EuroSciCon

EuroSciCon Conference on

Biochemical, Chemical Engineering & Mass Spectrometry

November 19-20, 2018
Prague, Czech Republic

Arch Chem 2018, Volume: 2
DOI: 10.21767/2572-4657-C4-012

CHANGE REFINERY GASOLINE ECONOMICS BY BREAKTHROUGH SMART TECHNOLOGIES: RHT-ALKYLATION AND RHT-ISOOCTENE AND ISOOCTANE TECHNOLOGY

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Advances in alkylation technology: With the discovery of RHT-alkylation, sulfuric acid alkylation process configuration and equipment provides multiple paradigm shifts and breakthroughs in the technology but keeping same reaction chemistry. The breakthroughs reduce the capex and opex in region of 40 to 50% compared to conventional technology; this is not just improvements but major paradigm shift. The process uses a unique educator mixing device, which reduce the costs and maintenance requirements on stream factor with simple equipment. The unit uses classical coalesces for separating the acid and hydrocarbon from the contactor/reactor effluent, making it a dry process that simplifies the process by reducing equipment items, corrosion and cost. Additionally major breakthrough is in absorbing the auto refrigeration vapors in reactor effluent. This reduces the requirement for compressor saving 20% capex and 50% of power requirements and operating costs. These are major benefits to the refining industry and should be embraced by the industry to make the competitiveness of the unit. RHT-isooctene/ iso-octane process provides major economic advantages with simple and smart configuration which enhances the yield and reduces the equipment sizes and utilities. Advances simplify the technology and provide economy of scale.

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Figure 1
RHT-Alky: BLOCK FLOW DIAGRAM