NEW HSC CHEMISTRY® 6.0

Outokumpu Technology has just released a new version of the renowned HSC Chemistry® process calculation software which enables the user to simulate the whole chemical or physical process. The new HSC Chemistry® 6.0 contains 21 calculation modules and 11 databases for reaction, equilibrium, heat balance, heat transfer, petrological and simulation applications. The extensive thermochemical database has also been expanded to include over 20,000 species.

A Great Step forward for Green Chemistry

The rapid increase in the standard of living in the developing world means that more and more natural resources are required. Consequently we need new technology and better scientific tools in order to conserve the diversity and beauty of nature, and to simultaneously allow increased consumption by large population groups in all nations.

The new HSC flowsheet simulation module makes it possible to optimize process output and minimize waste materials, identify metering errors and improve the understanding of process interdependencies. HSC may be used to rapidly focus expensive experimental research towards ideal process conditions, for example, in chemistry, metallurgy, mineral processing, energy production and many other areas of industry.

The HSC flowsheet enables the pre-test simulation of the effect of recycling streams, raw materials and different operating conditions on process efficiency and emissions, all on a desktop computer without needing to disrupt the actual process. In short, HSC may be used to convert hazardous waste materials into valuable raw materials.

32 Years of Experience

HSC Chemistry was originally developed for Outokumpu Technology as an in-house tool. This work started back in 1974, when equilibrium compositions of sulfur plant flue gases had to be estimated. Since then, new calculation modules and databases have been developed according to the needs of hundreds of different research projects. A large number of experts, programmers and university students have participated in the software development and database compilation work within the last 32 years.

The development of the new flowsheet simulation modules started in 2002, more than 30 process simulation models have already been created using the new flowsheet simulation module before this Autumn's release of the latest HSC version to the public.

Pricing and Availability

The HSC 6 license is available from the Outokumpu Technology Web site for a price of 1190 Euros. HSC 6 is an invaluable tool for any process engineer or scientist because one laboratory experiment may cost much more than a single HSC license. For more information, please visit the HSC Web site or send an email to:

hsc@outokumputechnology.com

www.outokumputechnology.com/hsc

WHAT'S NEW IN HSC CHEMISTRY® 6.0

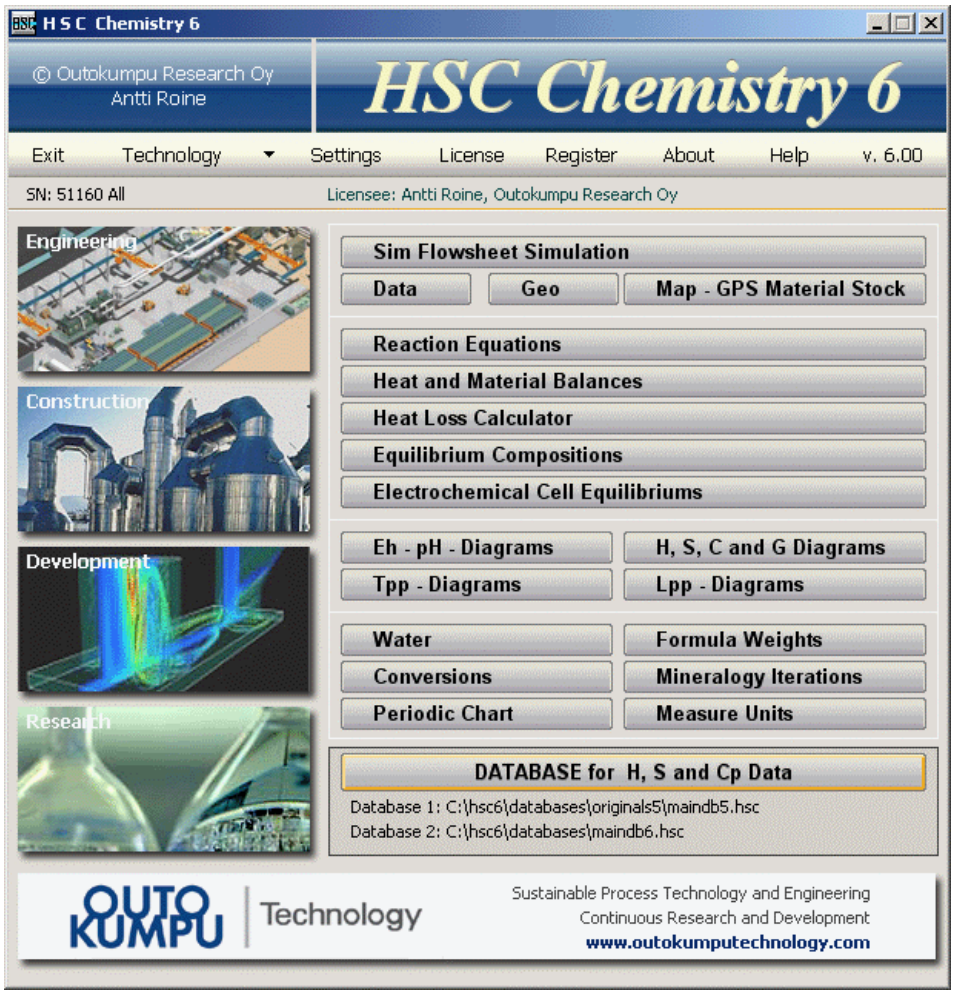

Fig. 1. HSC Chemistry® 6.0 Main Menu.

The old HSC Chemistry® 5.1 software is made for the simulation and modeling of single chemical reactions and unit processes. The new HSC Chemistry® 6.0 will expand the scope of the old HSC 5.1 software to include the simulation and modeling of the whole process, made up of several unit processes. HSC 6.0 also has many other new features:

- The new Sim module with versatile auxiliary Data, Data-Fit and Geo modules.
- Larger H, S and Cp database with more than 20,000 species (HSC 5.1 has 17,000 species). Several other fixes has also been made to the database.
- New Excel Add-In interface with better compability with different Excel versions and different computers.
- New Excel Add-In functions like StreamEQ for equilibrium calculations.
- The printing and copy-paste options of the HSC modules has been improved.
- The compability with Windows XP has been improved with several code changes and a new installation routine.
- Working demo of the new GPS based Material Map module.
- Many other small bug fixes and new properties.
- The familiar HSC style, user interface and file formats have been maintained in order to minimize the training requirements for current HSC users.

New Sim Module

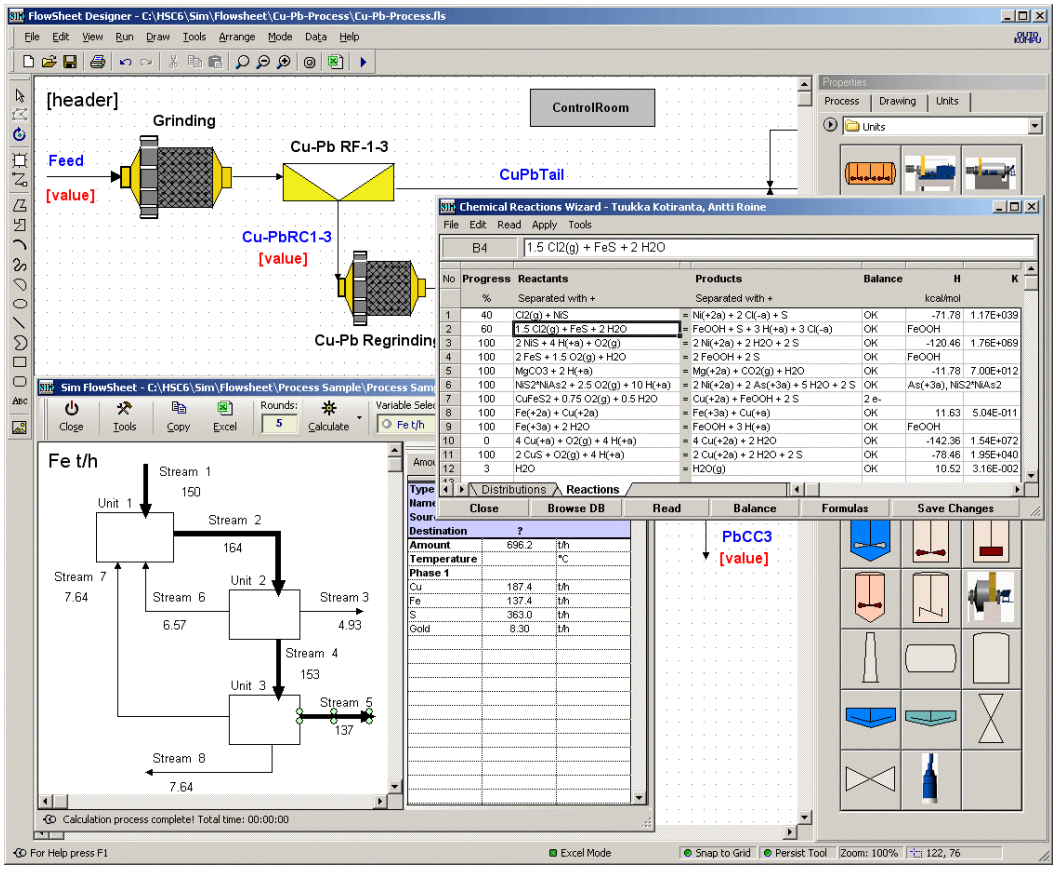

Fig. 2. HSC-Sim Module user interface with drawing and run mode.

The target has been to develop an easy-to-use simulation tool for many types of basic applications from chemical processes to economic optimization. HSC-Sim 6.0 has especially been tested with process metallurgical and mineralogical applications, but it may also be used in a wide range of other applications.

The HSC-Sim user may start from a single chemical reaction and end up with the final process model. HSC-Sim is a simple but still powerful simulation tool for the ordinary process engineer. For the old HSC users with Excel spreadsheet skills it is easy to learn to use the new Sim module. HSC-Sim flowsheet process is made of single process units which are connected with streams. Behind each process unit there is "a small HSC engine" for thermochemical simulation models.

The Sim module uses two main user interfaces: a graphical flowsheet interface and behind each process unit a spreadsheet type Model Editor interface. The basic ideas of the Sim module are quite simple:

1. The process consists of the process units which have been connected to each other with streams. The flowsheet is saved in one FLS file.

2. Behind each process unit there is a "small HSC engine" made of an Excel emulator with HSC AddIn functions or other DLL-based tools. Each unit has its own XLS file.

3. The process unit calculation models are independent of each other.

4. The streams on the graphical flowsheet specify the material and data transfer between the process units (FLS file).

5. There are two modes in the HSC-Sim module: the Designer Mode and Run Mode. The user draws and edits the flowsheet in the Designer mode. In the Run (calculation) mode the graphical flowsheet is locked.

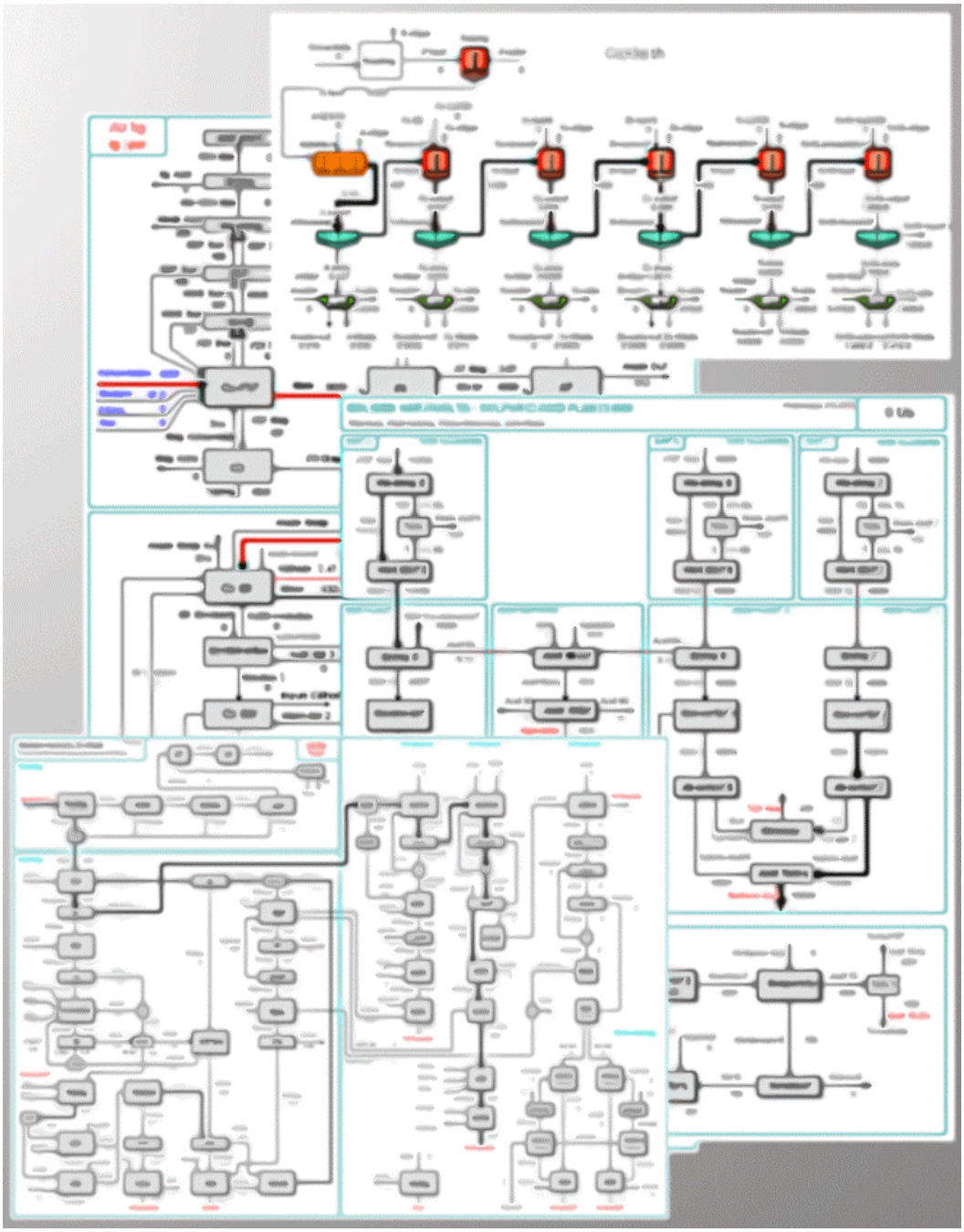

Fig. 3. Some process examples. The Sim module development started some 4.5 years ago and it has been tested with numerous new and old real process flowsheets. It has already been used internally in Outokumpu Technology for over 2 years. The flowsheet samples have been blurred due to confidentiality in this figure.