



Using Waste Wood and Bark to Filter Contaminants From Water

Researchers at the USDA Forest Service, Forest Products Laboratory (FPL), have developed processes for making water filters from forest waste wood and agricultural residues. These filters can be used to improve water quality by removing contaminants such as particles, oil/grease, heavy metal ions, pesticides, and phosphorus.

To apply this technology, FPL researchers are working to improve filter performance under field conditions. Preliminary data from these field studies indicate a removal efficiency up to 95% for particles, 85% for oil/grease, 80% for metal ions, 50% for pesticides, and 80% for phosphorus.

Current research is focused on improving contaminant removal through chemical, biological, and cold plasma modification of the filters. The next phase of research will focus on expanding field trials and testing different types of woody biomass under various conditions, with a view to determining product specifications and appropriate conditions of use. The FPL is seeking additional partners to move this research forward.

Absorption performance has been tested in different filtration units, including a commercially available product. One filtration unit consists of a fiberglass box that is equipped with pinyon juniper fiber filter mats that are held in metal frames. This unit is currently being tested in the Wayne National Forest for removal of metal ions in run-off from an abandoned coal mine.



Another filtration unit is fabricated from stainless steel sheet metal. Loblolly pine bark particles (i.e., the absorption filter) are contained in fiberglass netting inside compartments of the unit. This unit is currently being tested for removal of phosphorus in drainage from cranberry bogs.

Additional Information

<http://www.fpl.fs.fed.us/rwu4722/index.html>