KBC

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Multiflash™

PVT Modelling and Flow Assurance Software

Multiflash is a comprehensive PVT and physical properties package that allows modelling and solving the phase behaviour of complex mixtures and pure substances. Designed to model virtually any coexisting phases and mixtures, Multiflash is the standard PVT and physical properties package in upstream flow assurance, production and process simulation in the oil and gas industry. Multiflash's unique set of tools, models and equations of state empowers engineers and managers with quantitative indications and assessment capabilities to assist them throughout the entire design and operational phases of a project.

Multiflash™

Multiflash is the only PVT and physical properties package providing reliable solutions to process and flow assurance engineers from the reservoir to the refinery.
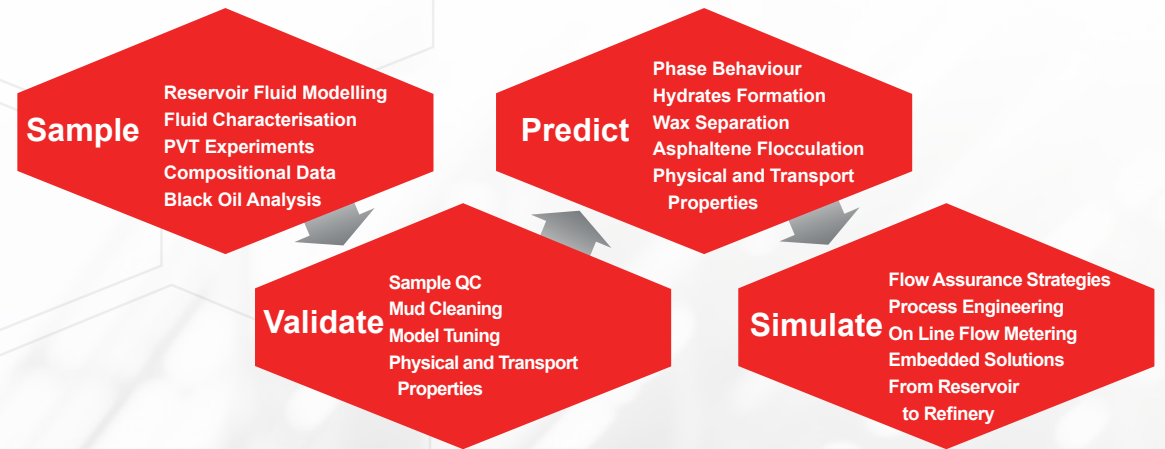
Software Solutions

PVT Modelling

Engineers and operators can rapidly and accurately represent the correct phase behaviour of oil samples with Multiflash PVT Lab: Multiflash's advanced set of tools for PVT modelling and EOS tuning. In a user-friendly and immediately accessible environment, Multiflash allows:

- Characterisation of a fluid from compositional or black oil data
- Simulation and fitting of the model to data from the most common PVT experiments (CME, CVD, DLE, Multi-stage separator test) and viscosity measurements
- QC of the PVT data and underpinning of errors and inconsistencies
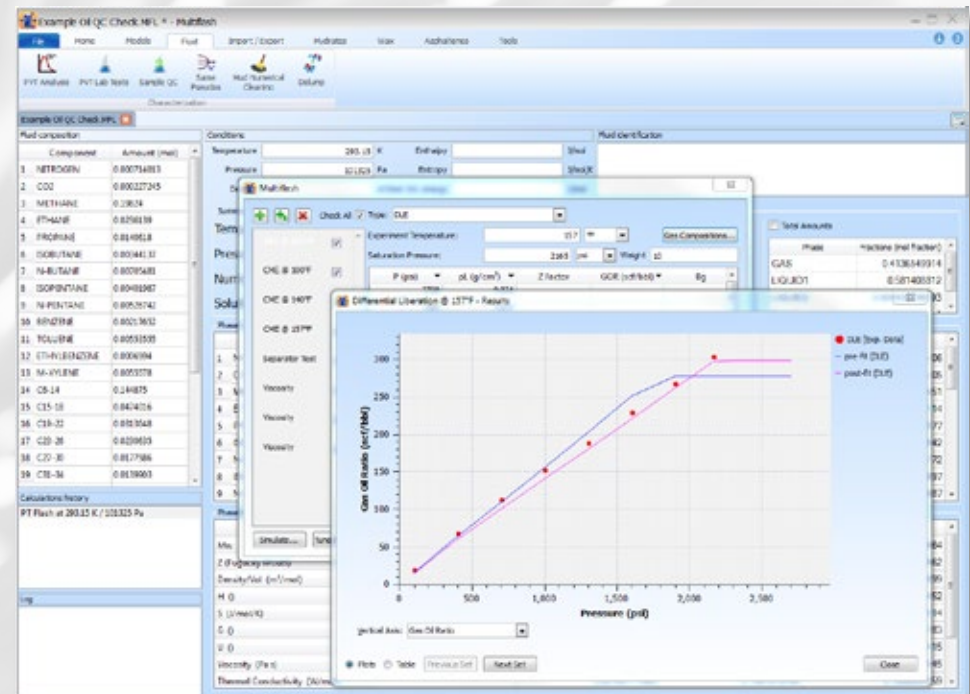- Elimination of mud contamination and generation of a representation of the decontaminated sample

The tuning capabilities of Multiflash PVT Lab make it possible to generate a thermodynamically consistent representation of the fluid sample, allowing for the adjustment of the main parameters of our advanced EOS (Equation of State), to match experimental data. Multiflash PVT Lab provides the perfect match of experimental data, whilst maintaining intact the physical meaning and thermodynamic coherence of pure components and oil fractions data.

The Best in Flow Assurance

Multiflash superior equations of states and models allow fast and reliable on-line monitoring and rapid assessment of options and potential risks for the facilities. Multiflash can model any phases, including Hydrates, Waxes, Asphaltenes and Halide Scales, as well as track the partitioning of potentially damaging substances such as Mercury (Hg) and Hydrogen Sulphide (H_2S). Inhibition or mitigation strategies of potential flow assurance issues can easily be compared in terms of effectiveness and compatibility with the plant's operating point or with costs. Through the several interfaces available in Multiflash (Excel, Cape-Open, VB, API), the user can easily set up a model to evaluate the cost-effectiveness of a solution, size equipment, simulate processes, perform what-if analyses etc. With the help of Multiflash, users can elaborate simple solutions to complex problems.

Sample
Reservoir Fluid Modelling
Fluid Characterisation
PVT Experiments
Compositional Data
Black Oil Analysis

Predict
Phase Behaviour
Hydrates Formation
Wax Separation
Asphaltene Flocculation
Physical and Transport Properties

Validate
Sample QC
Mud Cleaning
Model Tuning
Physical and Transport Properties

Simulate
Flow Assurance Strategies
Process Engineering
On Line Flow Metering
Embedded Solutions
From Reservoir to Refinery

The accuracy of the implemented models, together with the robustness, reliability and computational speed, have made Multiflash the leading PVT package in Flow Assurance and Production applications. Natively embedded in leading oil and gas software simulators, Multiflash already provides Flow Assurance predictions throughout the value chain, from the wellbore to the process facilities. Fluid description, assessment of phase behaviour, flow assurance studies, production optimisation and full plant process simulation can all be performed based on a coherent and common PVT model, greatly simplifying the

Regression of PVT experiments to model reservoir fluids

design process, reducing potential sources of errors and achieving better performance and more reliable results.

Quality of results, speed and robustness make Multiflash the only PVT package embedded either in applications for simulations and design, or on-line and real time software solutions, flow monitoring and management; a common and consistent solution, to a common and cross-operational problem.
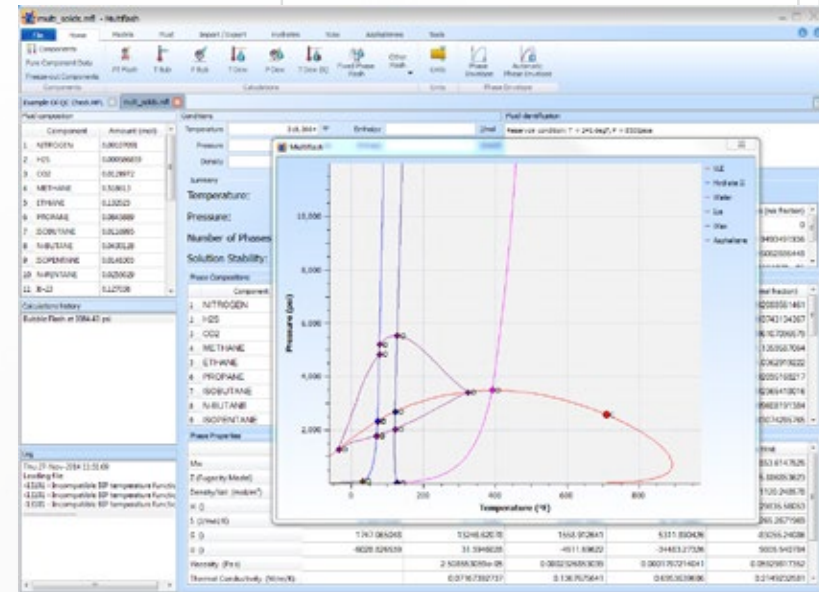
Physical Properties

Multiflash implements a unique range of thermodynamic models to accurately evaluate physical and transport properties of complex mixtures and pure substances. Applications range from upstream flow assurance and production, to midstream gas plants, through to downstream petrochemical products and polymer blends, chemicals and refrigerants. Market leading oil operators, oilfield service providers, equipment manufacturers, engineering contractors and chemical companies daily access the unique capabilities of Multiflash to provide phase behaviour and physical and transport properties data for design, R&D and operations.

Equipped with a thoroughly tested proprietary database of more than 300 pure components, optional access to the DIPPR database of more than 2,200 compounds and the possibility of defining and including components based on supplementary data, Multiflash can accurately represent any mixture and any combination of solid, gas or liquid phases. The models available in Multiflash include the most advanced evolutions of fluid equations of states, to accurately represent oil, condensates, natural gas, Carbon Dioxide (CO_2), water, steam, glycols, refrigerants and other chemicals and polymers, as well as the widest and most up-to-date range of models, to evaluate physical and transport properties such as viscosity, thermal conductivity and surface tension.
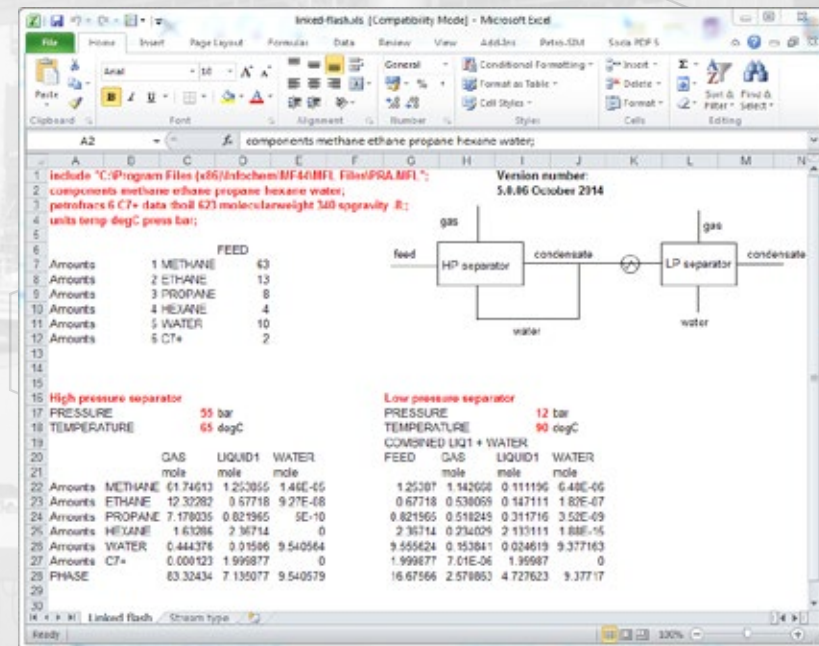
The models' accuracy and robustness made Multiflash the standard PVT engine in embedded simulation solutions throughout the oil and gas industry and beyond. Its unique connectivity allows engineers to design their own workflow whilst relying on a common, coherent and accurate description of the fluids throughout each design step.

From the Reservoir to the Refinery

With its wide range of accurate and reliable models and pure component data, Multiflash is the only PVT package used throughout the entire oil and gas value chain, with notable applications also in the chemical and petrochemical industries. KBC – Infochem continuously delivers innovation by pushing models to the limit and developing new solutions to the ever-greater technical and economic challenges faced by industry. The value delivered to users is substantial, in terms of a coherent and realistic fluid description and a customisable workflow that results in a more efficient and effective design and modelling process and in more accurate results.

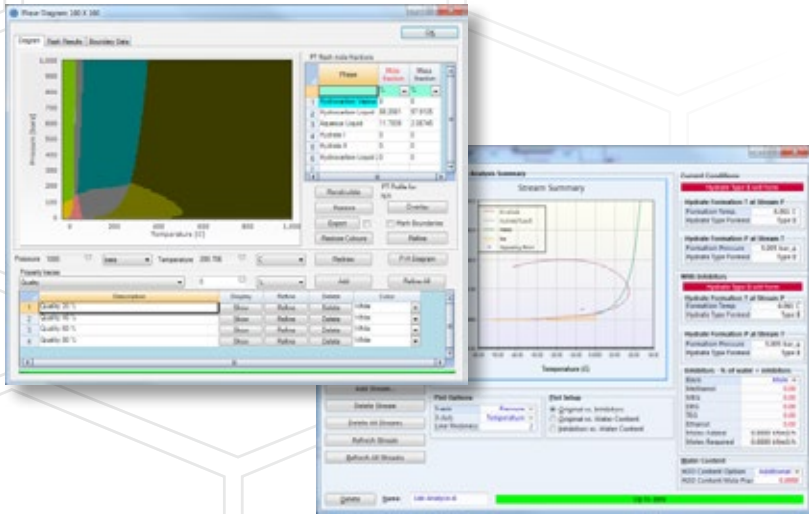*Simulation of complex phase equilibria in flow assurance*

Unit operations simulation through Excel

With its wide range of applications, Multiflash is now the most commonly PVT engine in upstream process simulation and flow assurance. Integrated software and hardware solutions rely on Multiflash to provide phase behaviour and transport properties for flow modelling and on-line monitoring. Multiflash models are regarded as the most accurate and most reliable across and beyond the hydrocarbons industry. Chosen as their standard PVT package by leading operating, technology and consultancy firms, Multiflash has been field-tested to become the standard PVT package from the reservoir to the refinery.

Process and production simulation powered by Multiflash, Maximus and Petro-SIM

KBC has a unique focus on:

Quality. Innovation. Support. Value.

All of these areas of focus are backed up by our industry-leading consulting capabilities to help provide answers for our clients. In addition, world class technical support is available to all customers under a software maintenance agreement.

Multiflash is the only PVT and physical properties package able to extend its range of applications across and beyond the whole oil and gas value chain. Not only is Multiflash the standard PVT engine in flow assurance and production modelling, but also it provides accurate and reliable modelling solutions in chemical and petrochemical applications. Multiflash empowers engineers with a unique set of tools to rapidly assess the possibility of insurgence of flow assurance or production problems with great accuracy and flexibility, allowing a more efficient and effective design process and a great increase in operations confidence. Multiflash is the standard and most reliable choice to evaluate the phase behaviour and physical and transport properties of any complex and simple fluids, from reservoir to refinery and beyond.

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