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.

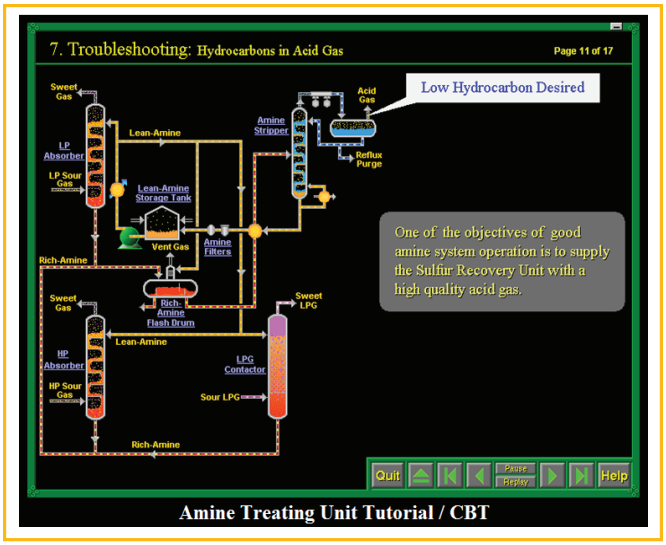
Overview
- Introduction
- Importance of the Amine Unit
- Process Overview
- Process Safety

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

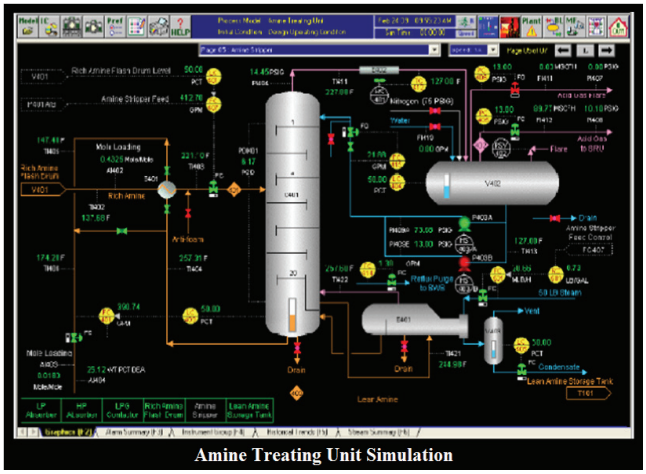
- Tutorial has a built-in Quiz and comes with a Learning Management System (LMS) called TutAdmin. The LMS allows an instructor to register trainees and monitor their performance and Quiz scores
- Tutorial is available as a Standalone or Web based application
- Available in English, Chinese, Danish, Dutch,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



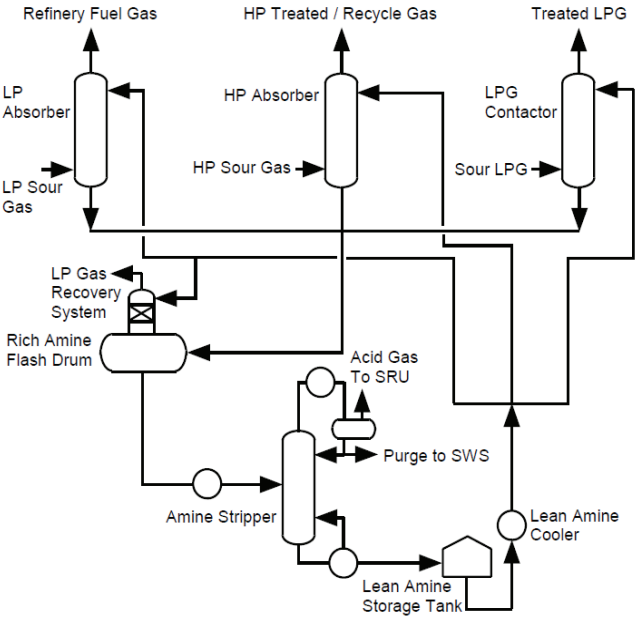
Amine Treating Unit Simulation

Major Equipment:

- LP Absorber
- HP Absorber
- LPG Contactor
- Rich Amine Flash Drum
- Rich / Lean Amine Heat Exchanger
- Amine Stripper
- Lean Amine Storage Tank
- Lean Amine Cooler

Key Operating Variables:

• LP Absorber Pressure:	7.0 BAR	(102 PSIG)
• LP Absorber Treated Gas H2S Analysis:	28.0 PPM	
• HP Absorber Pressure:	60.0 BAR	(319 PSIG)
• HP Absorber Treated Gas H2S Analysis:	9.0 PPM	
• LPG Contactor Pressure:	22.0 BAR	(870 PSIG)
• LPG Contactor Treated Gas H2S Analysis:	9.0 PPM	
• Steam to Stripper Feed Ratio:	100.0 KG/M3	(0.7 LB/GAL)
• Amine Stripper Pressure:	1.0 BAR	(14.5 PSIG)
• Lean Amine Temperature:	50.5 C	(123 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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