

OFF-GASSING OF CHARRED PELLETS DURING STORAGE

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Key Words: pellets, biochar, off-gassing.

The off-gassing tests for six types of charred pellets: canola straw, willow, bagasse, wheat straw, switchgrass and miscanthus, were conducted at room temperature 25 ± 2 °C in sealed storage containers. Pairs of 2-litre sealable glass containers were filled with 800 g of each sample to approximately 75% of the container volume. One container contained charred pellets. The other container contained uncharred (untreated pellets). The two glass containers were sampled in alternate weeks for CO₂, CO, O₂, and CH₄. The research involved testing and measuring the concentration of off-gases from the torrefied pellets stored at room temperature. The results indicate that after 2 months of storage the level of CO₂ generation was higher than CO₂ generated from untreated pellets but CO levels were lower. No trace of CH₄ was detected though the depletion of O₂ was comparable to untreated pellets. The oxygen concentrations in the charred pellets were ranked from the lowest to highest as follows: switchgrass, willow, bagasse, wheat straw, canola straw, miscanthus. The overall conclusion was that off-gassing from charred pellets from the tested biomass crops were as dangerous as from untreated pellets.