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Key analytical techniques applied for hydro-processing studies of refinery feed stocks

Abraham George, Mariam Nasser Al Shebli, Nilesh Chandak, Noura Al Kaabi and Muhammed Shams

ADNOC Refining Research Centre, UAE

Hydro-processing at the refinery refers to hydro treating and hydrocracking. Removal of sulphur, nitrogen and other trace elements by reacting with hydrogen is hydro treatment and cracking of long chain and heavy hydrocarbon molecules to the desired smaller chain light compounds is hydrocracking. Pilot plant tests are commonly performed to study the impact of changes in process variables and catalysts on the products. Hydroprocessing products in gas and liquid form are extensively analyzed for their detailed composition, trace level of contaminants, boiling range and physical properties. Gas composition is analyzed using online refinery gas analyzer (GC-RGA) and liquid products are analyzed using trace sulphur (UV-Fluorescence detection) and nitrogen analyzer (chemi-luminescence-detection), simulated distillation (GC-SIMDIST), X-ray sulphur analyzer, TBP (true boiling point) distillation unit and other lab equipment. Analyses are performed in

accordance with ASTM, IP and in house test methods. The specific instrument set up, application of various detection techniques and data processing are necessary for successful pilot plant study to support the refinery hydro processing operations.

Biography

Abraham George is working as the Team Leader of Analysis section at ADNOC Refining Research Centre. He has 25 years of experience in the area of petroleum inspection and laboratory analysis. He graduated in Chemistry and obtained Master's degree in Business Administration. He has worked in various capacities in managing laboratories in India, Saudi Arabia and in UAE and involved in inspection and analysis of entire range of crude oil, petroleum products and other materials.

abrahamg@adnoc.ae