

## Multiflash: Interfaces and Links with Other Software

Multiflash is a powerful and versatile program for modelling physical properties and phase equilibria. It can be used as a stand-alone program or in conjunction with other software. The Multiflash calculation engine is available as a Windows DLL that runs under any version of Windows. It may be used with any application that can call a DLL. We provide support for applications written in various programming languages including C++, Visual Basic and Fortran. Linux applications can also be supported. The Multiflash Windows GUI and Excel interface are described below and interfaces to other engineering applications are described overleaf.

### Multiflash for Windows

The Multiflash Windows GUI gives you access to the full capabilities of the program, including:

- All the thermodynamic and transport properties needed for engineering design
- Flash calculations to determine the phases present at specified conditions and their type, composition and amounts
- Solids formation, including pure solids, halide scales, hydrates, waxes and asphaltenes

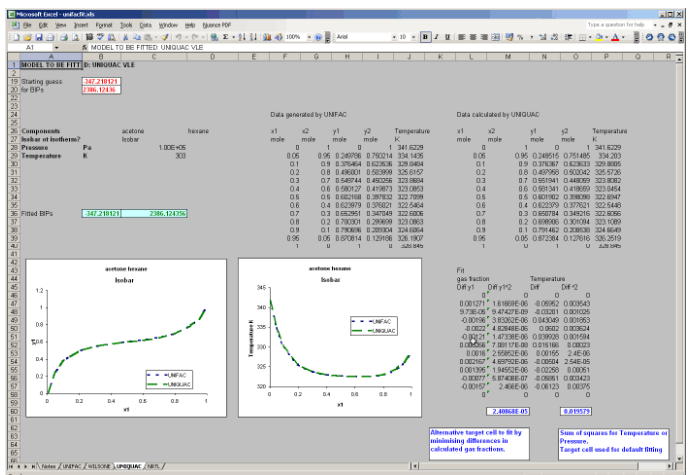
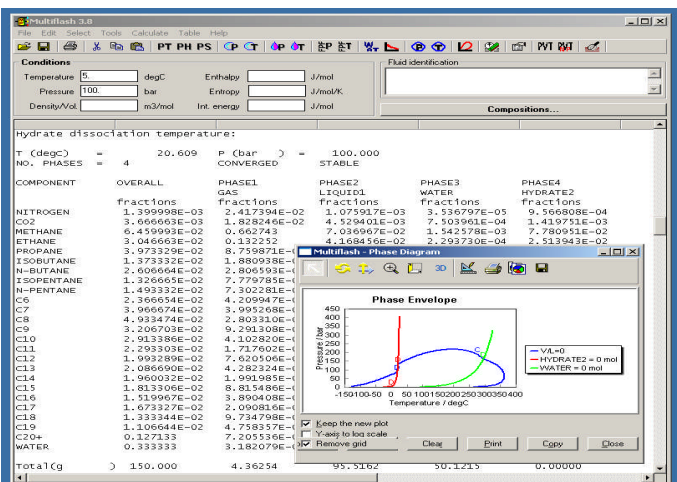
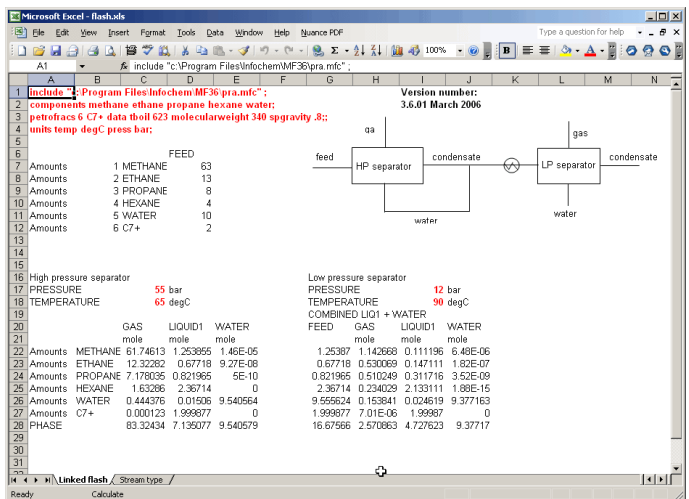
It is easy to set up all aspects of a problem: components, models, units, type of calculation etc. via menu options or tool bar buttons. This problem configuration can then be saved for future use with the GUI or other applications.

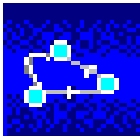
Virtually any flash calculation can be carried out irrespective of the number and type of phases present. Complete phase envelopes can be plotted showing phase boundaries and any critical points.

### Multiflash Excel Interface

The Excel interface provides a set of Multiflash worksheet functions that work in a similar way to the standard Excel functions. They allow you to carry out flash calculations and to obtain physical properties.

Multiflash can be used in Excel in very flexible ways. For example, it is straightforward to set up tables of calculations for a range of conditions and plot the results. Another possibility is to use the results of one flash as the feed to another or even to calculate recycles.





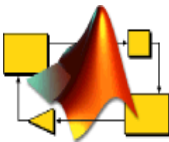
## PIPESIM

PIPESIM is a product of Schlumberger Information Solutions. It provides steady – state, multiphase flow simulation for oil and gas production systems. Individual modules are used for a wide range of analyses including: well modelling, artificial lift optimisation, pipeline and process facilities modelling and field planning. Multiflash is used as the thermodynamic library to support PIPESIM Compositional, giving access to equation of state models and flow-assurance models for hydrates, waxes and asphaltenes.



## CAPE-OPEN

The CAPE-OPEN standard defines rules and interfaces that allow CAPE applications or components to interoperate. In practice, it enables components supplied by third parties, such as physical property packages or unit operation models to be used in “plug and play” mode in commercial process modelling software tools. Infochem has been actively involved in defining the standards for physical properties and testing interoperability between Multiflash and other application packages. Multiflash supports versions 1.0 and 1.1 of the physical properties interface.



## Matlab

The interface between Multiflash and Matlab/Simulink was created by KHACE, a Matlab Partner. Adding Multiflash to this general purpose calculation, graphics and simulation environment provides all that is needed for a wide range of calculations and dynamic simulation for Chemical, Process and Mechanical Engineering design. *Multiflash for Matlab* is invaluable for Simulink users requiring rigorous models for design calculations and static or dynamic simulations for a wide range of chemical and mechanical processes and equipment.



## Weatherford

### WellFlo and ReO

WellFlo is a stand-alone application to design, optimise and trouble-shoot oil and gas wells. ReO software provides simulation and optimisation solutions for surface networks. These are products of Weatherford. Multiflash flow assurance models for hydrate, wax and asphaltenes are now available in these tools.



## UniSim

Multiflash is also an option within Honeywell Process Solutions suite of UniSim software. UniSim can be used for design studies as well as forming part of Honeywell’s advanced control and optimisation products and their operator training solutions.



## gPROMS

gPROMS is an advanced general purpose modelling, simulation and optimisation tool. It is supplied and developed by Process Systems Enterprise Ltd. gPROMS can be used to optimise equipment design, operating procedures or control system performance and to provide automation applications such as data reconciliation or model-based predictive control. Multiflash is ideally suited to dynamic applications since analytical derivatives of all physical properties are available.



## Maximus

FEESA has developed new software, called Maximus, for modelling and optimisation of multiphase production systems and for predicting the flows of wellstream fluids from the reservoir to the processing facilities. The comprehensive interface to Multiflash means Maximus can predict multiphase flows through production systems in which other phases, such as ice and hydrates, appear in addition to the usual oil, gas and water phases.



## Aspen Hysys Upstream

Aspen HYSYS Upstream provides industry-standard methods and techniques for handling petroleum fluids and brings together the disciplines of petroleum and process engineering. Production field data can be input in an easy-to-use environment to create an asset-wide model from the reservoir to the back end of the facility. Multiflash is a part of the Aspen Hysys Upstream package and provides advanced characterisation and modelling capabilities.



## Other applications

Multiflash can be built in to many other applications, both software and hardware based. For example, it can be used in training simulators, either directly or via property tables. Using the Excel interface equipment manufacturers can set up simple spreadsheets to size equipment and recommend the best choice for a client’s application. Alternatively Multiflash or any of its component modules can be built into hardware. Intelligent instrumentation can be created such as flow meters for dew point control or leak-detection systems.

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