

Advanced Oil and Gas Technology Training Courses

Sphere Technology Connection is proud to announce the following training courses which will be held on September 10-11th, 2009 at the Four Points Hotel by Sheraton, Edmonton.

Sour Gas Treatment

Instructor: Ray Tomcej, Ph.D., P.Eng at Tomcej Engineering Inc.

Time: September 10th, 2009

Location: Cascade A Conference Room
Four Points Hotel by Sheraton

Address: 7230 Argyll Road, Edmonton
AB T6C 4A6, Canada

Cost: \$680.00 + GST / Person

For detailed information or course brochures, please check out our website at www.spheretechconnect.com.

Acid Gas Injection

Instructor: John Carroll, Ph.D., P.Eng at Gas Liquids Engineering Ltd.

Time: September 11th, 2009

Location: Cascade A Conference Room
Four Points Hotel by Sheraton

Address: 7230 Argyll Road, Edmonton
AB T6C 4A6, Canada

Cost: \$680.00 + GST / Person

For detailed information or course brochures, please check out our website at www.spheretechconnect.com.

For Registration:

On line register at www.spheretechconnect.com

By Email: training@spheretechconnect.com or information@spheretechconnect.com

By phone: 1-403-6196215 (Alice Wu)

By mail: 5500 Flasbridge Dr. NE,
P.O. Box 98071 Falconridge RPC
Calgary, AB, T3J 0K6 Canada



Note:

- Group registration (over 3 people from the same company) qualifies for a discount of 10%.
- If you register for both courses, you will get 15% discount.
- There are also student and unemployment discounts available, please send us email at information@spheretechconnect.com for more information.
- We can accept VISA, MasterCard, American Express and company billing.

Sour Gas Treatment



INTRODUCTION

This course is designed to discuss in detail the principle technology for the natural gas treatment. The course is designed primarily for engineers and technologists involved in the design, operation, and optimization of the natural gas processing projects. A complete set of course materials is included.

COURSE OUTLINE

1. INTRODUCTION

- Contaminants
- Specifications
- Toxicity and Environmental Issues
- Gas Treating Options

2. BASIC PRINCIPLES

- Vapor-Liquid Equilibrium
- Solubility of Gases in Liquids
- Absorption and Regeneration
- Gas Conditioning and Treating Terminology

3. AMINE PROCESSES

- Alkanolamines
- Process Flowsheets and Key Parameters
- Amine Chemistry
- Selective Absorption
- Specialty Mixed and Formulated Solvents
- Operating Considerations

4. OTHER GAS CONDITIONING PROCESSES

- Potassium Carbonate
- Physical Solvents
- Scavenger and Solid Bed Treating Processes

5. AMINE PROCESS DESIGN AND ANALYSIS

- Workshop – Amine Process Case Studies

6. SUMMARY



INSTRUCTOR

Dr. Tomcej is President of Tomcej Engineering Inc., a small research and consulting firm that specializes in computer model development for gas conditioning technologies and fluid phase behavior. His research interests include rate-based modeling of chemical absorption processes, vapor-liquid equilibrium of acid gases in complex amine solutions, and industrial applications of equation-of-state models. His 25 years of experience in the gas treating industry began at DB Robinson & Associates Ltd. where he spent several years as Group Manager, Engineering & Software. At DBR he worked on diverse modeling projects such as multiphase fluid phase behavior, miscible gas displacement, sulphur solubility in super sour gases and cryogenic distillation. He was the principle architect responsible for the development of AMSIM, an amine treating simulation package found in current commercial process simulators. He formed Tomcej Engineering Inc. in 1990 and has been active in consulting and software development. He has published several technical papers relating to rate-based modeling of amine treating processes. He holds BSc and PhD degrees in chemical engineering from the University of Alberta, and is a member of CSE and AIChE.

Acid Gas Injection



INTRODUCTION

This course provides the following information:

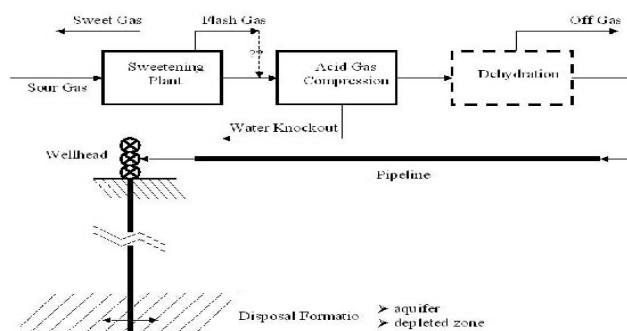
- A discussion of the relevant physical properties of hydrogen sulfide, carbon dioxide, and acid gas mixtures
- A detailed review of the water content of acid gas mixtures and its relevance to the injection process
- Additional considerations for the design of an acid gas compressor
- Case studies from actual injection schemes showing the application of the design principles presented

A detailed set of notes written by the instructor

INSTRUCTOR

John Carroll, the instructor for the course and author of the manual, obtained his Ph.D. in Chemical Engineering in 1990 at the University of Alberta in Edmonton, Alberta, Canada. Until 1993, he was a Research Associate and Seasonal Lecturer at the university, teaching heat transfer and numerical analysis. In addition he worked on several research projects relevant to the natural gas industry. He has authored or co-authored more than 30 papers in refereed journals, 20 articles in technical magazines, and approximately 45 conference presentations.

He is a registered professional engineer in the Provinces of Alberta and New Brunswick and is associated with several chemical and engineering associations including The Canadian Society for Chemical Engineering (CSCHE), American Institute of Chemical Engineers (AIChE), Society of Petroleum Engineers (SPE), and The Canadian Gas Processors Supply Association (CGPSA).



COURSE OUTLINE

1. Introduction

- Natural Gas – Sweet and Sour
- Sweetening Natural Gas
- Acid Gas

2. Hydrogen Sulfide and Carbon Dioxide

- Estimation Techniques for Physical Properties
- Physical Properties of Hydrogen Sulfide
- Physical Properties of Carbon Dioxide
- Physical Properties of Acid Gas Mixtures
- Effect of Hydrocarbons on the Properties of Acid Gas

3. Phase Equilibrium in Acid Gas

- Description
- Calculation of Phase Equilibrium

4. Water Content of Acid Gas

- Estimation of the Water Content of Sweet Gas
- Estimation of the Water Content of Acid Gas
- Estimation of the Water Content of Liquids

5. Hydrates

- Introduction to Hydrates
- Hydrates of Acid Gas
- Estimation of Hydrate Forming Conditions
- Mitigation of Hydrate Formation

6. Compression

- Compression and water content
- Compression and non-aqueous phase equilibrium

7. Injection Profiles

- Calculation of Injection Profiles
- Effects of Hydrocarbons

8. Case Studies