

▲ Who should attend?

Plant operators, operations supervisors and process and environmental engineers involved in operating, troubleshooting, optimizing or revamping of sour gas treatment and sulfur recovery facilities.

▲ Duration  
3 days

▲ Dates & Location  
Non-scheduled

May only be organized for a single company

▲ Tuition Fees  
To be agreed upon

▲ Course Coordinator  
Serge Lecler

Ref. PTF / PFCS-E

# H<sub>2</sub>S REMOVAL AND SULFUR RECOVERY PROCESSES

## OBJECTIVES

To provide participants with a technical information on the operations and safety aspects of all units associated with sulfur recovery processes, and also to present how the operation can be optimized.

On completion of the course, the participants:

- know the chemistry, the technologies and environmental issues associated with the removal of hydrogen sulfide from refinery gas streams
- know the main processes (amine units and Claus units) used in the conversion of the H<sub>2</sub>S into elemental sulfur.

## COURSE CONTENT

### OVERVIEW OF SULFUR REMOVAL AND RECOVERY

0.5 day

Amines washing and sulfur recovery units participation in the refineries.

Nature, origins and compositions of the streams to be treated.

Determination of the sulfur balance for a typical refinery.

Environmental aspects, treatments justification.

### AMINES UNITS

1.25 days

Chemical reaction between amines and H<sub>2</sub>S.

**Process flow scheme:** absorption, regeneration, filtration.

**Control:** pressures, temperatures, amine solution optimization, steam flowrate to regenerator optimization.

**Regeneration quality:** objectives, follow-up methods, and performances impacts.

**Troubleshooting:** amine solution degradation, foaming, corrosion, washing quality follow-up.

**Application:** amine solution flowrate determination (typical unit).

### SULFUR RECOVERY UNITS

1 day

**Process flow scheme:** thermal stage, catalytic stage, sulfur recovery, tail gas incineration. Operating parameters. Sulfur yields.

**Regulation criteria:** H<sub>2</sub>S/SO<sub>2</sub> ratio control, air flow rate optimization, tail gas analyzer, temperatures at the converters.

**Main regulation:** air flowrate, inlet temperatures at the convecter.

**Troubleshooting:** hydrocarbons presence, sulfur behavior as per temperature, H<sub>2</sub>S degassing from sulfur product, safety.

**Tail gas treatment:** principles and performances of the following processes: CLAUSPOL, SCOT and SULFREEN.

### SOUR WATER TREATING

0.25 day

Sour water characteristics.

Principle, main equipment, operating parameters, quality follow-up.