

Laboratory Analyses for Oil & Gas Production

Methodology - Results Analysis - HSE

5 days

LABO-EN-P

Overview

LEVEL

Skilled

PURPOSE

This course provides a comprehensive knowledge and develops practical skills in conducting reliable and safe laboratory analyzes for the Oil & Gas industry.

LEARNING OBJECTIVES

Upon completion of the course, participants will be able to:
grasp the physical and chemical concepts involved in various analyzes,
comprehend issues requiring special attention in various analyzes,
assess the results of an analysis and decide whether to carry out the analysis over again,
review main Occupational Health and Safety rules within the framework of laboratory activities.

WAYS AND MEANS

Several applications and illustrations.

LEARNING ASSESSMENT

Assessment by test at the end of the course.

PREREQUISITES

In order to be able to follow this training, trainees are asked to fulfill at least one of the criteria below:
either proven experience in an analysis laboratory of at least 1 year,
or to be in evolution towards a position related to product analysis.

Agenda

ROLE & RESPONSIBILITIES OF LABORATORY STAFF

0.25 d

Member of production staff. Equipment yields controls/monitoring.
Final product quality controls/monitoring. Recommendations to improve treatments.

ANALYZES SPECIFIC TO CRUDE OIL

1.25 d

Specific gravity or density.
Vapor Pressure (Reid VP).
Water content: Basic Sediment & Water (BSW), dean stark distillation.
Salt content: chlorides content, conductimetry.
Acid components content:
H₂S content (methylene blue).
H₂S and mercaptans by potentiometry.
Total Acid Number (TAN) of liquid hydrocarbons.
Fluid rheology: pour point, kinematic viscosity, wax content.

ANALYZES SPECIFIC TO GAS

0.75 d

Gas characterization analyzes:

Dew point (HC and water).

Gas composition by Gas Phase Chromatography (GPC).

Gas specific gravity estimate from composition.

Acid components content:

H₂S content (Dräger), H₂S and mercaptans content (potentiometry, iodometry).

CO₂ content (Dräger and acidimetry).

ANALYZES FOR THE FOLLOW-UP OF EFFLUENT TREATMENT OPERATIONS

1.25 d

Demulsifiers evaluation and selection (bottle tests, field tests).

Quality controls/monitoring of poor and rich Triethyleneglycol (TEG):

Water content, pH.

Hydrocarbon content.

Follow-up of equipment performances: water content, residual emulsion.

ANALYZES DONE TO OPTIMIZE ANTICORROSION TREATMENTS

0.75 d

Deposits and scale analyzes.

Chemical corrosion and bacterial corrosion appraisal.

Recommendations for chemical additives and treatments.

HSE IN LABORATORY ACTIVITIES

0.75 d

Laboratory facilities design and implementation.

Chemicals management (storage, use...).

Occupational health and safety behavior.