

Produced Water Society 2019 Presentation Synopsis

Removing BTEX from process water with a reusable adsorbent to increase the value of reclaimed methanol



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Water treatment is completed with different objectives depending on the application. Sometimes water treatment is completed to meet regulatory limits to discharge the water into the environment, but in this case study water treatment was one step in the methanol reclamation and purification process. Our client, a midstream operator, processes natural gas from the Gulf of Mexico containing high concentrations of methanol which needs to be removed prior to gas processing. The natural gas is washed with water to remove the methanol and then the methanol is distilled from the water and recovered. However, the natural gas contains levels of benzene, toluene, ethyl-benzene and xylene (BTEX) which is also absorbed into the wash water and distilled with the methanol, therefore reducing the value of the recovered methanol.

ProSep worked with its client to provide an innovative solution to remove the BTEX without impacting the methanol. The collaborative work consisted of three tests, including a field trial treating a slip stream of the process water. The water is approximately 5% methanol and 95% water with trace amounts of gas condensate components. After completing two rounds of testing it was discovered that ProSep's Osorb Media System (OMS) could be used to effectively remove the BTEX while allowing the methanol to pass through unaffected.

During the field trial the benzene was reduced by 99% for 48 hours and the toluene reduced by 99% for 135 hours in the process water. Additionally, an analysis of the distilled methanol showed a reduction in the BTEX concentration equivalent to the percent of the slip stream that was treated. The tests were replicable and repeatable.

To find out more about how the Osorb Media System, please contact Caleb Smathers at csmathers@prosep.com or [click here](#) to find out more.