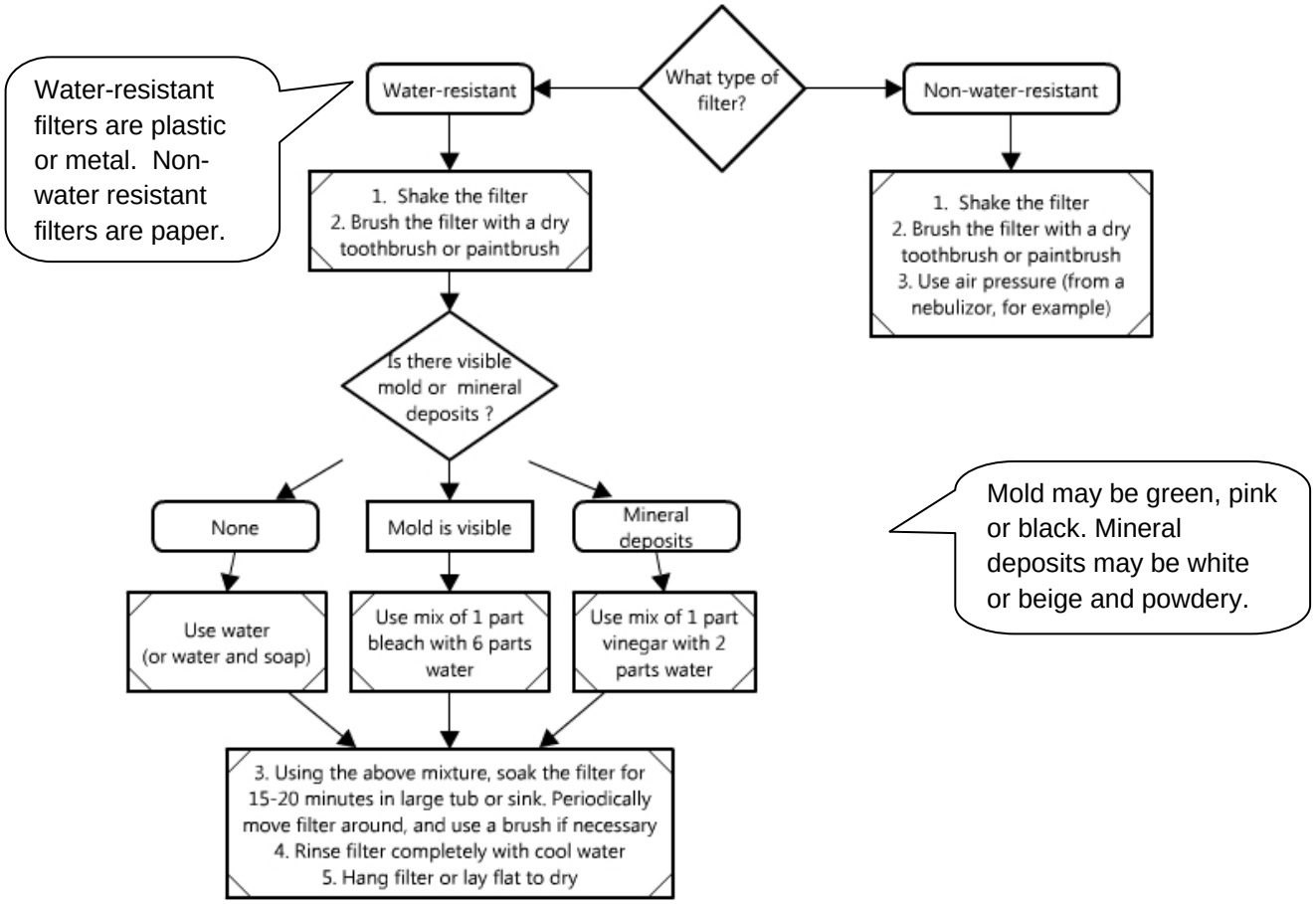
Identification and Diagnosis

You may see that a filter needs cleaning by looking at the filter. Dirty filters are gray or discolored, and you may see dust.

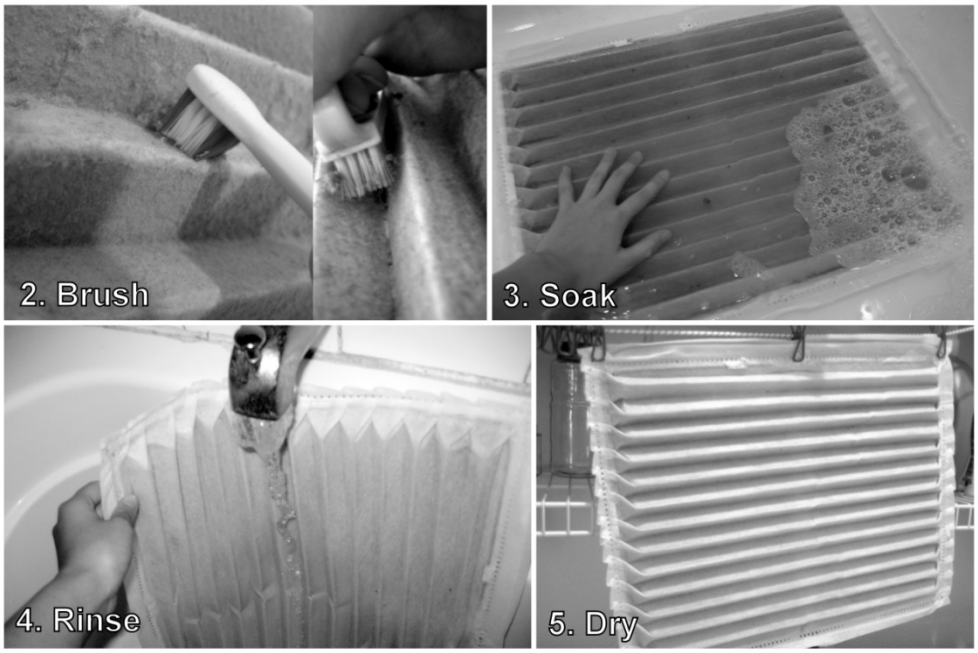
If the flow of air through the machine is reduced, remove the filter and test the air flow. If the flow of air increases substantially when the filter is removed, the filter is clogged and should be replaced or cleaned. If the machine gives an error like “clogged filter” or “blocked air line,” the filter should be replaced or cleaned.

Procedure

- Remove the filter. Filters are often in an accessible location on the machine. You may have to remove the filter from a frame or housing.
- If a replacement filter is available, it is preferable to replace the filter. If you cannot afford a replacement or one is not available, then you may be able to clean the filter.
- Examine the filter for any damage. If the filter is damaged, you will need to substitute or fabricate a filter. (see *Plumbing-Filters-Substitution* and *Plumbing-Filters-Fabrication*)
- Follow the flowchart below for instructions on how to clean your filter:



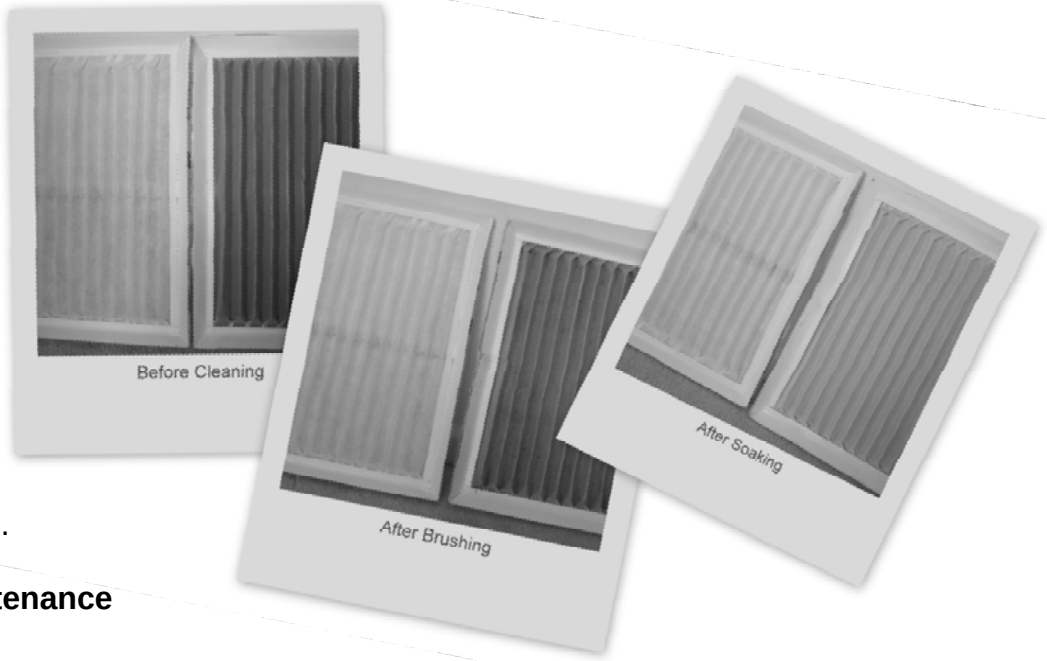
Here are pictures for steps 2-5 to cleaning a water-resistant filter:



Be sure to rinse off any soap, bleach or vinegar from the filter. It is important to let the filter dry completely before replacing the filter in the machine. Otherwise, the filter may grow mold.

Exercise

Your instructor will give you a machine that has a dirty filter inside. Remove the filter and follow the outline to clean the filter. Your instructor must verify your work before you continue.



Preventative Maintenance and Calibration

Check filters regularly (every 1-3 months). Replace or clean filters as needed.

Always verify proper operation of every medical device before returning to use.