Abstract

Process Economics Program Report No. 211

HYDROCRACKING

(April 1994)

The hydrocracking unit is the most versatile of refinery conversion units. It can process a wide range of feedstocks from naphtha to asphalt to yield any desired product with a molecular weight lower than that of the feedstock. In the 1960s hydrocracking was widely used to produce gasoline in the United States. Since the 1970s it has also gained worldwide recognition for its high quality distillate products. In the environmentally conscious 1990s, hydrocracking may be the best source of low sulfur and low aromatics diesel fuel as well as high smoke point jet fuel.

This report reviews the technology and economics of high pressure and moderate pressure hydrocracking. We evaluate the flexibility of the hydrocracking process for the production of middle distillate and low sulfur fuel oil from vacuum gas oil feedstock, and the production of naphtha from a mixed feed of fluid catalytic cracking light cycle oil and straight run distillate. These three case studies illustrate refiners' options to increase their conversion capacity.

We discuss the world hydrocracking processing trends and include a detailed listing of operating units. Announced new hydrocracking capacity is also listed. This information will be useful for refiners, hydrogen suppliers, and catalyst vendors in identifying future needs and new opportunities.

CONTENTS

CONTENTS (Continued)

CONTENTS (Continued)

CONTENTS (Concluded)

ILLUSTRATIONS

TABLES

TABLES (Continued)

TABLES (Continued)