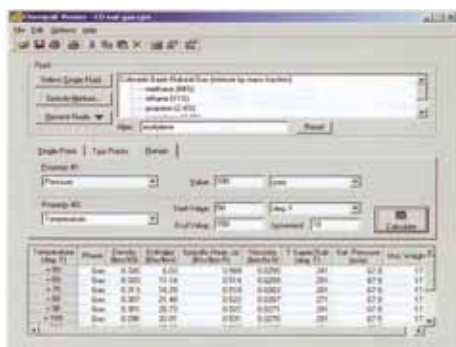


# AFT Chempak Suite 2.0

## Thermo-physical Fluid Properties

Traditionally obtained from printed references, fluid properties are frequently needed for activities requiring more dynamic data. Using the technology of the Chempak™ thermo-physical property database, AFT now brings the engineering and scientific communities three products that make fluid property data availability as dynamic as their analyses:



- Chempak Property Database
- AFT Chempak Viewer™
- AFT Chempak Add-in for Excel™

Available as AFT Chempak Suite, including all three, or as AFT Chempak Plus, including just the Viewer and Add-in, for those who already have the Database. Chempak Property Database is also available individually for use with AFT's family of software products.

### Chempak Property Database™

The Chempak Property database provides comprehensive thermo-physical properties on a wide range of fluids to AFT's family of software products.

For incompressible pipe flow analysis, the Chempak Property Database provides ~700 fluids to AFT Fathom™, AFT Impulse™ and AFT Mercury™, along with the ability to assemble non-reacting static mixtures. For compressible flow analysis, data on ~600 gases is available to AFT Arrow™ and AFT Titan™ along with the capability to model both static mixtures and dynamic mixing resulting from intersecting flow streams.

With fluids listed by up to three commonly used names, the formula and chemical structure, with sorting on any these identifiers, finding a specific fluid from the large number available is a quick and easy proposition.

### Chempak Viewer™

A powerful and easy-to-use interface, AFT Chempak Viewer™ provides access to the Chempak Property Database through a stand-alone application.

Select any of the ~700 fluids contained in the database and assemble non-reacting mixtures on a mass or mole basis. Fluid or mixture properties may be calculated for any combination of the available input parameters, either as a single point, two point or a range of inputs.

### AFT Chempak Viewer Input Parameters Available:

- Density
- Enthalpy
- Entropy
- Internal Energy
- Pressure
- Quality
- Saturated Liquid
- Saturated Vapor
- Specific Volume
- Temperature

Chempak Viewer provides both text and graphical output. Text output is user configurable for parameters to display and units, with English and SI units supported. Graphical output of a wide range of output parameters with user customisation including colours, fronts, labels, markers and line format.

Text output may be printed or exported for inclusion in a report or spreadsheet for additional calculations or exported as an Adobe PDF file. Graphs may be printed or saved as a graphic file.

### Other software in the range includes:

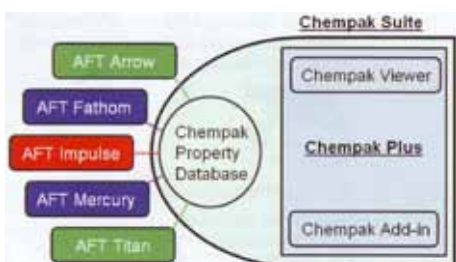
**AFT Arrow** - Pipe and duct flow modelling for compressible fluids

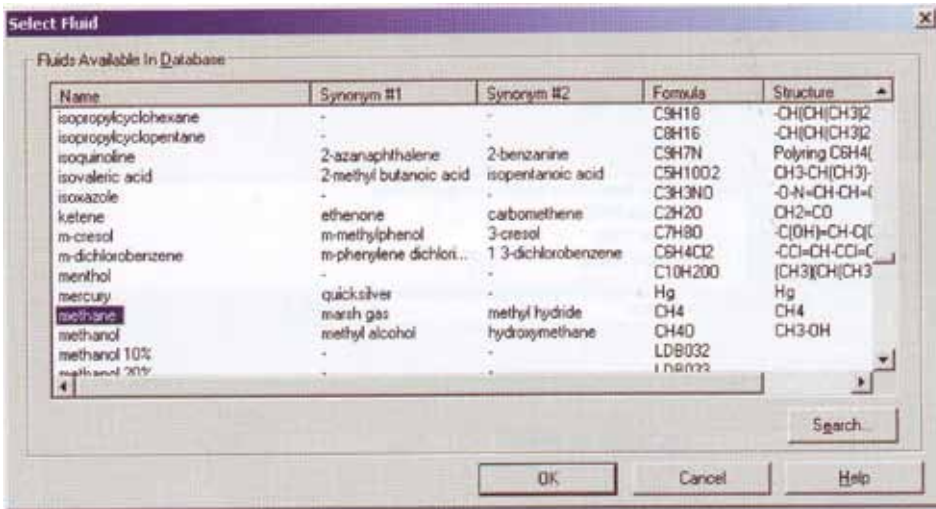
**AFT Fathom** - Pipe and duct flow modelling for incompressible fluids

**AFT Impulse** - Waterhammer modelling

**AFT Mercury** - Cost reduction through intelligent system sizing for incompressible fluid systems

**AFT Titan** - Cost reduction through intelligent system sizing for compressible fluid systems





Fluid Properties Available from Chempak Viewer & Chempak Add-in:

- Bulk Modulus of Elasticity
- Compressibility Factor
- Critical Pressure
- Critical Temperature
- Density
- Enthalpy
- Entropy
- Internal Energy
- Isentropic Expansion Coef., Gamma
- Kinematic Viscosity
- Molecular Weight
- Phase
- Prandtl Number
- Pressure
- Quality
- Saturation Pressure
- Saturation Temperature
- Sonic Velocity
- Specific Heat, cp
- Specific Heat, cv
- Specific Volume
- Surface Tension
- Temp. Superheat/Subcooled
- Temperature
- Thermal Conductivity
- Viscosity
- Volume Expansivity

### AFT Chempak Add-in™ for MS Excel™

In conjunction with Chempak Property Database, Chempak Add-in lets you directly access Chempak fluid property functions from within a Microsoft Excel spreadsheet. Your spreadsheet based calculations can now have comprehensive and highly accurate fluid properties imbedded as a dynamic part of your analysis.

Chempak functions are selected with Excel's Paste Function command or directly entered as you would any Excel function. Selection of fluids, assembling mixtures, setting unit preferences and online help system are all available from the Chempak menu.

The potential applications of AFT Chempak Add-in are as limitless as a spreadsheet.

**CPGamma**

| Temperature | 300   | 500   | 700   | Fluid                      |
|-------------|-------|-------|-------|----------------------------|
| °F          | psia  | psia  | psia  | Colorado Basin Natural Gas |
| 100         | 1.283 | 1.293 | 1.308 |                            |
| 125         | 1.276 | 1.285 | 1.299 |                            |
| 150         | 1.269 | 1.278 | 1.291 |                            |
| 175         | 1.262 | 1.271 | 1.283 |                            |
| 200         | 1.255 | 1.264 | 1.276 |                            |
| 225         | 1.249 | 1.258 | 1.270 |                            |
| 250         | 1.244 | 1.252 | 1.263 |                            |
| 275         | 1.238 | 1.246 | 1.257 |                            |
| 300         | 1.233 | 1.241 | 1.252 |                            |
| 325         | 1.228 | 1.236 | 1.246 |                            |
| 350         | 1.223 | 1.231 | 1.241 |                            |
| 375         | 1.219 | 1.226 | 1.238 |                            |
| 400         | 1.214 | 1.222 | 1.231 |                            |

**CO Basin Nat Gas Compression Exponent**

Graph showing Gamma vs T - def F for 700 psia, 500 psia, and 300 psia.

AFT Chempak Add-in menu in Excel

Please note:

Chempak Viewer and Chempak Add-in require Property Database.

Chempak Property Database requires at least one of the following: AFT Arrow, AFT Chempak Viewer, AFT Chempak Add-in, AFT Fathom, AFT Impulse, AFT Mercury, AFT Titan.



www.ferncc.com  
 sales@ferncc.com  
 Telephone: +44 (0)1332 780790  
 Fax: +44 (0)1332 780788



Applied Flow Technology  
 Dynamic solutions for a fluid world.™

© Copyright 2009 Fern Computer Consultancy Ltd. All rights reserved.  
 Fern are authorised distributors for Applied Flow Technology Corporation in Western Europe.  
 Chempak is a trademark of Madison Technical Software. Excel is a trademark of Microsoft Corp. AFT Chempak Viewer, AFT Chempak Add-in, AFT Chempak Suite, AFT Arrow, AFT Fathom, AFT Impulse, AFT Mercury and AFT Titan are trademarks of Applied Flow Technology Corporation.