TECHNICAL
EDUCATION
ACADEMY

School of Engineering

COURSE PROGRAMME

000097

RPCH006 - Base Oil Production

The Introduction to Refining Process training programme is designed for those who have minimal knowledge of plant operation.



Learn from the Best in the Business!

Course overview

Intermediate level

Why take this course

The Introduction to Refining Process training programme is designed for those who have minimal knowledge of plant operation. It describes in detail the fundamental issues that must be addressed by plant personnel in order to have a safe, efficient, and effective plant operation. The learning methodology covered both theory and practical practices in upstream and downstream plant.

Who it is for and how it helps

Managers, Senior Executives or Engineers in Oil, Gas and Petrochemicals Industry.

What you will learn

- Gain an overview of lubricant uses, classifications and markets
- Understand the relation between quality requirements, processes used and composition of lube base stocks and by-products
- Learn about main operating parameters and their impact on performance

Curriculum

Modules 01–05

01 Classification & properties of base oils

- Commercial lubricant function and composition, purpose of additive introduction, demand structure.
- Mineral base oil classification, market trends.
- Main quality criteria in relation with chemical composition, specifications.

02 Structure of base oil market

- Market demand in relationship with uses of lube oils.
- International market and future trends in main developing countries.

03 Base oil manufacturing schemes

- Composition of vacuum distillates and residue: influence on refining.
- Conventional manufacturing scheme vs base oil manufacture by hydrotreatment: units' purpose, products quality.
- Rerefining of drained lubricants.

04 Base oil conventional refining processes

- Vacuum distillation:
- Residue fractionation: distillates yields depending on crude oil.
- Operating conditions. Quality control: viscosity and flash point tuning.
- Solvent extraction:
- Vacuum residue deasphalting and aromatics extraction: solvent choice, operating variables, viscosity and VI control.
- Solvent recovery, energy consumption.
- Solvent dewaxing:
- Paraffin crystallization in the presence of a solvent: operating conditions.
- Specific equipment: chillers, rotating filters.

05 Base oil unconventional refining processes

- Hydrotreatment processes:
- Typical process flow diagram - Main equipment: reactor, heaters, heat exchanger.
- Chemical reactions and catalyst for hydrotreating.

Curriculum

Module 05 — continued

- Operating conditions: pressure, temperature, hydrogen ratio, WABT.
- Impact of conditions on quality: pour point, viscosities, VI, CCR, ...
- Hydrorefining: hydrocracking of vacuum distillates and deasphalted oil.
- Hydrodewaxing: hydroisomerization of slack wax/gatsch.
- Hydrofinishing: A) hydrofinishing of lube basestocks, paraffins and microwaxes; B) white oils manufacturing principles: required properties.
- Operation and troubleshooting:
- Impact of the operating parameters on yield and product quality, tuning and optimization.
- Adjusting the operating conditions to compensate for variable feed quality and the ageing of the catalyst, monitoring the activity of the catalyst.
- Study of the industrial risks of this operation.
- Disturbances and incidents.

Joining the programme

Contact the Academy and quote course code 000097 to confirm dates, delivery format, prices and enrolment terms.

Training for your team

Tell us your business goals, the roles and number of participants, and your preferred dates and location. This will help us discuss the right training option.

Preparing for the programme

The published programme does not specify any prerequisites. Contact us before enrolling to confirm how to prepare.

Discuss your training needs

mail@tecedu.org
www.tecedu.academy

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