EnVision
e-Learning & Universal Simulation

Amine Treating Unit

A self-paced MultiMedia based Tutorial/CBT and real-time dynamic simulation of an Amine Treating Unit.

Tutorial/CBT:

This interactive tutorial provides an Overview, Fundamental Principles, and Control and Operating Principles for an Amine Treating Unit using Voice, Video, Animation and Graphics.

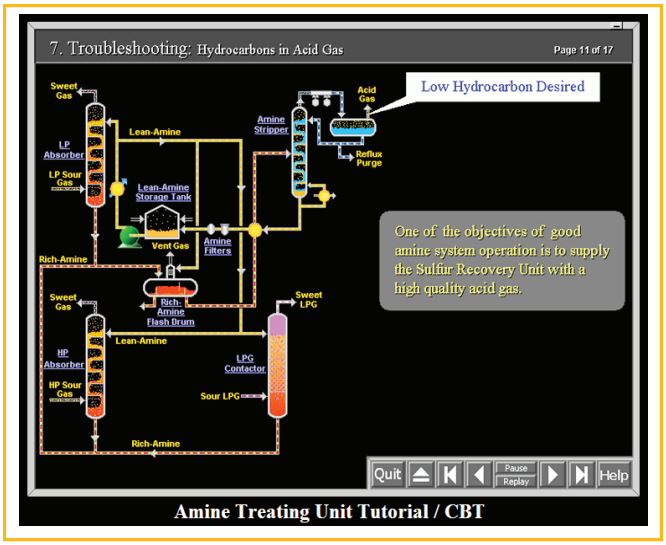
Overview
- Introduction
- Importance of the Amine Unit
- Process Overview
- Process Safety

Amine Unit Components
- Introduction
- Amine Solutions
- Sour Gas Knock-Out Drum
- Amine Absorber
- Sweet Gas Knock-Out Drum
- LPG Contactors
- Rich-Amine Flash Drum
- Rich/Lean Amine Heat Exchanger
- Amine Stripper
- The Lean-Amine Storage Tank
- Amine Filters & Lean-Amine Cooler

Principles of Amine Unit
- Acid Gas Removal at Amine Absorbers
- Acid Gas Removal at LPG Contactor
- Amine Regeneration

Key Controlled and Operating Variables
- Introduction
- Amine Concentration
- Amine Solution Circulation Rate
- Absorber Performance
- LPG Contactor Performance
- Amine Stripper Performance
- Safety Systems

Shutdown Operation
- Stop Sour Gas to Absorbers
- Inventory Amine Solution
- Prepare Equipment for Entry



Amine Treating Unit Tutorial / CBT

Startup Operation
- New or Repaired Equipment Preparation
- Amine Solution Preparation
- Purging
- Amine Circulation and Warm-up
- Introduction of Sour Gas
- Line-Out and Monitoring
- Routine Checks

Troubleshooting
- Poor Absorber Performance
- Foaming and Flooding
- Poor Stripper Performance
- High Amine Solution Losses
- Degradation of Amine Solution
- Hydrocarbons in Acid Gas
- High Corrosion Rate
- Equipment Leakage
- Equipment Fouling

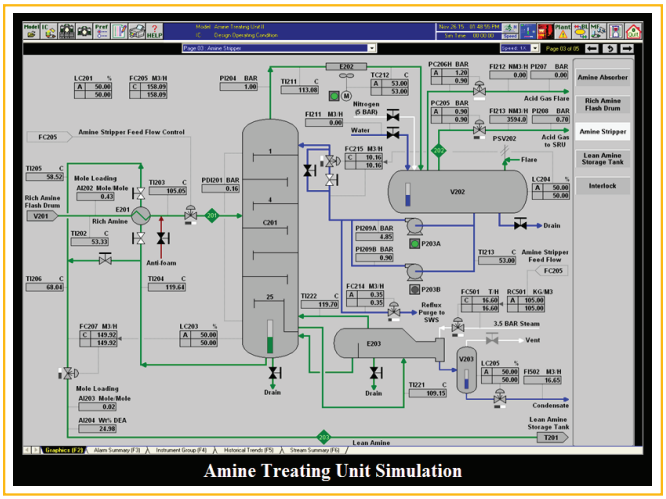
- Tutorial has a built-in Quiz and comes with a Learning Management System (LMS) called TutAdmin. The LMS allows an instructor to register trainees and monitor their performance and Quiz scores
- Tutorial is available as a Standalone or Web based application
- Available in English, Chinese, Danish, Dutch, French, German, Spanish and Swedish

Simulation

GSE's EnVision simulation is a real-time dynamic process simulation program used for Operator Training. It is based upon a rigorous and High-Fidelity mathematical process model to provide a realistic dynamic response of a process unit.

The Simulator allows a Trainee to Practice:

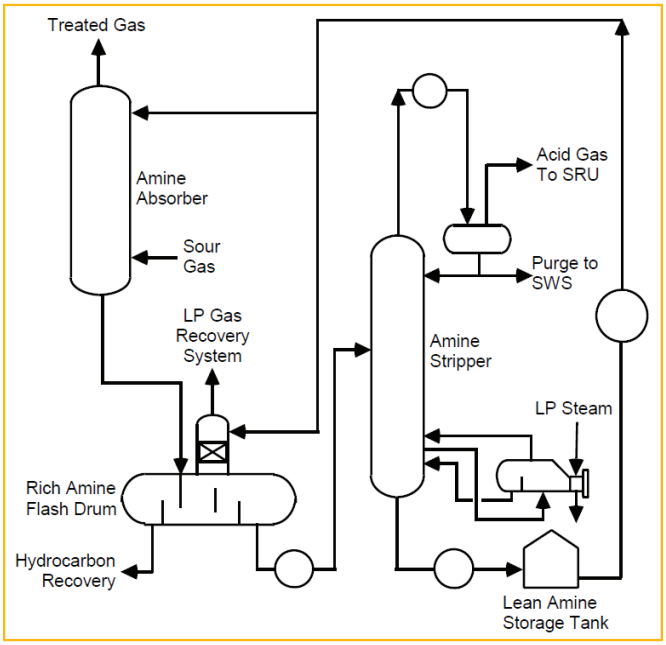
- Startup and Shutdown Operations
- Normal Operations
- Emergency Shutdown Operation
- Control Exercises
- Troubleshoot and practice recovery from Equipment, Instrument, and Control Valve Malfunctions



Amine Treating Unit Simulation

Major Equipment:

- Amine Absorber
- Rich Amine Flash Drum
- Rich / Lean Amine Heat Exchanger
- Amine Stripper
- Lean Amine Storage Tank
- Lean Amine Cooler



Key Operating Variables:

- Absorber Pressure: 65.0 BAR (945.0 PSIG)
- Absorber Treated Gas:
  - H2S: 12.5 PPM
  - CO2: 0.32 %
- Steam to Stripper Feed Ratio: 105.0 KG/M3 (0.87 LB/GAL)
- Amine Stripper Pressure: 1.0 BAR (14.5 PSIG)
- Lean Amine Temperature: 41.0 C (106.0 F)
- Rich Amine Mole Loading: 0.43 Mole/Mole
- Lean Amine Mole Loading: 0.02 Mole/Mole

- Simulation comes with a Learning Management System (LMS) called SimAdmin that allows an instructor to register trainees and monitor their performance
- Simulation is available as Standalone (Single or Dual Monitor) and Instructor-Trainee versions

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