

HDS screening capabilities using Avantium's parallel fixed bed technology

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Introduction

World wide specifications for transportation fuels have become more stringent over the years. This has fueled catalyst development in the field of hydroprocessing and related refining areas. Avantium's parallel fixed bed technology, which is used in Avantium's catalyst research services and in the Flowrence™, allows our customers to increase catalysts screening capabilities and accelerate catalysts development. This technology is successfully applied in the field of hydroprocessing like hydrodesulphurization (HDS) and hydrodenitrogenation (HDN).



Figure 1: Avantium's Parallel fixed bed reactor systems

Results and Discussion

Strict control of liquid and gas flows, as well as pressure and temperature and gas-liquid separation, enables highly accurate screening and development of HDS catalysts.

Testing accuracy using Avantium's parallel fixed bed systems is similar to those observed using state of the art large(r) single reactor systems. In the case of ULSD applications, desulfurization from high sulfur feeds until sulfur levels below 10ppm can be achieved very accurately. At levels of 10 ppm sulfur the standard deviation between individual reactors is close to 1 ppm.

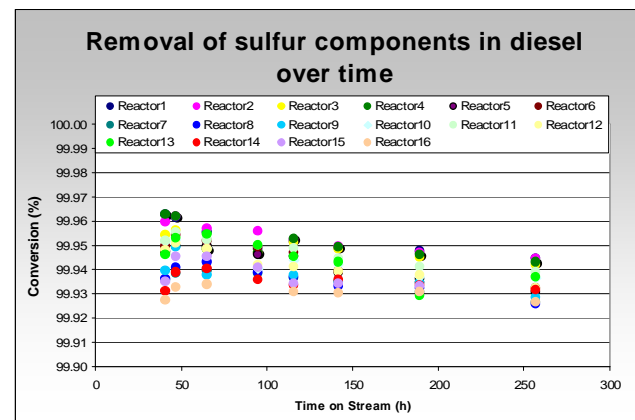


Figure 2: >99.9X % conversion: removal of sulfur components in Diesel

Significance

Application of Avantium's parallel fixed bed technology enables fast screening and optimization of catalysts and thus accelerating catalyst development