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**Effect of Onboard Compressors on Natural Gas Cycling in Microporous Carbon Adsorbed Natural Gas Tanks** MATTHEW PROSNIEWSKI, PETER PFEIFER, Univ of Missouri - Columbia — The search for cheaper and cleaner fuel sources has driven the study of carbon based adsorbed natural gas tanks. One drawback to these tanks is some non-methane components of natural gas are selectively adsorbed by the carbon and not released under standard discharge conditions. Permanently adsorbed gas decreases the amount of useable fuel stored and is normally extracted by a regeneration process of heating the tank while under vacuum. One proposed way to eliminate the need for regeneration is the use of an onboard compressor connected to the tank. At the University of Missouri, we used a 40L flat panel tank assembly to test the effect of a compressor over twenty fill and discharge cycles. By measuring the delivered mass during discharges and the mass added during fills we have tracked how the tank's efficiency changes with increasing use. Finding that even with the use of a compressor, in as little as five cycles, there was over a 2.5% drop in delivered gas during a discharge and an increase of 898g in the tank's mass at minimum operating pressure. This decrease in efficiency and mass gain shows that the use of a compressor does not eliminate the need for regeneration.

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