

S1.5.4 TREATMENT FOR REUSE OF PETROLEUM PRODUCED WATER USING INTENSIFIED CERAMIC MEMBRANES

Nasser Zouli, Ph.D Student

Water demand in the world is increasing at the time where the water sources are reducing. This becomes more critical for the oil and gas countries as the production of petroleum needs huge amount of water. Therefore, treating properly the produced water in the oil and gas fields to reuse such water for petroleum production becomes a priority. There is necessity of economic, reliable and efficient methods of treating locally the oilfield produced water. Membrane technique is one of the methods used for wastewater treatment. With their higher chemical, thermal and mechanical properties, ceramic membranes are very promising as an alternative to conventional organic membranes. Molecular Filtration has devolved new technology by chemically treating the ceramic membrane with a Zwitterion acid to modify the surface of the membrane and enhance its separation capability. Such treatment also enhances further the fouling resistance of the membrane. This technology has been evaluated in this project for the treatment of wastewater produced in the oilfield, so it can be reused. To study such membrane performance, we have investigated the effects of transmembrane pressure, crossflow velocity, and feed temperature on the separation capabilities and fouling of the membrane, and the resulting quality of the recovered water. The results and findings will be presented.