



AMINE TREATING & SOUR WATER STRIPPING

Registration is encouraged prior to May 20 to allow adequate time for your course preparation.

This course covers the design, optimization and troubleshooting of the amine sweetening and tail gas clean-up units. The course includes the important topics in the sweetening of gas and liquid streams from oil refinery and natural gas feedstocks.

WHAT YOU WILL LEARN

The course is divided into the amine treating and the sour stripping units.

Amine Treating

- Amine Chemistry and Selection
- Unit Equipment & Operation with design parameters and typical operating conditions
- Process Flow, Equipment and Controls
- Meeting Specifications and Reducing Losses
- Process Monitoring and Troubleshooting

Sour Water Treating

- Sour Water Chemistry
- Feed Preparation
- Sour Water Stripping and Oxidizers
- Ammonia Recovery Options

Specifics that will be covered:

1. Equipment & Operation
 - a. Flash drum
 - b. Rich amine pump
 - c. Exchangers
 - d. Reboiler
 - e. Regenerator
 - f. Regenerator overhead condenser
 - g. Reflux pump
 - h. Reflux drum
 - i. Lean amine coolers

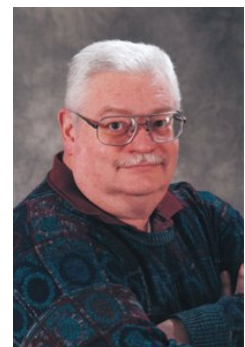
- j. Amine filters
 - k. Carbon treater
 - l. Amine surge tank
 - m. Lean amine pump
 - n. Reclaimers
 - o. DGA reclaimers
 - p. NH₃ scrubber
 - q. Sumps
 - r. Absorber overhead drum
 - s. Gas absorber
 - t. LPG contactor
 - u. LPG-amine coalescers
 - v. Safety relief systems
2. Purpose
 3. Process principles
 - a. Basic chemistry
 - b. Vapor-Liquid equilibrium reactions
 - c. Absorber heat balance
 - d. Regenerator heat balance
 - e. Commercial amines and their properties
 - f. MDEA
 4. Process flow
 5. Monitoring & troubleshooting
 - a. Monitoring amine quality
 - b. Heat stable salts
 - c. Reclaiming
 - d. Makeup water
 - e. Analytical considerations
 - f. Unit optimization
 - g. Conversion to super amines
 - h. Materials and corrosion
 - i. Troubleshooting

WHO SHOULD ATTEND

Personnel in the gas treating and environmental conservation areas of the gas processing and oil recovery and refining business including managers, designers, process engineers, and operators who are interested in gaining a better understanding of amine treating including design, troubleshooting and optimization. Engineers involved in maintenance, instrumentation and environmental control as well as personnel from catalyst, chemical, and process technology companies will also benefit from the program.

YOUR INSTRUCTOR

Ed DeGraaf Ed is a process engineer with over thirty years broad experience, starting out operating pilot plants. He brings a broad perspective having worked in the US, Canada, Denmark, India, South Africa, Japan and Azerbaijan. He has been fortunate to have worked for several companies who own or license special technologies in many areas, among them UOP, Davy Powergas/Davy McKee and Haldor Topsoe. These technologies include gas treatment technologies such as Dow GasSpec, Union Carbide Ucarsol and Benfield as applied in refineries, syngas processes and natural gas processing plants. In recent years he designed two major new sour



natural gas plants employing MDEA and glycol dehydration and worked on debottlenecking and troubleshooting of four more. Ed trains in design, troubleshooting, commissioning and operations. Because his work projects are current, students enjoy his fresh, animated and relevant instruction.

PREREQUISITES

No prior courses are required. Working in the gas processing or oil refining industry is recommended.

HOTEL

Sawridge Hotel
530 MacKenzie Boulevard
Ft McMurray, Alberta T9H 4C8 Canada

Toll Free 1-888-729-7343
Phone 1-780-791-7900
website: www.sawridgefortmcmurray.com/

COURSE INFORMATION

Wednesday, June 22, 2011
Classes start promptly at 8:00am and will finish at 5:00pm. The program includes continental breakfast, lunch, and coffee/cookie breaks. Attendees also receive a class manual that can serve as a valuable office reference. Dress is casual for all seminars.

PAYMENT AND CANCELLATIONS

Course Fee: \$725. Payment is due prior to the start of the seminar by Visa, Master Card, American Express or corporate check. Seminar fees will be charged to your credit card at the time of registration unless other arrangements have been made. Make checks payable to "SulfurUnit.com". Cancellations can be made up to five (5) business days prior to the start of the seminar for a full refund. No refunds will be made thereafter, but credit will be given for up to one year toward future workshops. Substitutions may be made at any time. For more information on Refining Community policies please contact us.

CONTACT US

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