

ABSTRACT

Oil industry is one of the most profitable incomes to the countries depending on the oil quality. Oil qualities such as American Petroleum Institute (API), water content, sulfur, gas, contaminations, etc..

Separation is the first process after crude oil receiving to remove water and gas by gravity. The performance of the separator is a main reason of controlling oil quality. Also interface level of oil and water is the most difficult emulsion area and hard to break the emulsion bonds easily. Separator design of Palouge field is facing this emulsion breaking problems and work as a degasser only.

There is a theoretical modification to improve the separation performance mechanically by fixing internal parts depending on Stoke's equation inside the horizontal separator .These parts such as straightener to convert the flow stream from turbulent nearly to laminar and coalescing devices to increase the droplet coalescing and capturing which increase the drops size. The results of the modifications are compared by computation fluid dynamics soft ware (FLUENT) and give acceptable results of the enhancement of the liquid separation.