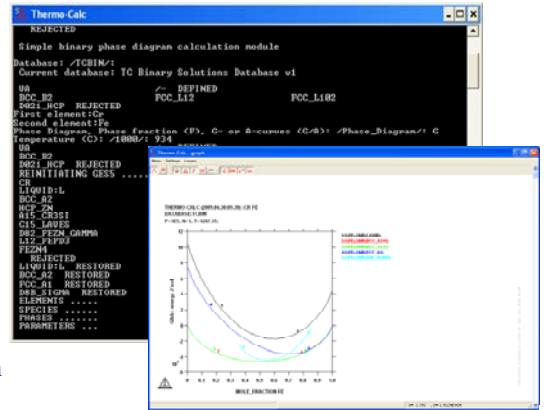




Thermo-Calc Classic (TCC)

Thermo-Calc Classic is the classical command line version of the general and flexible software Thermo-Calc, which over the last 20 years has gained world-wide reputation as the best software for calculations of multicomponent thermodynamics and phase diagrams. Today there are more than hundreds of industrial, research and university sites with TCC installations all over the world, in a high number of various technical applications.



Benefits

- **Thermo-Calc** is highly versatile with multiple applicability in the field of materials science
- **Thermo-Calc** can provide better understanding of the factors that affect material behavior.
- **Thermo-Calc** can help reduce costs by quickly identifying control parameters or alloy compositions.
- **Thermo-Calc** is multi-functional. With the continuous development of new databases, additional new fields and applications are becoming suitable for study. Several departments at the same organization can use the software for different purposes.
- **Thermo-Calc** is backed by dedicated user-support with offices located both in Europe and the United States. Training events are held all over the World.

Powerful & Flexible User-Interface with Specialized Modules

Thermo-Calc Classic contains several different modules for performing specialized tasks e.g. retrieving data, performing a calculation or plotting the results. The user interface consists of a command line interface where commands are typed. All commands can be abbreviated for convenience. There are also special modules for certain types of calculation such as Scheil-Gulliver simulations of solidification and calculation of Pourbaix diagrams for aqueous systems. The use of MACRO files makes it possible to save complicated command sequences and repeat them many times for

Databases

The TCC Calculations are based on thermodynamic databa created by critical assessments of experimental data and consolidated in thermodynamic databases. Today there are accurate thermodynamic data available for many different types of materials, such as for example:

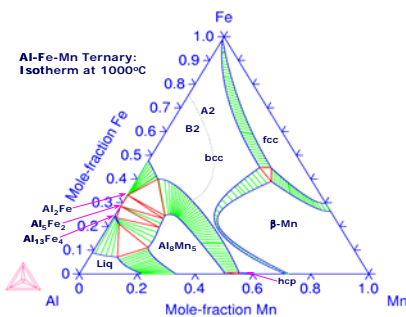
Steels
Nickel alloys
Aluminum alloys

Titanium alloys
Minerals
Nuclear materials

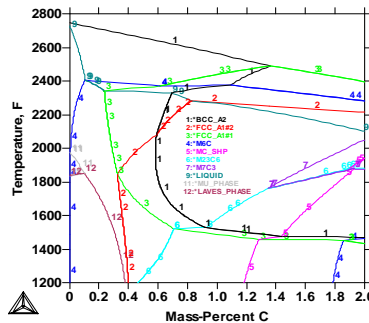
Slags
Salts
Aqueous solutions

Ionic solutions
Ceramics
And many more

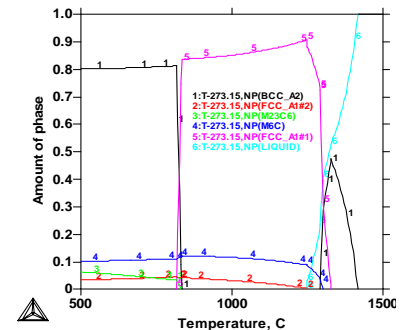
For detailed information regarding all of our available databases, please visit our web site www.thermocalc.com.



Binary and Ternary Phase-diagrams can be calculated manually or by using quick modules.



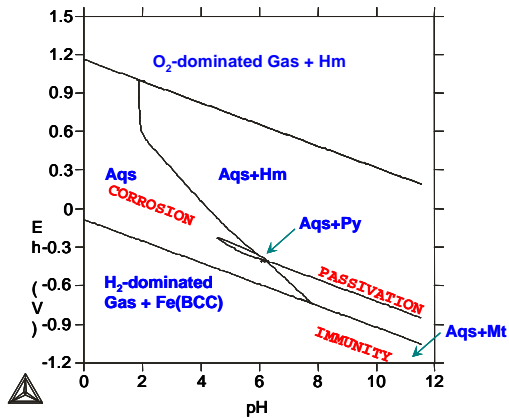
Multicomponent Phasediagram for multicomponent systems



Property diagrams for multicomponent systems

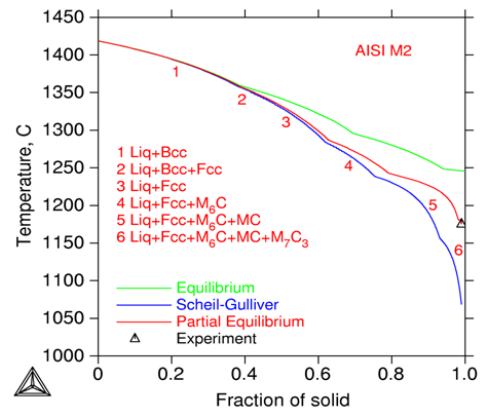
Computational Thermodynamics at Your Fingertips!
www.thermocalc.com





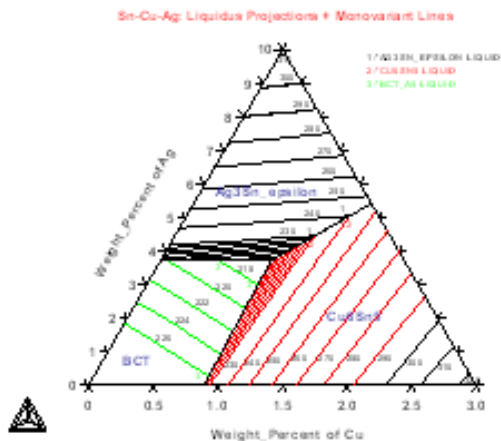
Pourbaix Module

With TCC, it is also possible to make calculations including aqueous solutions such as Pourbaix diagrams. Such calculations are applicable in corrosion, hydrometallurgy, geochemistry and environmental issues among others. The interaction between a multi-component alloy and an aqueous solution can be cal-



Advanced Scheil Module

Available in the latest versions of TCC and TCW, the improved Scheil module can also simulate alloy solidification processes using partial equilibrium conditions that allow back diffusion of interstitials.



Powerful and Flexible

Thermo-Calc Classic is a powerful and flexible tool. Many types of property and phase diagrams can be plotted, including advanced applications such as liquidus surface plots for multi-component systems.

Examples of applications

- Phase diagrams (binary, ternary, isothermal, isoplethal, etc. up to 5 independent variables)
- Thermodynamic properties of pure substances, compounds and solution phases
- Thermodynamic properties of chemical reactions
- Property diagrams (Fraction of phases, Gibbs Energy, Enthalpy, Cp, volume, etc.) (up to 20 components)
- Pourbaix diagrams and many other diagrams for aqueous-involving interaction systems
- Partial gaseous pressures, chemical potentials of volatile species (up to 1000 species)
- Scheil-Gulliver solidification simulations
- Liquidus surfaces for multi-component alloys
- Thermodynamic factors, driving forces
- Heterogeneous equilibria (up to 20 components)
- Metastable equilibria, para-equilibria
- Transport properties of aqueous solutions
- Special quantities: e.g., T0, A3-temperature, adiabatic T, chill factors, $\partial T/\partial X$, etc.
- Oxide-layer formation on steel surfaces, steel/alloy refining, so-called PRE numbers
- Evolution of hydrothermal, metamorphic, volcanic, sedi-

For further information, please contact **Thermo-Calc Software**

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