New!

Process Chemistry of Petroleum Macromolecules

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Increase Yield and Decrease Cost with Improved Processing

Oil shortage? Maybe of light petroleum, but there is plenty of heavy petroleum rich in macromolecules available. With the right processing, these heavy oils could be converted to the more desirable light oils. As energy prices soar and need increases, many are asking how can conversion yields increase and costs decrease? **Process Chemistry of Petroleum Macromolecules** explores how to economically squeeze every usable molecule out of this valuable resource.

Where Information Meets Innovation

The book provides the scientific understanding, logic, and insight to devise innovations. After introducing the world of petroleum and petroleum macromolecules, the book covers characterization, thermal conversion kinetics, phase behavior, and separation of petroleum macromolecules. The author begins by emphasizing the differences between petroleum macromolecules and other molecules. He then provides mathematical models that capture the important elements in a relatively simple form and give good descriptions of the behavior of petroleum macromolecules. The book also pays significant attention to fouling mitigation which can offer refineries large and immediate savings in energy, carbon dioxide emissions, and operating costs, with little or no capital investment.

Technology that Enhances the Bottom Line

The author draws upon more than 30 years of personal experience in basic and applied research on petroleum macromolecules to provide a glimpse into how industrial research can create knowledge for the path towards innovation. By emphasizing the testing of concepts and of mathematical models by an expanding set of conditions and methods until they fail, the book demonstrates how false barriers to technology can be identified and broken to lead to step-out improvements in conversion yields and thus, greatly enhancing the ultimate bottom line.

CRC Press
Taylor & Francis Group

Catalog no. DK4759
June 2008, 456 pp.
ISBN: 978-1-5744-4787-3
$199.95 / £105.00

ORDER ONLINE AT www.crcpress.com

FEATURES

- Discusses macromolecules that self-associate, liquid crystalline phases, and dispersed and dissolved solutes
- Provides applications, innovations, and case studies that make the information easy to grasp
- Draws together information not previously published except in conference proceedings
- Explores innovations for coking, visbreaking, and hydroconversion
- Introduces petroleum economics, petroleum processing technology, and the chemical engineering approach to research
- Presents a new understanding of the process for developing more robust models

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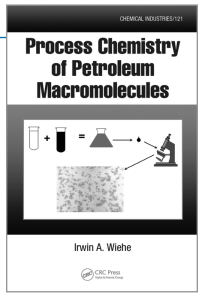

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