MOBSLD1: TCS Solder Alloy Solutions Mobility Database

Database name:	TCS Solder Alloys Mobility Database	*Database acronym:*	MOBSLD
Database owner:	Thermo-Calc Software AB	*Database version:*	1.0

MOBSLD1 is a kinetic database containing mobility data for solder alloys. It is suitable for simulation of diffusion controlled phenomena using the add-on Diffusion Module (DICTRA), and/or Precipitation Module (TC-PRISMA). It can also be used together with all Thermo-Calc Software Development Kits. MOBSLD1 is compatible and recommended for use in combination with the TCSLD thermodynamic database.

Used together with the Diffusion Module (DICTRA) and a thermodynamic database for solder alloys (e.g. TCSLD), the MOBSLD1 database can be used to study diffusion-controlled phenomena in solder/substrate systems, such as solidification, growth of interfacial compounds, dissolution of substrates, interdiffusion, and much more.

Included Elements (21)

Ag	Al	Au	Bi	Ca	Cd	Co	Cu	Ga	Ge	In
Mg	Mn	Ni	Pb	Pd	Pt	Sb	Si	Sn	Zn	

Included Phases

LIQUID	FCC_A1	BCT_A5	DIAMOND_A4	HCP_ZN
RHOMBOHEDRAL_A7	CU3SN	CU6SN5_HT_NIAS	AG3SN_L60_CU3TI	

Please note that apart from the above phases for which diffusion data are included in the database, other phases may also be included in a diffusion simulation. However, these phases will be treated as so-called diffusion NONE, i.e. there is no diffusion considered in such phases. Phases which are not listed above will automatically be entered as diffusion NONE in the DICTRA module in Thermo-Calc, provided a thermodynamic description for such phases has been retrieved prior to reading data from the mobility database.

Assessed Systems

LIQUID

Assessed data for LIQUID in 18 binary and 6 ternary systems have been included:

Binary	Ag-Cu	Ag-In	Ag-Pb	Ag-Sb	Ag-Sn	Al-Cu	Al-Mg	Al-Ni	Al-Si
	Al-Zn	Bi-Pb	Bi-Sn	Cu-Sn	In-Sn	Mg-Zn	Ni-Si	Pb-Sn	Sb-Sn
Ternary	Ag-Bi-Pb	Ag-Bi-Sn	Ag-Pb-Sn	Ag-Sb-Sn	Al-Mg-Si	Bi-Pb-Sn			

FCC_A1

Assessed data for FCC_A1 in 31 binary, 16 ternary and 2 quaternary systems are included:

Binary	Ag-Al	Ag-Au	Ag-Co	Ag-Cu	Ag-Sn	Ag-Zn	Al-Co	Al-Cu	Al-Mg
	Al-Ni	Al-Si	Al-Zn	Au-Co	Au-Cu	Au-Ni	Co-Cu	Co-Pd	Co-Pt
	Cu-Pt	Cu-Sn	Cu-Mg	Cu-Mn	Cu-Ni	Cu-Si	Cu-Zn	Mn-Ni	Ni-Ge
	Ni-Pt	Ni-Si	Ni-Sn	Ni-Zn					

Ternary	Ag-Al-Cu	Ag-Al-Zn	Ag-Au-Cu	Ag-Cu-Sn	Al-Cu-Mg	Al-Cu-Mn	Al-Cu-Ni	Al-Cu-Si
	Al-Cu-Zn	Al-Mg-Si	Al-Mg-Zn	Al-Mn-Ni	Cu-Mn-Ni	Cu-Mn-Zn	Cu-Ni-Si	Cu-Ni-Zn
Quaternary	Al-Cu-Mg-Zn		Cu-Mn-Ni-Zn					

DIAMOND_A4

Binary Ge-Si

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 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 to improve future releases.

Scientific Models and References

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