

Training - Module 3: Gas Processing and Conditioning



ADV3-EN-P



Face-to-face only



5 days

This course provides a comprehensive understanding of gas treatment processes, operation and troubleshooting

Level

Skilled

Public

Engineers involved in operating or designing gas field processing and conditioning facilities

Objectives

Attendees will be able to implement the following skills:

- Assess various problems induced by unwanted elements in natural gas streams
- Master gas treatment and liquefaction processes, operations and related operating conditions
- Perform hand calculations for summary design of main gas processing equipment
- Ascertain main operating problems encountered in gas processing, conditioning and related solutions
- Simulate natural gas treatment processes using the PRO/II™ software

Pedagogical & technical resources

- Highly interactive training by industry-specialist lecturers
- Numerous applications and illustrations
- Extensive practice of PRO/II™ process simulation software

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

To attend Module 1 (ADV1-EN-P) or to demonstrate a professional experience in process simulation

Responsible

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

NEED FOR FIELD PROCESSING OF GAS - QUALITY REQUIREMENTS

0.25 day

Constituents raising problems for storage, transport or end use of natural gas.
Different specifications and quality requirements for natural gas.
Necessary treatments to conform these specifications.

Examples of compositions of commercialized natural gases.

GAS DEHYDRATION (DRYING) & HYDRATE FORMATION INHIBITION

1.25 days

System behavior. Moisture content of a saturated gas:

- Applications: moisture content of different gases of various compositions.
- Hydrate formation inhibition by injection of inhibitors: MeOH, MEG, DEG, LDHI...
- Gas dehydration processes: TEG units, molecular sieves...
- Application: summary design of TEG unit.
- PRO/II™ simulation: simulation of TEG unit.

GAS SWEETENING: REMOVAL OF ACID COMPONENTS (H₂S AND/OR CO₂)

0.75 day

Overview of the techniques dedicated to gas sweetening:

- Chemical solvent processes. Amine units (MEA, DEA, DGA, MDEA...).
- Physical solvent processes.
- Hybrid (physico-chemical) solvent processes.
- Overview of other techniques.

Conversion of H₂S: sulfur production (CLAUS process) and tail gas processing.

Application: summary design of an amine unit.

NATURAL GAS LIQUIDS (NGL) EXTRACTION (REMOVAL OF HEAVY COMPONENTS)

0.75 day

External refrigeration loop.

Joule-Thomson expansion.

Turbo-expander.

Application: calculation of cryogenic loop used for extraction.

PRO/II™ simulation: simulation of NGL extraction unit - Process selection.

CASE STUDY: SIMULATION OF A WHOLE NATURAL GAS FIELD PROCESSING PLANT

1 day

Study of a natural gas dehydration, NGL extraction and compression unit.

Optimization of the operating parameters.

Analysis of hydrate formation risks.

LIQUEFIED NATURAL GAS (LNG)

1 day

Liquefaction processes: operating principle, typical operating conditions, technology of specific equipment (plate fin heat exchangers, spiral-wound heat exchangers, refrigeration loop compressors...), power consumption...

LNG storage and transport: storage tanks, LNG carriers, jetty, loading arms...

Safety considerations specific to natural gas liquefaction plants.

Industrial examples of natural gas liquefaction units.

To French entities : IFP Training is referenced to DataDock ; you may contact your OPCO about potential funding.

Please contact our disabled persons referent to check the accessibility of this training program : referent.handicap@ifptraining.com