

New Generation of Hydrocracking Catalysts Provides Efficient Hydrogen Utilization

In the past 2 years UOP has commercialized six new hydrocracking catalysts. These catalysts are receiving rapid acceptance as shown in Figure 1. UOP has created a catalyst design engine that has enabled this unprecedented level of development. This engine utilizes fundamental research into the contributions of each of the components of a hydrocracking catalyst to design new catalysts to meet the market's needs. For example, one of the most important drivers for refiners in the current environment is hydrogen management. UOP's newest hydrocracking catalysts, HC™ 215, HC 115, HC 53, and HC 150 provide more efficient hydrogen utilization than any previous generation of hydrocracking catalysts.

HC 215 and HC 115 catalysts are distillate selective catalysts that are more active than traditional amorphous distillate catalysts. While HC 115 catalyst is more active than the amorphous DHC™ 8 catalyst, HC 215 catalyst is both more active and more selective than DHC 8 catalyst. As shown in Figure 2, these catalysts represent improved performance relative to the traditional selectivity-activity relationship. The effective utilization of hydrogen by HC 215 catalyst is evidenced by the lower hydrogen consumption

than DHC 8 catalyst, while producing higher yields of distillates with similar distillate quality.

Although HC 115 catalyst consumes more hydrogen, it is designed to put the hydrogen into products that require lower aromatics content. HC 115 catalyst is intended for refiners who desire higher quality distillates (both jet and diesel) and higher quality fractionation column bottoms (for lubes or ethylene cracker feed).

HC 150 and HC 53 catalysts provide flexibility for production of distillate or naphtha. HC 150 catalyst is approximately 10°F more active than HC 43 catalyst. This enhanced activity is achieved while maintaining similar distillate yields and similar stability to HC 43

catalyst. The higher activity can be used by the refiner to increase cycle length, process more difficult feeds, or increase throughput. HC 150 catalyst reduces hydrogen consumption by converting heavier portions of the feed without over-saturating the aromatic components.

HC 53 catalyst employs a different metal functionality to reduce aromatic saturation of the naphtha products while maintaining or increasing the saturation of the heavier products. The overall hydrogen consumption is lower and the resulting naphtha has a higher octane.

Refiners can benefit from UOP's new hydrocracking catalysts through more efficient hydrogen utilization. By developing catalysts that put the hydrogen in the desired products, UOP is providing hydrocracking catalysts that are quickly gaining acceptance by refiners worldwide. ■

Figure 1
New Unicracking Catalysts Market Acceptance

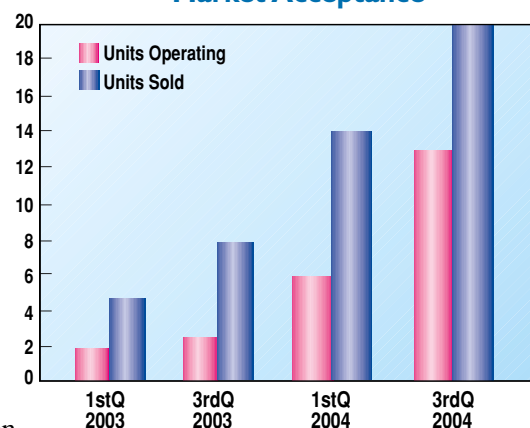
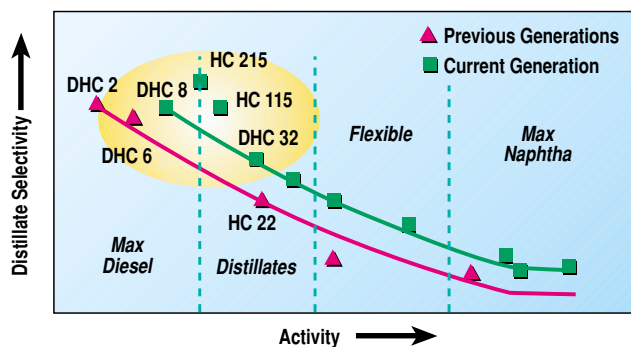


Figure 2
New Distillate Hydrocracking Catalysts



Distillate Selectivity Decreases with Increasing Activity