Gas Oil Blending Simulation and Tutorial

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

Tutorial/CBT:

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

Overview
- Introduction
- Importance of Blending
- Blending System Overview
- Process Safety

Blending System Elements
- Various Types of Blending
- Fluid types
- Additives
- Tanks
- Pumps
- Blend Header
- Online Analyzer
- Octane Engine

Properties
- Octane number
- Volatility
- Distillation
- Other Properties
- Component Properties
- Property Tests
- Property Models

Blend Control
- Uniqueness of Blend Control
- Ratio Controllers
- Property Control
- Computer Control
- Manual Control
- Trim Control
- Recipe Planning
- Ethanol addition

Normal Operation
- Blending Plan
- Equipment Availability
- Loop Selection
- BRC and BPC Setup
- Analyzer Preparation
- Startup with / without BPC
- Full Rate Blending with / without BPC
- Trickles
- Post-Blending Activities
- In-Line Blending to Pipeline or Ship
- Rundown Blending
- Batch Blending

Common Operation
- Tank Mixing
- Tank Sampling
- Line Displacement and Compatibility
- Seasonal changes

Abnormal Blending Operation
- Component Problems
- Off-Spec Tank Heel
- Off-Spec Tank After Blending
- On-line Analyzer Problems

- 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 program is a real-time dynamic process simulation 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

Gas Oil Blend Components:
- Kerosene
- Diesel
- Light Gas Oil
- Heavy Gas Oil
- Vacuum Gas Oil

Unit Equipment:
- Component Tanks (Floating Head)
- Pump Suction Headers
- Component Pumps (Small, Medium and Large Capacity)
- Blend Header
- Booster Pump
- Product Tank
- Product Pump
- Analyzers
- Autosamplers

Key Unit Data:
- Blending Rate Max: 1500 M3/H (9000 BPH)
- Tank Capacity:
  - Component Tank: 5000 M3 (30000 BBL)
  - Product Tank: 5000 M3 (30000 BBL)

- 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