

Effect of operating conditions on performance of a Heavy Oil Upgrading system: Experiments and Process simulations

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A short-cut model for a hydrocracking-based heavy oil upgrading process is presented. The process is modeled in ASPEN HYSYS and then validated using experimental data from both once-through mode and recycle mode. The effect of important variables such as the operating temperature, liquid feed rate and recycle ratio on product distribution, impurities and conversion was investigated. The most interesting result shows that the effect of increasing the recycle ratio from 0.2 to 1.17 on the global conversion is equivalent to increasing the reactor temperature by 14°C, from 415°C to 429°C, to obtain the same global conversion.