

# The WinSim Window

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A Look Inside WinSim

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## We've Moved!

WinSim Inc. has moved to a new location, effective February 1, 1999. The new address and phone numbers are:

**13333 Southwest Freeway,  
Suite 130  
Sugar Land  
Texas 77478 USA**

**Phone: 281-565-6700  
Fax: 281-565-7593**

Please note that our mailing address has not changed! It is:

**PO Box 1885  
Houston, Texas 77251 USA**

## Version 8.2 of DESIGN II for Windows™ released September 8, 1999

DESIGN II for Windows version 8.2 offers many new enhancements and features for gas processing and heat exchange applications. The focus of this release has been heat exchangers and stream calculations. Version 8.2 now offers a new air cooled heat exchanger unit module that provides rigorous single or two phase rating. The rating calculations can be for either an air cooled heat exchanger or air cooled condenser. You can specify the process side and have the air side calculated automatically for you. Or, you can specify the air side and have the process side calculated for you. The air side can be used as a utility fluid or can be a part of the process material and energy balance.

Also new to version 8.2 is several calculation options for streams. First, you can now specify a feed stream to the flowsheet using a Vapor Fraction and Temperature or a Vapor Fraction and Pressure. You can also turn off the specifications for a stream. And, any stream in the flowsheet can have its gross heating value, net heating value, wobbe index, mixture dew point, mixture bubble point and water dew point calculated for it.

There have been many other improvements in the program to make DESIGN II for Windows even more user friendly and capable of more applications. For a complete listing of all of the changes, please consult the online release notes.

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## New Visual Basic Interface

Version 8.2 of DESIGN II includes a new Visual Basic interface for embedding the DESIGN II simulation engine in user written applications. The applications can be for custom high speed calculations, sales force automation tools, simplified unit module simulations, etc. The new VB interface is easy to use and includes a sample application with source code.

You can use the new interface for calculating isothermal flashes and/or adiabatic flashes of mixtures using any of the many thermodynamic methods that DESIGN II supports. Flashes can be automatically separated into one, two or three phases. Transport property calculation (viscosity, thermal conductivity, surface tension) for mixtures is also included.

Please contact us for details regarding volume licensing of the DESIGN II simulator engine or the entire DESIGN II for Windows package within your organization.

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# Technical Tips

One of the frequently used features in DESIGN II for Windows is the characterization of hypothetical components, boiling point cuts, petroleum fractions and crude oils. DESIGN II can characterize crude oils, blends, petroleum fractions and pseudo components very well in feed streams or recycle streams. At this time, DESIGN II supports usage of one characterization method per flowsheet simulation. You can accomplish characterization in one of the following three ways:

## **Characterize Hypothetical Component (Method #1)**

Hypothetical component data entry can be done only when you don't have crude assay or boiling point cuts data. This component can be present in natural gas mixture as C6+, C7+, etc... For example, if a condensate has HEPTANES PLUS as its predominant fraction, it can be characterized as follows:

1. Select the hypothetical component as Pet-100 from the component list.
2. Visit the Specify...Component Data dialog...General Properties to provide information such as Name (Heptanes plus) and available data on this component for API or Specific gravity and AMW-Molecular Weight, and ABP-the Average Boiling Point if available.
3. Once this is done you can then specify the feed stream flow rate for Pet-100 (Heptanes Plus).
4. On execution, DESIGN II will characterize the Pet-100 based on available correlations in the feed mixture and show the results under "Heptanes Plus".

Note that, the Pet-100 can be defined even when other pure components are also present in the feed mixture with the exception of CRUDE feed. No petroleum cut fraction (Pet-100 or higher) definition can be used, if a crude is specified in a stream. Also, please make sure that you did not copy a stream or work on a .PSD file from a pre-existing saved file which had a specified Assay Data section.

## **Characterize a Crude Feed as Boiling Point Cuts (Method #2)**

A crude can be characterized as boiling point cuts. There are no default temperature cuts in the Assay data section. The boiling point cuts are usually specified by the user.

1. From the choices in a new flowsheet under Specify...Assay data...CUTS option are
  - No Cut Points
  - Mean Average Boiling Points (empty fields)
  - Distillation Curve Break Points (empty fields)

Choose Mean Average Boiling Points and enter the various boiling point cut points.

2. Following this choose Specify...Assay data...Gravity and enter the specific or API gravity data for each boiling point cut.
3. It is optional to provide molecular weight under Specify...Assay data...Molecular Weight for each cut. Molecular weight can be estimated via correlations from your boiling point cut and gravity information.
4. Visit the feed stream dialog and specify the flowrate of each cut.

Note that, the boiling point cuts can be defined even when other pure components are also present in the feed mixture with the exception of CRUDE feed. Note that you can also add this after selecting "Pseudo-Component Vol Percents" from the stream dialog flowrate specification and pure components as "Light Ends".

## **Characterize a Crude Feed as TBP or ASTM (D86, D1160) Curve (Method #3)**

Finally, a crude feed can be characterized as boiling point curve from TBP, and ASTM analysis. This method would be to use either the crude oil TBP curve (or) ASTM D-86 curve provided in the lab data for any stream. This is entered via a table of boiling point versus volume (or weight) percent in the feed stream dialog "flowrate specification". You can include other pure components as LIGHT ENDS volume percent. After execution you will see the properties of the characterized streams and the overall feed will include the light ends volume data. Please note that water is always included as the first component for all crude curve characterizations.

Summarizing, all the above methods are mutually exclusive and they should not be used together on a single flowsheet or re-created from an existing flowsheet. Mixing one or more approach will cause flowsheet input errors and not allow the simulation to run.

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## BP Amoco and ARCO

Congratulations on the upcoming combination of BP Amoco and the Atlantic Richfield Company (ARCO). Please note that the Amoco and DESIGN II corporate license agreement has been extended to all BP Amoco employees and 50% owned subsidiaries. The DESIGN II corporate license will be extended to all ARCO employees as soon as the BP Amoco and ARCO combination is completed. Please contact WinSim for more details on obtaining a copy of Version 8.2 of DESIGN II for Windows.

## Latest Updates

WinSim would like to keep you updated on all new releases and information about our software. If you would like to receive our newsletter by email, please send a message to [ekj@winsim.com](mailto:ekj@winsim.com) with the word "Subscribe" in the Subject area, and you will be added to our mailing list.

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## Grant Rabon Joins Staff

Please join us in welcoming Grant Rabon to our staff at WinSim Inc. Grant is our new North American Sales representative as of June 22, 1999. Grant is a graduate of Texas A&M University with a Bachelor of Science degree in Chemical Engineering. He is originally from San Antonio, Texas.

Grant can be reached through e-mail at [gsr@winsim.com](mailto:gsr@winsim.com) or by telephone at 281-565-6700 x104.

### DESIGN II for Windows New Users - North America

Air-X-Changers	Oklahoma
Akzo Nobel Chemicals	Texas
Angus Chemical Co.	Louisiana
Dresser-Rand	New York
Duke Energy	Texas
Dyadem Engineering	Ontario
ECI Pegasus Inc.	Louisiana
Gardner Denver	Texas
Global Thermoelectric Inc.	Alberta
IDS Engineering	Oklahoma
M & H Enterprises	Texas
MCM Investments	Texas
Oren Moore	Texas
Pearl Development Co.	Colorado
PPE Projects	Colorado
Praxair Mexico	Mexico
Regard Resources Co., Inc.	Louisiana
RNB Engineering	Texas

Visit our Website at  
**[www.winsim.com](http://www.winsim.com)**  
for the latest news and  
software releases!

### DESIGN II for Windows New Users - International

Axsia Serck Baker Limited	UK
Calcutta Univ.	India
ChemDes	S. Africa
CHT	India
CLRI	India
CSIRO	Australia
Dec Impianti s. r. l.	Italy
Don Harrold	UK
Formosa EG	Point Comfort
Hogeschool Ensredre	Netherlands
HPCL, VG	India
Inagaki. H	Japan
Incerp	Romania
IOGPT	India
LIT	India
Monsanto	Australia
ONGC	India
Petrogas	Netherlands
Regional Engr. College	India
Singapore Univ.	Singapore
Università di Milano	Italy

**WinSim Inc.**  
P.O. Box 1885  
Houston, TX 77251  
USA

A Better Way to do Simulation...

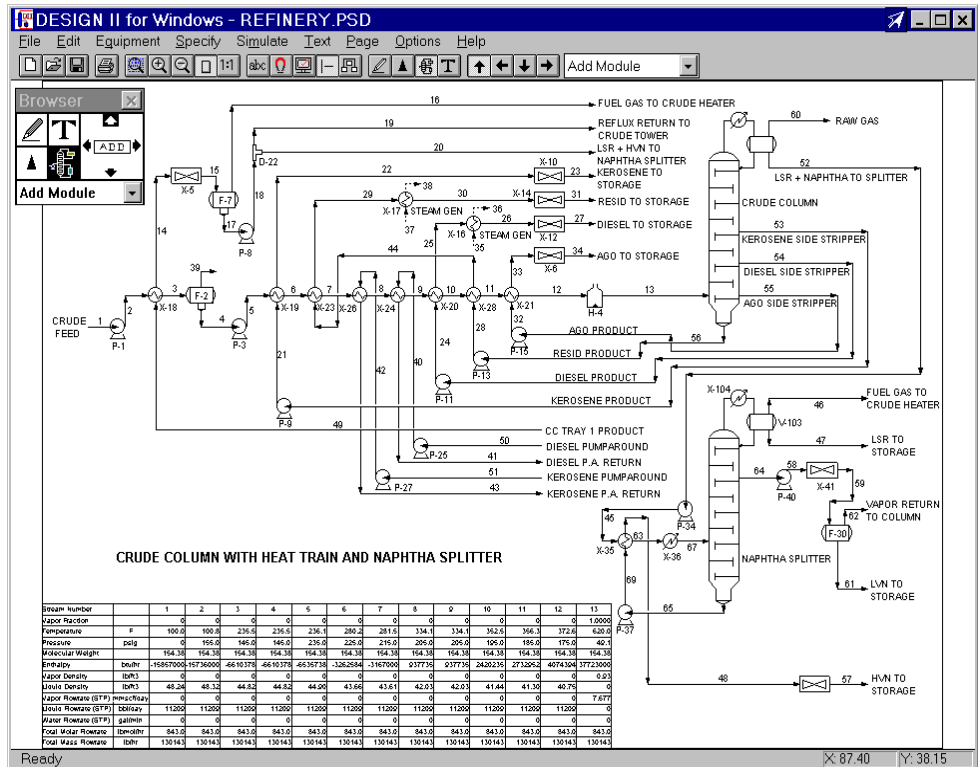
DESIGN II for Windows

A Better Way to do Your Job.

## Upcoming Shows & Meetings

Regional Chapter Meeting of  
the North Texas Chapter of  
the Gas Processors Association (GPA)  
November 11, 1999  
Harvey Hotel DFW  
Dallas, Texas

Gas Processors  
Association's 79th Annual  
Convention  
March 13-15, 2000  
Atlanta Marriott Marquis  
Atlanta, Georgia



North American Sales:  
gsr@winsim.com

International Sales:  
sales@winsim.com

Technical Support:  
support@winsim.com

Sales, Technical Support, Phone: 281-565-6700 or Fax: 281-565-7593