

FREQUENTLY ASKED Q&A:

1. Do regulations in the state of Tennessee allow biochar or other carbonaceous products to be used as asphalt modifiers?

- The state of Tennessee has not forbidden the use of biochar or other carbonaceous materials – it just hasn't used them yet.
 - Furthermore, as to the carbonaceous materials, carbon black and carbon fiber have been used by other states, but not in Tennessee.
- The current innovation is still limited in the laboratory, and it looks very promising according to lab-testing results.
 - In addition, among the Tennessee Dept. of Transportation (TDOT) parameters that were tested, the results from the biochar binder met the TDOT specifications used for standard asphalt binders.

2. Is biochar a viable commercial product or is permission from the state required? Are there government regulations?

- Biochar is a viable commercial product, and it may be used in a variety of applications because of the different biochar types generated from differing production condition and source materials.
 - Biochar is very commonly used for soil amendment in the agricultural industry.
- Because biochar has only been used as a binder modifier in our laboratory, there are no government regulations for using biochar as a binder-modifier yet.

3. Has the Dept. of Transportation (DOT) in Nashville tried using biochar? Has there been any beta-testing that you are aware of elsewhere?

- Our laboratory is still the first to use biochar as a binder modifier so Tennessee DOT has not tried it, and there has not been any known beta-testing elsewhere.

4. What is it about the biochar that gives it superior performance? If it is morphology, will different biomaterials perform differently if they have different morphology than switchgrass?

- So far, both the binder and asphalt mixture testing results have shown very good modification with the addition of the biochar produced in our lab.
 - We are still working on its interaction with the binder.
 - In our preliminary study, we attributed the modification to its morphology, but we have been trying to investigate the physio-chemical reaction between the biochar and asphalt binder.
- Based on studies from other researchers, the morphology of the biochar varies depending on the production temperature, residence time, and source materials.