



Rain & Well Water Filtration

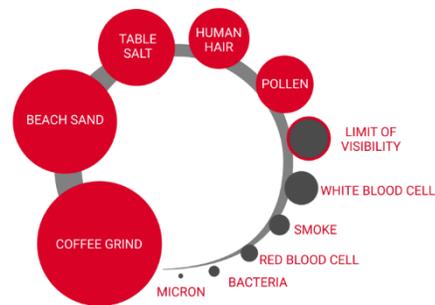
This last month we had several inquiries about filtering rainwater and whether it is necessary to filter well water. Great questions. Water filtration systems can be specialized to target a particular water issue such as high sediment (as in well water), or even a fluoride and chlorine taste found in some utility provided water. Rainwater also needs filtering.

While rainwater is filtered naturally through solar distillation, some not-so-fresh things happen to the rain on its way down—especially once the rain hits the ground or our roofs and collects chemicals or organic material (e.g., ground runoff, tree drippings, dust, silt, animal waste). To return the captured rain to a potable state, there are simple and effective methods we can use for filtration. Consider the following five steps to clean both rain captured water and well water to ensure you have a safe and efficient potable water system.

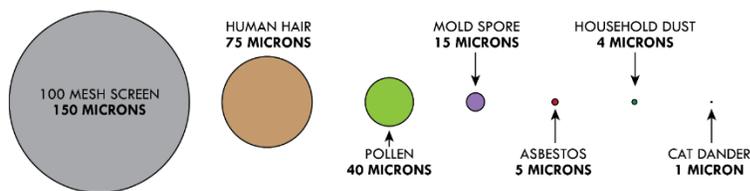
Pre-tank filtration. First, you will want to consider pre-filtering rainwater that enters your catchment system. It is important to filter out leaves, dust, and large organic particles before they get to your storage tank. Inexpensive items to consider include leaf guards on your gutters, screens over inlets and outlets to keep out mosquitos, and a “first flush” mechanism. For now, just Google “first flush”—we’ll write a more in depth article on several first flush alternatives in future issues.

In-tank sediment filtration. Sedimentation will most heavily be concentrated on the bottom of a given cistern, so if we can reduce turbidity in the water by piping it from where it flows in the top of the tank to a lower point—underwater in the tank, the incoming water won’t splash directly into the tank and stir it up. Then, by drawing the water from the middle of the water level (using a floating intake filter), you’ll get the cleanest water out of your storage tank.

Sediment filtration. Any remaining sedimentation in the water should be filtered out as thoroughly as possible. Sediment size is measured in microns—the higher the micron reading, the larger the particulate. All well water and rainwater systems should include a two-stage sediment filtration system, first through a 20 micron sediment filter, followed by a 5 micron activated carbon filter.



Activated carbon. All water will carry with it its own taste and odor. To get the best water quality possible from wells or rainwater, as well as the best tasting water, a 5 micron activated carbon filter is a must. The 5 micron activated carbon filter is placed after the



sediment filter and right before a UV sterilizer.

UV Sterilization. The final step in any well or rainwater filtration system needs to be disinfection (killing bacteria) or sterilization (sterilizing bacteria so that it cannot reproduce, thereby rendering it harmless). Even after filtering the water down to 5 microns, bacteria can still be present in the water. While some potable water systems use chlorine to disinfect the water, the CTGCD's recommended method for removing bacteria in water from wells and rainwater is via ultra-violet sterilization. UV sterilizers offer a safe and effective result; they destroy 99.9% of waterborne microorganisms.

What about cost? Whole house filtration systems for sediment, carbon filtering, and UV sterilization cost about \$1,000, but also plan on changing your filters regularly (filter and UV light replacement times vary from about 6 months to 1 year) at a projected collective cost of about \$25 per month or a total of about \$300 per year.

Feel free to send more of your rain capture questions to us at the Comal Trinity Groundwater Conservation District by emailing Dr. Sunn at comaltrinitygcdsecretary@gmail.com.