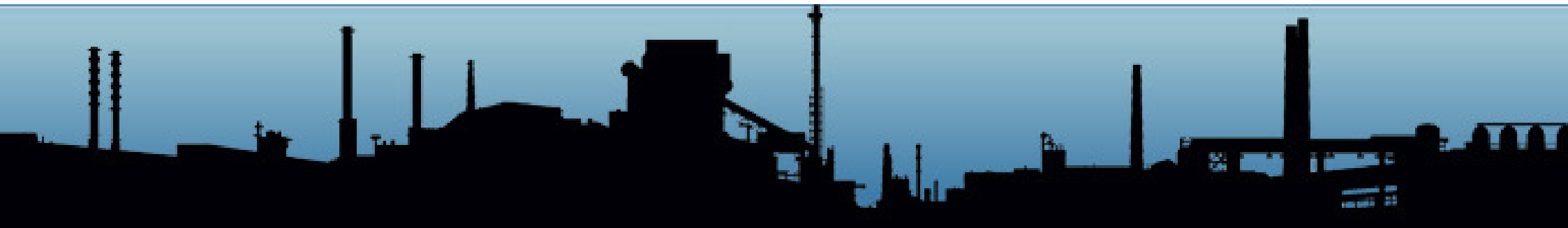


HydroProcessing

(Including Hydrotreating and Hydrocracking)

A Eurotek training course



ERS Hydroprocessing

An introduction:

The ERS Hydroprocessing course is a comprehensive core skills course for professionals dealing with all aspects of Hydroprocessing units. The course will be highly valuable to all engineers involved in the operation, design and troubleshooting of Hydroprocessing facilities.

Additionally, the course will be useful to any technical personnel wishing to gain a perspective of how Hydroprocessing fits into the operation of a complete refining plant. Those who are experienced in other fields and seek a review of the fundamentals of Hydroprocessing will also find this course most beneficial.

Learning objectives:

Upon completion of this course, participants will have gained a solid understanding of the key elements associated with the design, operation and troubleshooting of Hydroprocessing units. This will include the impact of feed quality, catalyst, operating conditions and unit design on product qualities

In addition they will have gained some valuable insight into how to optimise, debottleneck and troubleshoot their Hydroprocessing units.



Who should attend?

The ERS Hydroprocessing course is a comprehensive core skills course for professionals dealing with all aspects of Hydroprocessing units. The course will be highly valuable to all engineers involved in the operation, design and troubleshooting of Hydroprocessing facilities.

Additionally, the course will be useful to any technical personnel wishing to gain a perspective of how Hydroprocessing fits into the operation of a complete refining plant.

Those who are experienced in other fields and seek a review of the fundamentals of Hydroprocessing will also find this course most beneficial.

Description:

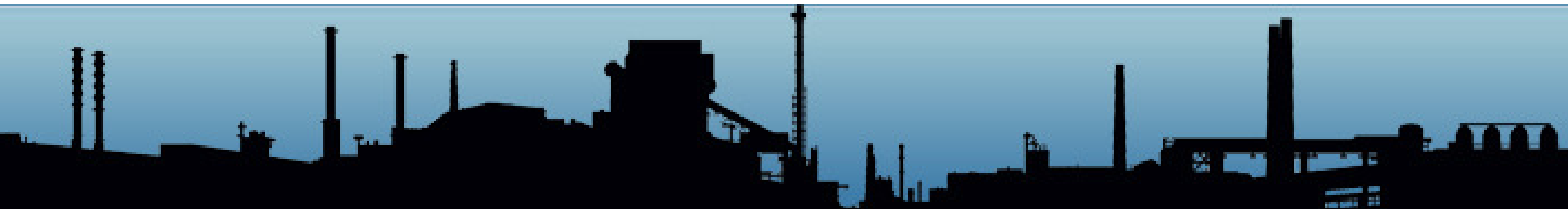
Today, refiners are faced with the challenge to maximise the yield of clean transportation fuels from crude oil. Hydrocracking provides the means to produce maximum low sulphur distillates, particularly kerosene, jet and diesel while Hydrotreating is used as a primary process for quality improvement to meet final fuel specifications as well as feed preparation for many intermediate processing units.

This course provides a detailed overview of Hydrotreating and Hydrocracking technology and covers the general theory and principles of hydroprocessing chemistry and reactor kinetics. The course also covers the practicalities and impacts of hydroprocessor design, feed effects and process variables. The third section covers plant monitoring, troubleshooting, product recovery and emergency procedures. A special section has been added that focuses exclusively on residuum processing.

This course includes both vacuum gas oil and residuum Hydrocracking, it will explain the differences and advantages of the different processes and configurations as well as giving a detailed review of the fundamentals behind hydrocracking technology.

A framework is presented for troubleshooting operating problems and, throughout this discussion; participants are encouraged to describe their specific challenges.

The scope of the course includes the core of most Hydroprocessing problems and attempts to cover solutions useful to design and operating engineers. Concerns associated with processing for clean fuels are covered. This course will provide an overview of the diverse nature of the processes, depending on the feedstocks used, products made and the environmental issues. It will address process integration issues, which are vital for economic viability.

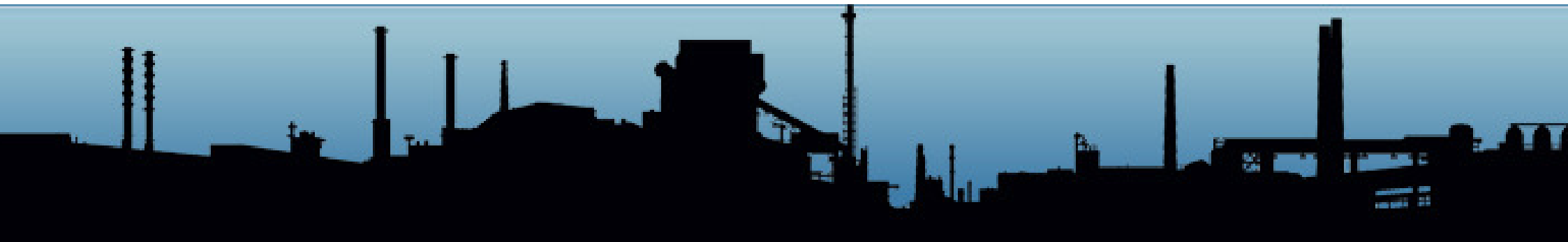


Course Presenter

Mr. John Bauld has 40 years experience in Refinery Operation, Technical Support, Training and Management. He is a Chemical Engineer from Strathclyde University, Scotland. In the former Mobil refinery near London, England he progressed through Plant Engineer for numerous processes and projects to Shift Supervisor and Plant Supervisor/ Area Manager roles.

After moving to Exxon Engineering, based in London, he guided on-going operations in European refineries. He has been instrumental in reducing capital and operating costs and in improving plant reliability through innovation and training, particularly in Hydroprocessing, Reforming, Gas Treating and Sulphur Recovery. He has extensive experience establishing design requirements, economic evaluation and licensor/ contractor selection, start up, troubleshooting, training and mentoring activities with Mobil, Exxon & Licensees and KBC Process Consultants including extensive.

He is a Chartered Engineer and a Fellow of the Institution of Chemical Engineers (UK) and currently consults and trains for international clients. He has wide personal interests including playing Classical Guitar and Church Bell Ringing.



Course programme

Day 1

Introduction/ Product Qualities

- Basic Terminology
- Refinery Hydrotreating and Hydrocracking roles to meet product requirements
- Refinery configurations to meet product quality/volume demands

Hydrotreating and Hydrocracking Reactions

- Basic Hydrocarbon/Oil Chemistry
- Desired reactions and important side reactions

Design Features and Safety

- Common features of all HDP Units
- Configurations e.g. NHT, DHT, Mild HCK units, 1 & 2 stage Hydrocrackers
- Process and operating variables.
- Particular HDP Hazards: H₂S, Hydrogen and High Pressures.

Catalysts

- Hydrotreating catalysts and selection.
- Differing nature of hydrocracking catalysts i.e. Pretreating/Amorphous SilicaAluminas/Zeolites

Q&A Session

Day 2

Hydrocracker Feed Affects

- The affect of feeds on Hydrocracker type options, product qualities, yields and deactivation.e.g.
 - High Nitrogen Content
 - Crude, Reactivity
 - End Point, Asphaltenes etc

Equipment Design Considerations

- For all HDT units
- Unit equipment design options
 - Encon
 - Hydrogen Conservation
 - Minimising cost

Reactor Internals

- Distributors
- Inert fill/Catalyst sizes
- Loading diagrams

Refinery Hydrogen balance

- Suggestions on refinery Hydrogen routeing to conserve hydrogen

Deactivation Mechanisms

Causes of Deactivation

- Coking
- Metals
- Temperature
- Hydrogen Pressure Affect.

Day 3

Catalyst Regeneration

- Principally ex-situ
- Processes
- Affects on catalyst and reactor

Reactor Loading and Unloading

- Reactor inspection
- Guidelines for reactor loading/unloading
- Mechanics of catalyst handling
- Contractor supervision
- Speeding up catalyst change out

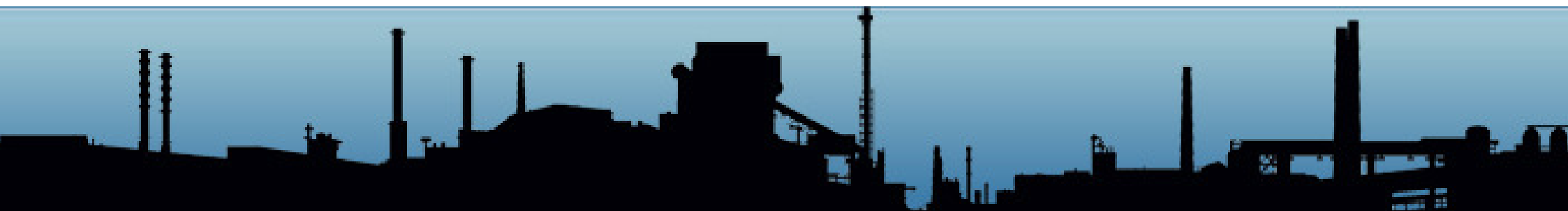
Catalyst Activation / Start Up

- In-situ activation
- Activation checklists
- Activation monitoring/control
- Commercial example

Process monitoring and optimisation

- What to monitor in terms of product quality and process parameters
- Making sense of collected data
- Use of data to optimise unit profitability and cycle length targets
- Use of data to detect emerging problems

Q&A Session



**Registration form:
Hydroprocessing Course:**

CCT Venues, 135-137 Aldersgate House, London EC1A4JA, UK.

Please make a reservation at ERS Course for the following delegate:

Title _____ Given Name _____ Family Name _____
Position _____ Company _____
Address _____
Tel: _____ Fax : _____ Email: _____

For Bookings Received before 23rd April: Course fee £1950.00 + 20% VAT

For Bookings Received after this date: Late Booking Supplement of £250.00 + 20% VAT will be applied

PLEASE NOTE: Payment to be made at time of reservation. If an invoice is required to make payment by bank transfer or cheque please email your request or Purchase order to reservations@eurotek-refining.co.uk and an invoice will be emailed by return.

Make cheque payable to Eurotek Refining Services Ltd.

Transfers to: Account Eurotek Refining Services Ltd IBAN No. GB91LOYD30987301811462

Cancellations, Substitutions & Programme Changes If you are unable to attend the course, you may make a substitution at any time. All substitutions and name changes must be received in writing by mail, e-mail, or Fax. For cancellations received by mail, e-mail or Fax 21 days before course start, 75% of the fees will be refunded. For cancellations received after this date course papers will be sent, but no refund. An official cancellation number must be obtained from Eurotek Refining Services Ltd to qualify for a refund. Course content may be subject to change at Eurotek Refining Services Ltd.'s discretion

Course timetable:**23rd May**

08.00 Onwards Course Registration

09:00-17:00 Course Programme

24th May

09:00-17:00 Course Programme

20:00 Course Dinner (free)

25th May

09:00-16:00 Course Programme

Four ways to book

1. Complete and return this form to:
Eurotek Refining Services Ltd 389
Woodham Lane, Addlestone Surrey
KT15 3PP UK
2. Telephone with details on: +44 1932
702914
- 3: Complete and return this form
to: [Reservations@eurotek-
refining.co.uk](mailto:Reservations@eurotek-refining.co.uk)
- 4: Visit our website at [www.eurotek-
refining.co.uk](http://www.eurotek-refining.co.uk) and click on Registration
Form.



Visit our Website

www.eurotek-refining.co.uk for the latest information on Eurotek Refining Services Ltd
Training Courses

