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A Study on Role of Catalyst used in Catalytic Cracking process in Petroleum Refining

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Abstract:Catalytic cracking has emerged as the most widely used petroleum refining process in the world. This paper highlights the importance of Catalytic Cracking and its main process called as FCC, and the different types of catalyst used in Fluid Catalytic Cracking. A typical barrel of crude is approximately 30% straight run gasoline, but demand is nearly 60% per barrel. This goes to show the need for an efficient catalytic cracking unit to increase gasoline production. Catalytic cracking reactions produce coke as a by-product through hydrogen disproportionation. One major problem associated with this process includes coking on the catalyst surface. This regeneration process is exothermic, whereas the cracking reactions are endothermic which allows for the unique opportunity of a heat-balanced reaction if the catalyst can be regenerated continuously. This also creates a problem of how to create a reactor that can continuously regenerate catalyst while capturing the heat generated to run cracking reactions. Therefore, the FCC unit was then developed to solve this problem in refining industries.

Keywords:*Crude, Cracking, FCC, catalyst, gasoline, exothermic.*

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