TCFC1: TCS Solid Oxide Fuel Cell Database

Database name:	TCS Solid Oxide Fuel Cell Database	*Database acronym:*	TCFC
Database owner:	Thermo-Calc Software AB	*Database version:*	1.0

TCFC1 is intended for solid oxide fuel cell (SOFC) materials, but also for other oxide systems in the six element framework of this database.

Included Elements (6)

La Mn O Sr Y Zr

Included Phases

TCFC1 contains an ionic liquid solution phase (IONIC_LIQ), solid solution phases (FCC_A1, BCC_A2, HCP_A3, DHCP, CBCC_A12, CUB_A13), a gaseous mixture phase, many stoichiometric solid oxides and solid solution oxide phases. In total there are 42 different phases.

For solid phases, the TCFC1 database is compatible with the SSOL Solutions Database, SSUB Substance Database, TCFE Steels/Fe-Alloys Database, TCNI Ni-based Superalloys Database and/or other appropriate databases.

Assessed Systems

Most ternary M1-M2-O systems are included, with notable exception of the Sr-Zr-O and Sr-Y-O systems. Descriptions of the metal systems have been included when available.

Pure metallic systems:

All binary and ternary subsystems for which we have assessed data in the La-Mn-Sr-Y-Zr system are included in the liquid and alloy solution phases (La-Zr, Mn-Y, Mn-Zr, Y-Zr, Mn-Y-Zr).

Binary, ternary and higher-order O-bearing systems:

La-O, Mn-O, Sr-O, Y-O, Zr-O,

La-Mn-O, La-Sr-O, La-Y-O, La-Zr-O, Mn-Sr-O, Mn-Y-O, Mn-Zr-O, Y-Zr-O,

La-Mn-Sr-O, La-Mn-Y-O, La-Mn-Zr-O, La-Y-Zr-O, Mn-Y-Zr-O.

Limits

As in the spirit of the CALPHAD method, predictions can be made for multicomponent systems by extrapolation into multicomponent space of data critically evaluated and assessed based on binary, ternary and in some cases higher order systems. However, critical calculations must always be verified by equilibrium experimental data; it is the user's responsibility to verify the calculations but Thermo-Calc Software AB is interested to know about any significant deviations in order to improve any future release.

Scientific Models and References

See the Thermo-Calc Software reference list and reference library at: http://www.thermocalc.com/resources/