

Oil Water Treatment by Nutshell and Dates Pits

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Abstract : The water accompanying oil in the oil production process is increasing and due to its increasing rates a problem with handling it occurred. Current solutions like discharging into the environment, dumping water in evaporation pits, usage in the industry and reinjection in oil reservoirs to enhance oil production are used worldwide. The water injection method has been introduced to the oil industry with a process that either immediately injects water to the reservoir or goes to the filtration process before injection all depending on the porosity of the soil. Reinjection of unfiltered effluent water with high Total Suspended Solid (TSS) and Oil in Water (O/W) into soils with low porosity cause a blockage of pores, whereas soils with high porosity do not need high water quality. Our study mainly talks about the filtration and adsorption of the water using organic media as the adsorbent. An adsorbent is a substance that has the ability to physically hold another substance in its surface. Studies were done on nutshell and date pits with different surface areas and flow rates by using a 10inch filter connected with three tanks to perform as one system for the filtration process. Our approach in the filtration process using different types of medias went as follow: starting first with crushed nutshell, second with ground nutshell, and third using carbonized date pits with medium flow rate then high flow rate to compare different results. The result came out nearly as expected from our study where both O/W and TSS were reduced from our oily water sample by using this organic material. The effect of specific area was noticed when using nutshell as the filter media, where the crushed nutshell gave us better results than ground nutshell. The effect of flow rate was noticed when using carbonized date pits as the filter media whereas the treated water became more acceptable when the flow rate was on the medium level.

Keywords : date pits, nutshell, oil water, TSS

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