IFP Training

This training course is offered under the **Alliance4Training** brand

Training - H2S Removal and Sulfur Recovery Processes

PFCS-EN-P | **Face-to-face only** | **3 days**

This course provides a deeper understanding of the operation and the monitoring, including HSE considerations, of common processes for elimination of H2S and for sulfur recovery

Level

Skilled

Public

Engineers and supervisors involved in operating, troubleshooting, optimizing or revamping sour gas treatment and sulfur recovery facilities

Objectives

Attendees will be able to implement the following skills:

- Identify environmental issues related to sulphur impurities
- List operating parameters of sulphur treatment units
- Specify rules of conduct to optimize processes

Pedagogical & technical resources

- Use of a dynamic simulator for amine and Claus units to simulate operating conditions
- Parts of or the whole session customizable to a virtual remote classroom

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

No prerequisites are necessary to follow this course

Responsable

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

OVERVIEW OF SULFUR REMOVAL & RECOVERY — 0.25 day

Amine washing and sulfur recovery units role in refineries.
Nature, origins and compositions of the streams to be treated, ammonia content.
Determination of the sulfur balance for a typical refinery.
Environmental aspects, treatment justification.

AMINE UNITS — 0.75 day

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Chemical reaction between amines and H2S.
Process flow sheet and equipment review: absorption, regeneration, pumps and filtration.
Process control: pressures, temperatures, amine solution optimization, steam flowrate to regenerator optimization.
Regeneration quality: objectives, follow-up methods, and performance impacts.
Troubleshooting: amine solution degradation, foaming, corrosion, washing quality follow-up.
Safety issues.
Application: what you can learn from your amine analysis (routine and detailed).

SULFUR RECOVERY UNITS — 1 day

Chemical reactions: required and undesired ones, thermodynamics and kinetics.
Process flow sheet: thermal stage, catalytic stage, sulfur recovery, tail gas incineration. Operating parameters and impact on sulfur yield.
Process control: H2S/SO2 ratio control, air flowrate optimization, tail gas analyzer, warming up techniques and temperature control at the converters.
Troubleshooting: hydrocarbons presence, sulfur behavior as per temperature, H2S degassing from sulfur product, safety.
Shutdown situations and consequences, safety issues, ISS.
Use of a dynamic simulator to illustrate the impact of parameter changes.

TAIL GAS CLEAN-UP PROCESSES — 0.75 day

Process flow schemes: sub-dewpoint Claus or amine route.
Operating parameters and impact on process and sulfur yields.
Influence of the H2S/SO2 ratio.
Sources of usual operation troubles for each process: improper regeneration, catalyst ageing...
Impact on the CLAUS unit optimization.

SOUR WATER STRIPPER OFF-GAS TREATMENT — 0.25 day

Sour water characteristics. Ammonia content. Ammonia conversion and NOx monitoring.
Principle, main equipment, operating parameters, water quality follow-up.

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

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