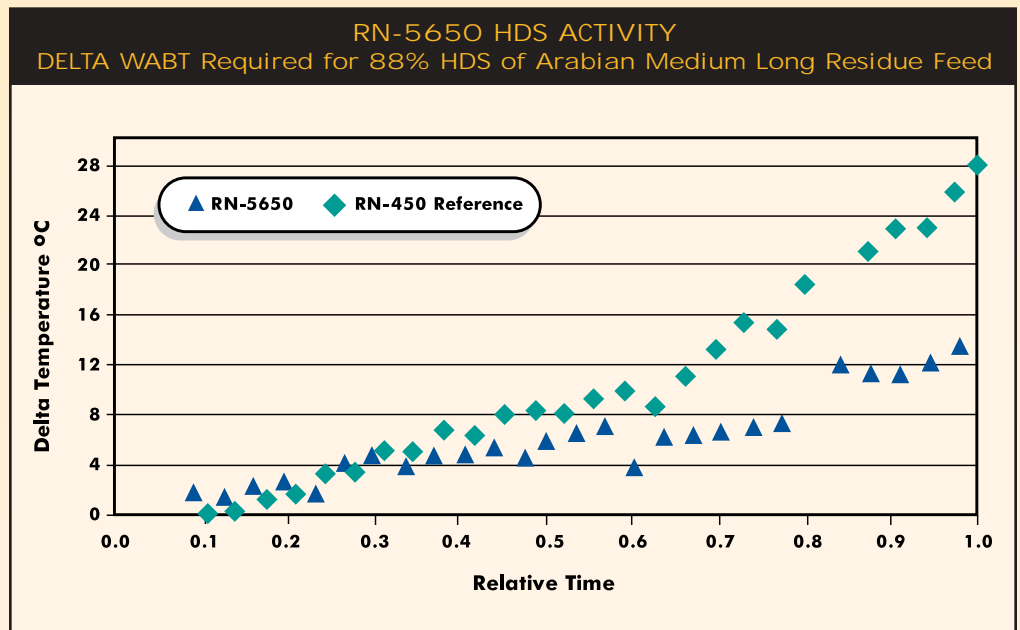




RN-5650: Enhanced Stability Tail End HDS Catalyst

The Tail End catalysts have, in addition to high hydrodesulphurisation activity, the highest level of hydrogenation activity. These catalysts are designed to stand the most severe operating conditions caused by higher operating temperatures and lower hydrogen partial pressures in the back end of the residue hydrotreating units.

For customers that need high hydrogenation, (where the main objective is high HDS or HDN or HDCCR) Criterion already has RN450, which is the best Residue Hydrogenation catalyst available in the market. RN-5650 is the latest addition to Criterion's portfolio on Tail End HDS catalysts. The RN-5650 catalyst has significantly higher stability than its predecessors RN-450 and RN-650. RN-5650's advantage is higher stability at very severe operating conditions, which makes this catalyst very attractive for maintaining cycle length at severe operations such as low pressure, high VR conversion, and/or high temperature



Delta Temperature Differential in HDS for catalysts RN-5650 and RN-450 for meeting a specific sulphur in product target.

operations. Tests have shown that RN-5650 highly impacts the very heavy fraction of the feeds, thus allowing for deeper HDS than possible with conventional products.

The above chart shows the rate constant for sulphur removal for RN-5650 vs. RN-450. The RN-5650 catalyst shows higher stability for sulphur removal even though it starts at slightly lower SOR activity. Target applications to take advantage of this new product are those where the feed contains high levels of VR and where operating pressure is low.