



## Gas, Oil, and Water Composition and Properties

### MODULE

#### About the Skill Module

This module identifies the typical compositions of gas, oil, and produced water and describes how to determine the physical and thermal properties using charts or simple correlations. Knowing compositions and how to estimate thermal and physical properties are essential to size, evaluate, and troubleshoot the required equipment for processing the fluids from the well to meet sales, transportation, or disposal specifications.



[See demo online learning module](#)

[See example online learning module](#)

#### Target Audience

Process/facilities engineers and senior operating personnel involved with the design and operation of oil and produced water processing facilities.

## You Will Learn

Participants will learn how to:

- Practice the concept of relative density of a gas
- Practice the concept of relative density of a liquid
- Practice converting from standard gas volumetric flow to mass flow
- Practice converting liquid volumetric flow to mass flow
- Describe the concept of atomic mass, molecular mass, and the mol
- Identify the four main hydrocarbon groups
- Describe an Equation of State, its purpose, and uses
- Describe the gas compressibility factor, and use it to calculate gas density
- Define the property “viscosity”, list applications where it is used, and describe correlations that can be used to predict its value
- List the methods available to estimate hydrocarbon liquid density
- Estimate the water content of sweet and sour natural gas
- Discuss the difference between an extended analysis and a standard gas chromatographic analysis
- Recognize the uncertainties involved with characterizing the C6+ components in a natural gas, condensate or crude oil stream, and describe the relationship of these factors with hydrocarbon liquid composition
- Identify the typical compositions of crude oil
- Describe the physical and thermal properties of crude oil that are most used in facilities work and describe how the properties are determined
- Identify the typical composition of brine water
- Describe the physical and thermal properties of brine water that are most used in facilities engineering work, and explain how these properties are determined

## Product Details

Categories: Midstream

Disciplines: Process Facilities Gas Processing

Levels: Basic

Product Type: Individual Skill Module

Format: On-Demand

Duration: 5.5 hours (approx.)

**\$395.00**

