HP DEMU

A Demulsifying Additive for Crude Desalting Units

All crude oils contain oil insoluble impurities such as salts and sediments. Adverse effects of these impurities can result in frequent shutdowns and equipment failure. To prevent corrosion and fouling of equipment, electrical desalting units (Fig 1) are installed in crude oil distillation units to remove water soluble salts from oil. Desalting involves mixing heated crude oil and water. After mixing, water drops are allowed to coalescence and settle due to gravity.

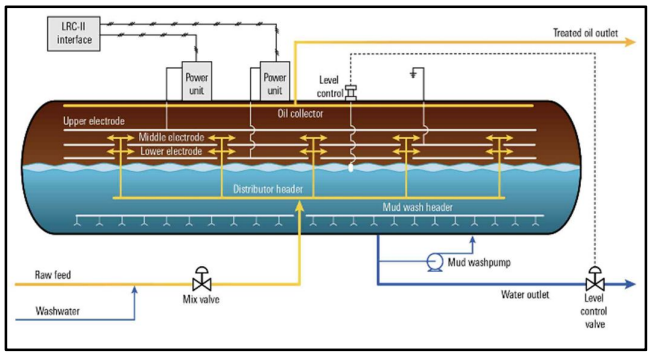


Fig 1 Desalter

Effective separation of oil and water phase is required for salt removal and to prevent the risk of water carryover in oil. Therefore, chemical demulsifiers are added to promote the water-oil emulsion breaking

Existing demulsifiers are not effective for heavy and high salt content crude like Basrah Heavy, due to higher amount of natural surfactants like asphaltenes. In order to improve the efficiency of desalter operations through chemical route, particularly for heavy and high salt content crudes, HP DEMU has been developed in house at HPGRDC.

HP DEMU has shown significant improvements in performance of desalter w.r.t following parameters:

- Improved salt removal from crude
- Less carryover of oil & grease in effluent water

Follow tables summarize the salt removal (Fig 2a) and Oil & Grease analysis (Fig 2b) over a period of six months at HPCL Mumbai Refinery

Fig 2a

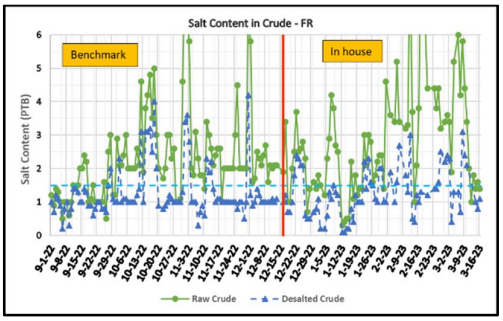
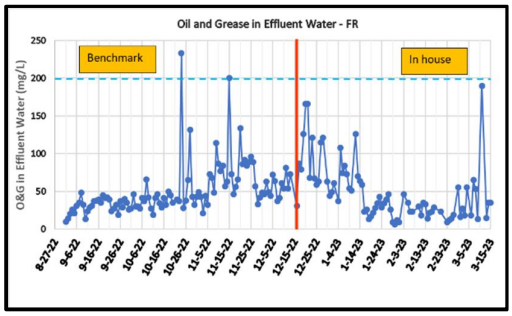


Fig 2b



HP DEMU met the desalting KPIs with lower dosage in trials conducted at CDUs of HPCL Mumbai & Vizag Refinery. It was also more efficient in removing salt from high salt content crudes and was also able to prevent carryover of oil & grease in the effluent water more effectively.