EnVision
e-Learning & Universal Simulation

Propane Refrigeration Unit

A self-paced MultiMedia based Tutorial/CBT and real-time dynamic simulation of a Propane Refrigeration Unit.

Tutorial/CBT:

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

Overview

- Introduction
- Refrigeration cycle

Refrigeration System Equipment

- Compressor and Driver
- Condenser and Receiver
- Chiller/Evaporator
- Suction Drum
- Multiple Stages

Key Controls and Operating Variables

- Capacity control
- Chiller Controls
- Spillback, Anti-surge and quench

Startup

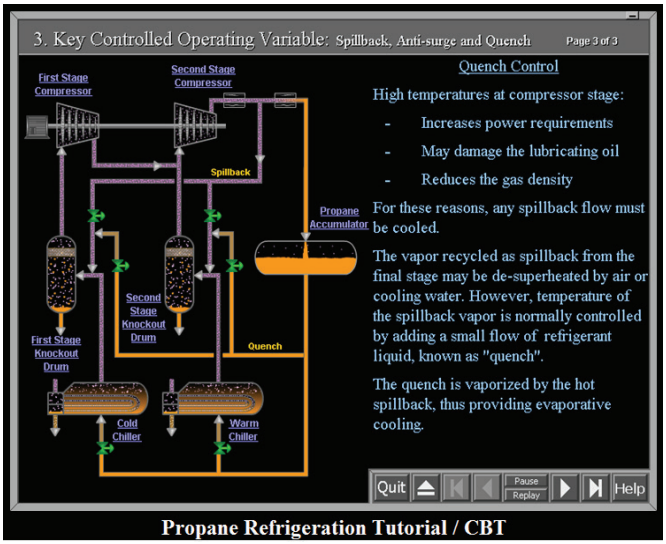
- Introduction
- Normal Startup

Shutdown

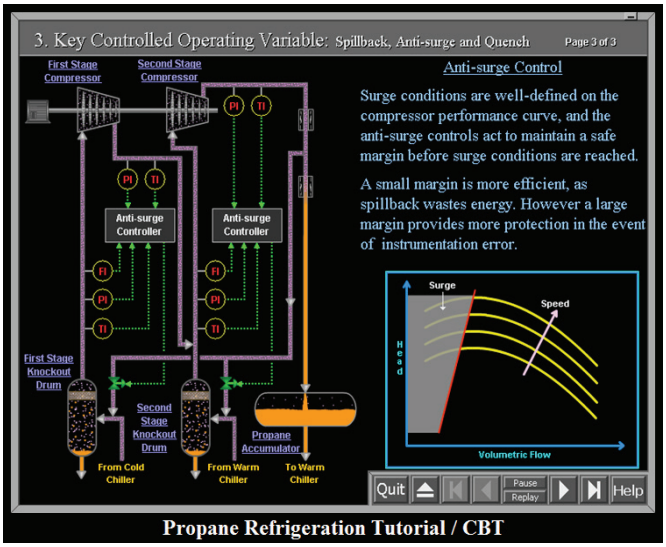
- Introduction
- Normal Shutdown
- Emergency Shutdown

Troubleshooting

- Compressor and Driver problems
- Condenser Problems
- Receiver Inventory Problems
- Chiller/Evaporator Problems



Propane Refrigeration Tutorial / CBT



Propane Refrigeration Tutorial / CBT

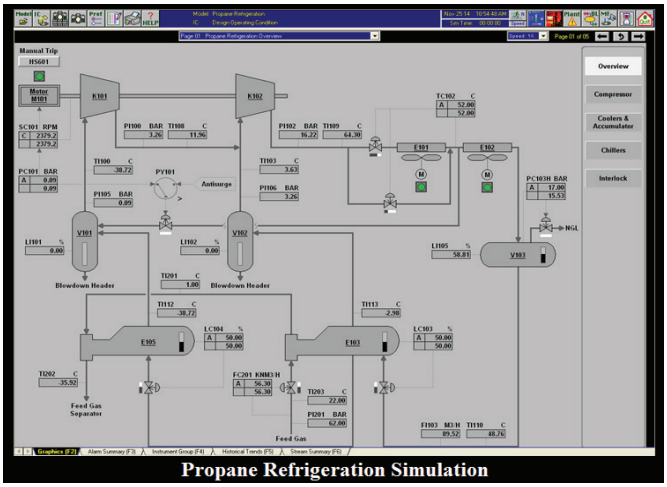
- Tutorial has a built-in Quiz and comes with a Learning Management System (LMS) called TutAdmin. The LMS allows an instructor to register trainees and monitor their performance and Quiz scores
- Tutorial is available as a Standalone or Web based application
- Available in English, Chinese, Danish, Dutch,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

EnVision

Propane Refrigeration Unit

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.


Propane Refrigeration Simulation

The Simulator allows a Trainee to Practice:

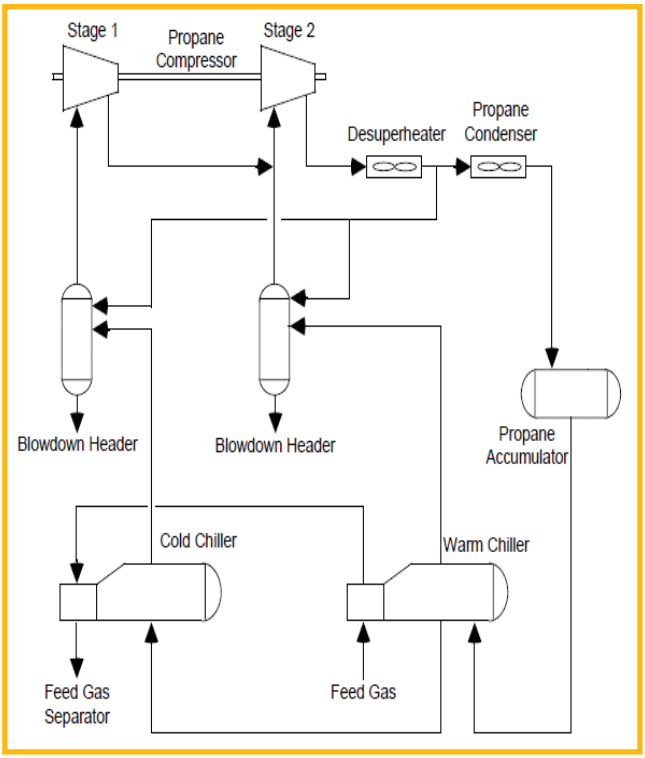
- Startup and Shutdown Operations
- Normal Operations
- Emergency Shutdown Operation
- Control Exercises
- Troubleshoot and practice recovery from Equipment, Instrument, and Control Valve Malfunctions

Major Equipment:

- Propane Compressor
- Desuperheater
- Propane Condenser
- Propane Accumulator
- Warm & Cold Chillers
- 1st & 2nd Stage Suction Drums

Key Operating Variables:

- Propane Compressor
  - Stage-1 Suct. Pressure: 0.1 BAR (1.5 PSIG)
  - Stage-1 Disch. Pressure: 3.3 BAR (48.0 PSIG)
  - Stage-2 Disch. Pressure: 16.0 BAR (235.0 PSIG)
- Propane Accumulator
  - Pressure: 15.5 BAR (225.0 PSIG)
  - Temperature: 49.0 C (120.0 F)
- Feed Gas
  - Flow Rate: 56.0 KNM3/H (1990.0 MSCFH)
  - Supply Pressure: 62.0 BAR (900.0 PSIG)
  - Supply Temperature: 22.0 C (72.0 F)
- Warm Chiller
  - Propane Temperature: -3.0 C (27.0 F)
  - Feed Gas Temperature: 1.0 C (34.0 F)
- Cold Chiller
  - Propane Temperature: -39.0 C (-38.0 F)
  - Feed Gas Temperature: -36.0 C (-33.0 F)



- 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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