MAIN MODULES

- ## Component Classes

  The pure components database contains 170 various components. PVTMax® 1.0 utilizes a characterization approach to find reliable properties for pseudo-components in heavy fractions.

- ## Flash Calculations

  In PVTMax® 1.0 a robust flash algorithm has been utilized as a backbone of phase equilibrium calculations. The phase stability analysis is also incorporated into the flash calculations algorithm.

- ## Phase Envelop and Saturation Point Calculations

  Phase envelope calculations is performed for multi-component mixtures using equations of state. An accurate algorithm has been utilized for the prediction of phase envelopes as well determining the critical points.

- ## Hydrate Formation Conditions

  As an additional tool for applications in the downstream gas industries, hydrate formation conditions can be estimated using two robust algorithms.

- ## Formation Water Properties Calculations

  Accurate correlations have been adopted for calculation of formation water properties.

PVT Simulation

- Constant mass expansion (CME)
- Constant volume depletion (CVD)
- Differential liberation (DL)
- Separator test
- Viscosity experiment
- Swelling
- Compositional Gradient

Tuning Fluid Models to Experimental Data

- Various objective functions
- Regression for plus compositions

Characterization of Crude Samples

- Splitting and Lumping
- Grouping

Advanced Features

- *Asphaltene precipitation prediction*
- *Wax formation modeling*
- *Scale formation prediction*
- *Mud Cleaning*
- *Recombination of Gas and Oil*
- *Viscosity Tuning*
- *Minimum miscibility pressure calculations*

PVTMAX®

VERSION 1.0

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INTRODUCTION

PVTMax® has been developed to facilitate calculation of all thermodynamic properties of interest to petroleum engineers & beyond. It can be used for crude oil characterization and PVT analysis - in order to simulate PVT experimental data acquired from the laboratory - while it can also be used for the evaluation of equilibrium conditions in multiphase equilibria (flash calculations), generation of phase envelopes, as well as additional functionalities such as CO_2 freezing point calculations, and prediction of hydrate formation conditions for binary or multi-component mixtures.

Calculations are based on fundamental thermodynamic principles and validated algorithms, and the package incorporates a variety of thermodynamic models such as equations of state and also valid correlations, where applicable.

MAIN MODULES

• Component Classes
Common reservoir fluid components / Hypo-component definition/ SCN fraction/ Formation Water

• Reservoir Fluid Characterization & Modelling

• Quality Control of the Fluid

• Formation Water Properties calculation

• Black Oil Export for Reservoir Simulators

• Compositional Export for Reservoir Simulators

• Multiphase Flash Calculation

• Phase stability analysis

• Phase Envelop and Saturation Point Calculation

• Critical Point Calculation

• Hydrate Formation Condition

• Carbon Dioxide Freezing Point

• Graphical User Interface (GUI)
   C#/ .Net framework/ Windows based

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PVTMAX®

VERSION 1.0

A Software for PVT and Phase Behavior Analysis of Reservoir Fluids