INSTRUCTOR

KEFAH A. AL-FADDAGH, ENGINEERING CONSULTANT

Kefah Al-Faddagh joined Saudi Arabian Oil Company (Saudi Aramco) in 1986 and retired in 2012. Prior to joining Saudi Aramco, since 1979 and for 7 years, he had been lecturer and assistance to the Head of the Chemical Engineering Department of the Basra University, Iraq.

Kefah is a Gas Processing Consultant in Gas Treating, Sweetening, Sulphur Recovery, Dehydration, NGL Recovery and Crude Stabilization. He worked for the Upstream Process Engineering Division of Process & Control Systems Department, Saudi Aramco. He supported and pursued performance of all gas operating plants, new natural gas ventures, and natural gas infrastructure projects in Saudi Aramco. He also provided technical training to Saudi Aramco Engineering, Operating Gas Plants and Projects personnel with all knowledge to capture integrated opportunities across the full value chain.

Throughout his career, of more than 37 years of diversified experience in the gas industry and academic, he has held a variety of engineering, operations and projects, including projects development of various Natural Gas plants in Saudi Aramco.

He holds B.Sc. and M.S. degrees in Chemical Engineering, from Baghdad University, Iraq in 1976 and 1978, respectively. He certified as Gas Processing Consultant from Saudi Aramco and certified as Consultant Engineer from Saudi Council of Engineers (SCE).

Training experience in general:

In addition to many educational courses had been taught in Mechanical and Chemical Engineering Departments at Basra University (1978 – 1985), he instructed many courses for Saudi Aramco. He instructed 8 sessions of Gas Sweetening Workshop (two days) for GPA-GCC Chapter in the Gulf Countries for the period of 2010 to 2014. He instructed Gas Treating and Sulfur Recovery Workshop for five days in 2014.

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GPA

فروع دول مجلس التعاون الخليجي

GCC Chapter

Gas Processors Association

IN PARTNERSHIP WITH

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ANNUAL TECHNICAL CONFERENCE

25th

SILVER JUBILEE CELEBRATIONS

1992 - 2017

7TH - 11TH MAY 2017 - ABU DHABI, UAE

GAS SWEETENING & TROUBLESHOOTING

MAY 7 – MAY 8 2017, ABU DHABI, UAE

TWO DAYS

WORKSHOP DESCRIPTION

This workshop presents a complete and up-to-date overview of the Gas Sweetening processes with emphasis on gas plant process operations and troubleshooting. The process flow sheets of several Sweetening Processes will be used to illustrate how the various operations differ. The advantages, limitations, and range of applicability of these processes will be discussed so that selection and integration into the overall plant is fully understood and appreciated.

WORKSHOP OBJECTIVES

Upon completing this workshop, participant will have a good understanding of Gas Sweetening in general and common practice. There are many methods that may be employed to remove acidic components (primarily H2S and CO2) from hydrocarbon streams. The available methods may be categorized as those depending on chemical reaction, absorption, or adsorption. Processes employing each of these techniques are described. The processes result in acid gas streams that contain H2S that may be flared, incinerated, injected or fed to a Sulfur Recovery Unit.

WORKSHOP CERTIFICATE

Gas Processors Association – GCC certificate will be issued to all attendees.

WORKSHOP PROGRAM

DAY ONE

1. INTRODUCTION

- What is Gas Sweetening?
- Basic Terminology
- Safety Precautions
- Gas Specifications
- Natural Gas Contaminants
- Why Sweetening the Gas?

2. GAS SWEETENING PROCESSES

- **Chemical Processes**
  - Hot Potassium Carbonate Solutions
  - Caustic Wash
  - Aqueous Alkanolamine/Amine Sweetening Processes
    - *Primary amines (MEA and DGA)*
    - *Secondary amines (DEA and DIPA)*
    - *Tertiary amines (TEA and MDEA)*
    - *Formulated Solvents*
    - *Process Equipment Overview*
- **Physical Processes**
  - Water
  - Selexol
  - Flour Solvent
  - Rectisol Process
  - Purisol Process
  - IFPEXOL
- **Hindered Amines**
  - Sulfinol-M
  - Sulfinol-D
  - Flexsorb SE
  - Flexsorb PS
- **Batch Processes/Scavengers**
  - Iron Sponge
  - Chemsweet
  - Sulfa Treat
  - Sulfa Scrub
  - Molecular Sieve

DAY TWO

3. AMINE PROCESSES IN COMMON PRACTICE

- **Process Selection**
- **General Design Considerations**
- **Calculations and Simulation Programs**
- **Common Operating Problems in Gas Treating Plants**
  - *Failure to Meet H2S Sales Gas Specifications*
  - *Solution Foaming*
  - *Corrosion*
  - *Solvent Losses*
- **Contaminants in Amine Systems**
- **Amine Sweetening Most Critical Parameters**
- **Amine Analysis**
- **Process Optimization and Troubleshooting**

4. CASE STUDIES

5. GENERAL WORKSHOP DISCUSSION