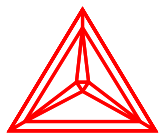


# **Thermo-Calc Software**

**Thermodynamic and Mobility Databases Overview**

[www.thermocalc.com](http://www.thermocalc.com)

[info@thermocalc.se](mailto:info@thermocalc.se)



## Thermodynamic and Mobility databases

Thermo-Calc Software offers a wide spectrum of high-quality thermodynamic and mobility databases for use with the Thermo-Calc software (TCC and TCW) and DICTRA for various applications. The databases supplied by Thermo-Calc Software have all been produced by critical assessments and evaluations based on experimental data.

### Thermodynamic databases:

<u>Compounds</u>		Page
SSUB4:	SGTE Substances database	3
<u>General alloys</u>		
SSOL4:	SGTE Solutions database	3
<u>Steels and Fe-alloys</u>		
TCFE6:	TCS Steels/Fe-alloys database	3
<u>Nickel and Ni-alloys</u>		
TCNI1:	TCS Ni-based superalloys database	4
TTNI8:	Thermotech Ni-based superalloys database	4
<u>Light metals alloys</u>		
TTAL7:	Thermotech Al-based alloys database	4
TTTI3:	Thermotech Ti-based alloys database	4
TTTIAL1:	Thermotech TiAl-based alloys database	5
TTMG4:	Thermotech Mg-based alloys database	5
COST2:	COST507 Light alloys database	5
<u>Solder alloys</u>		
NSLD2:	NPL Solder solutions database	6
USLD1:	NIST Solder solutions database	6
<u>Other alloys</u>		
SNOB1:	SGTE Noble metal alloys database	6
TTZR1:	Thermotech Zr-based alloys database,	6
<u>Specific materials</u>		
CCCC1:	Cemented carbides database	7
SEMC2:	TCS Semiconductors database	7
STBC1:	SGTE Thermal Barrier Coatings database	7
<u>Slag, molten salts, oxides and ionic solutions.</u>		
SLAG2:	TCS Fe-containing slag database	8
ION3:	TCS Ionic solutions database	8
NOX2:	NPL Oxide solutions database	8
SALT1:	SGTE Molten salts database	8
<u>Metallurgical &amp; materials processing &amp; environmental</u>		
TCMP2:	TCS Materials processing database	9
TCES1:	TCS Sintering/incineration/combustion database	9
<u>Aqueous solutions</u>		
TCAQ2:	TCS Aqueous solution database	10
AQS2:	TGG Aqueous solution database	10
<u>Minerals</u>		
GCE2:	TGG Geochemical/Environmental database	10
<u>Nuclear materials</u>		
NUMT2:	TCS/AEAT Pure radionuclides database	11
NUOX4:	TCS/AEAT Nuclear oxides database	11
TCNF2:	TCS Nuclear Fuels database	11
<u>Mobility databases:</u>		
MOB2:	TCS Alloys mobility database	12
MOBFE1	TCS Steels/Fe-Alloys mobility database	12
MOBNI1:	TCS Ni-alloys mobility database	12
MOBAL1:	TCS Al-alloys mobility database	13

### Compounds

#### SSUB4: SGTE Substances database

**Database name:** SGTE Substances database **Version:** 4.1  
**Database acronym:** SSUB4 **Database Segment:** Substances & gaseous species  
**Elements:** 101  
**Brief description:** The SSUB4 Substances Database is a large thermochemical database containing over 5000 condensed compounds or gaseous species. SSUB4 is commercially available for use with TCC and TCW; also together with its subset SPOT4 for uses in the POT module.  
**Applications:** Alloy and process design and engineering; Inorganic materials; gas phase chemistry

##### Including Elements:

Ac	Ag	Al	Am	Ar	As	At	Au	B	Ba	Be	Bi	Br	C	Ca	Cd	Ce
Cf	Cl	Cm	Co	Cr	Cs	Cu	Dy	Er	Es	Eu	F	Fe	Fm	Fr	Ga	Gd
Ge	H	He	Hf	Hg	Ho	I	In	Ir	K	Kr	La	Li	Lu	Mg	Mn	Mo
N	Na	Nb	Nd	Ne	Ni	Np	O	Os	P	Pa	Pb	Pd	Pm	Po	Pr	Pt
Pu	Ra	Rb	Re	Rh	Rn	Ru	S	Sb	Sc	Se	Si	Sm	Sn	Sr	Ta	Tb
Tc	Te	Th	Ti	Tl	Tm	U	V	W	Xe	Y	Yb	Zn	Zr	D	T	

### General alloys

#### SSOL4: SGTE Solutions database

**Database name:** SGTE Solutions database **Version:** 4.9  
**Database acronym:** SSOL4 **Database Segment:** Solutions  
**Elements:** 78  
**Brief description:** The SSOL4 Solutions Database is a sophisticated important thermochemical database for many non-ideal multicomponent solution phases. SSOL4 is designed for Thermo-Calc Classic, Thermo-Calc for Windows, DICTRA and Programming Interfaces.  
**Applications:** Alloy design and engineering; Inorganic materials.

##### Including Elements:

Ag	Al	Am	As	Au	B	Ba	Be	Bi	C	Ca	Cd	Ce	Co	Cr	Cs	Cu
Dy	Er	Eu	Fe	Ga	Gd	Ge	Hf	Hg	Ho	In	Ir	K	La	Li	Lu	Mg
Mn	Mo	N	Na	Nb	Nd	Ni	Np	O	Os	P	Pa	Pb	Pd	Pr	Pt	Pu
Rb	Re	Rh	Ru	S	Sb	Sc	Se	Si	Sm	Sn	Sr	Ta	Tb	Tc	Te	Th
Ti	Tl	Tm	U	V	W	Y	Yb	Zn	Zr							

### Steels and Fe-alloys

#### TCFE6: TCS Steel and Fe-alloys database

**Database name:** TCS Steel and Fe-alloys database **Version:** 6.2  
**Database acronym:** TCFE6 **Database Segment:** Iron and Steel alloys  
**Elements:** 22  
**Brief description:** TCFE6 Steel and Fe-alloys database for Thermo-Calc Classic and/or Thermo-Calc for Windows. TCFE6 can be used also with other software from Thermo-Calc Software such as Programming Interfaces and DICTRA.  
**Applications:** Steel and Fe-alloy design and engineering.

##### Including Elements:

Al	B	C	Ca	Co	Cr	Cu	Fe	H	Mg	Mn	Mo	N	Nb	Ni	O	P
S	Si	Ti	V	W												

### Nickel and Ni-alloys

#### TCNI1: TCS Ni-based superalloys database, v1

**Database name:** TCS Ni-based superalloys database **Version:** 1.3  
**Database acronym:** TCNI1 **Database Segment:** Nickel based superalloys  
**Elements:** 7  
**Brief description:** TCNI1 contains all the important Ni-based superalloy phases within a 7-element framework.  
**Applications:** Ni-based superalloy design and engineering.

**Including Elements:**

Al	Co	Cr	Ni	Re	Ti	W											
----	----	----	----	----	----	---	--	--	--	--	--	--	--	--	--	--	--

#### TTNI8: Thermotech Ni-based superalloys database

**Database name:** Thermotech Ni-based superalloys database **Version:** 8.0  
**Database acronym:** TTNI8 **Database Segment:** Nickel based superalloys  
**Elements:** 23  
**Brief description:** Database for commercial Ni-based superalloys, high Fe-containing and single crystal Ni-based superalloys.  
**Applications:** Ni-based superalloy design and engineering.

**Including Elements:**

Al	B	C	Co	Cr	Cu	Fe	Hf	Mn	Mo	N	Nb	Ni	O	Pt	Re	Ru
Si	Ta	Ti	W	V	Zr											

### Light metals alloys

#### TTAL7: Thermotech Al-based alloys database

**Database name:** Thermotech Al-based alloys database **Version:** 7.0  
**Database acronym:** TTAL7 **Database Segment:** Aluminum based alloys  
**Elements:** 23  
**Brief description:** A comprehensive database for Al-alloys that can be used for all major types of commercial Al-alloys ranging from commercial pure Al to complex alloys.  
**Applications:** Al-based alloy design and engineering.

**Including Elements:**

Al	B	C	Ca	Co	Cr	Cu	Fe	H	La	Li	Mg	Mn	Ni	Pb	Sc	Si
Sn	Sr	Ti	V	Zn	Zr											

#### TTTI3: Thermotech Ti-based alloys database

**Database name:** Thermotech Ti-based alloys database **Version:** 3.0  
**Database acronym:** TTTI3 **Database Segment:** Titanium based alloys  
**Elements:** 21  
**Brief description:** A comprehensive database for Ti-alloys that can be used for all major types of commercial Ti-alloys ranging from commercial pure Ti to complex alloys.  
**Applications:** Ti- and TiAl-based alloy design and engineering.

**Including Elements:**

Al	B	C	Cr	Cu	Fe	H	Mn	Mo	N	Nb	Ni	O	Re	Ru	Si	Sn
Ta	Ti	V	Zr													

### Light metals alloys continued

#### TTTIAL1: Thermotech TiAl-based alloys database

**Database name:** Thermotech TiAl-based alloys database **Version:** 1.0  
**Database acronym:** TTTIAL1 **Database Segment:** High Al-containing Ti-alloys  
**Elements:** 13  
**Brief description:** To be used for the prediction of stable and metastable phase equilibria in multicomponent  $\gamma$ -TiAl based alloys.  
**Applications:** TiAl-based alloy design and engineering.

**Including Elements:**

Al	B	Cr	Mn	Mo	Nb	O	Si	Ta	Ti	W	V	Zr					
----	---	----	----	----	----	---	----	----	----	---	---	----	--	--	--	--	--

#### TTMG4: Thermotech Mg-based alloys database

**Database name:** Thermotech Mg-based alloys database **Version:** 4.1  
**Database acronym:** TTMG4 **Database Segment:** Magnesium based alloys  
**Elements:** 16  
**Brief description:** A comprehensive database for Mg-alloys that can be used for all major types of commercial Mg-alloys ranging from pure Mg to complex commercial alloys.  
**Applications:** Mg-based alloy design and engineering.

**Including Elements:**

Al	Ca	Ce	Cu	Fe	Gd	La	Mg	Mn	Nd	Sc	Si	Sr	Y	Zn	Zr	
----	----	----	----	----	----	----	----	----	----	----	----	----	---	----	----	--

#### COST2: COST507 Light alloys database

**Database name:** COST507 Light alloys database **Version:** 2.2  
**Database acronym:** COST2 **Database Segment:** Light metals alloys  
**Elements:** 19  
**Brief description:** COST2 contains data for 192 light alloy solution phases within a framework of 19 elements.  
**Applications:** Light alloy design and engineering.

**Including Elements:**

Al	B	C	Ce	Cr	Cu	Fe	Li	Mg	Mn	N	Nd	Ni	Si	Sn	V	Zn
Zr	Zr															

### Solder Alloys

#### NSLD2: NPL Solder solutions database

**Database name:** NPL Solder solutions database **Version:** 2.1  
**Database acronym:** NSLD2 **Database Segment:** Solder alloys  
**Elements:** 12  
**Brief description:** Database for solder alloy solution phases.  
**Applications:** Thermodynamic calculations of Pb-containing or Pb-free solder systems.

**Including Elements:**

Ag	Al	Au	Bi	Cu	Ge	In	Pb	Sb	Si	Sn	Zn						
----	----	----	----	----	----	----	----	----	----	----	----	--	--	--	--	--	--

#### USLD1: NIST Solder solutions database

**Database name:** NIST Solder solutions database **Version:** 1.2  
**Database acronym:** USLD1 **Database Segment:** Solder alloys  
**Elements:** 6  
**Brief description:** Database for solder alloy solution phases.  
**Applications:** Thermodynamic calculations of Pb-containing or Pb-free solder systems.

**Including Elements:**

Ag	Bi	Cu	Pb	Sb	Sn												
----	----	----	----	----	----	--	--	--	--	--	--	--	--	--	--	--	--

### Other alloys

#### SNOB1: SGTE Nobel metal alloys database

**Database name:** SGTE Nobel metal alloys database **Version:** 1.1  
**Database acronym:** SNOB1 **Database Segment:** Noble metals  
**Elements:** 30  
**Brief description:** Database for of thermodynamic calculations of noble metal alloys.  
**Applications:** Noble metals research and development.

**Including Elements:**

Ag	Al	As	Au	Bi	C	Co	Cr	Cu	Fe	Ge	In	Ir	Mg	Ni	Os	Pb
Pd	Pt	Rh	Ru	Sb	Si	Sn	Ta	Te	Ti	Tl	Zn	Zr				

#### TTZR1: Thermotech Zr-based alloys database

**Database name:** Thermotech Zr-based alloys database **Version:** 1.0  
**Database acronym:** TTZR1 **Database Segment:** Zirconium based alloys  
**Elements:** 12  
**Brief description:** A comprehensive database for Zr-alloys that can be used for major types of commercial Zr-alloys.  
**Applications:** Zr-based alloy design and engineering.

**Including Elements:**

C	Cr	Fe	H	Hf	N	Nb	Ni	O	Si	Sn	Zr						
---	----	----	---	----	---	----	----	---	----	----	----	--	--	--	--	--	--

### Specific Materials

#### CCC1: Cemented carbides database

**Database name:** Cemented carbides database  
**Database acronym:** CCC1  
**Elements:** 6  
**Brief description:** Database for cemented carbides engineering.  
**Applications:** Design, development and engineering of cemented carbides.

**Version:** 1.0  
**Database Segment:** Cemented Carbides

**Including Elements:**

C	Co	Nb	Ta	Ti	W														
---	----	----	----	----	---	--	--	--	--	--	--	--	--	--	--	--	--	--	--

#### SEMC2: TCS Semiconductors database

**Database name:** TCS Semiconductors database  
**Database acronym:** SEMC2  
**Elements:** 10  
**Brief description:** Database for semiconductor engineering.  
**Applications:** Semi-conductors design and engineering, electronic components processing and utility.

**Version:** 2.1  
**Database Segment:** Semiconductors

**Including Elements:**

Al	As	C	Ga	H	In	P	Pb	Sb	Sn										
----	----	---	----	---	----	---	----	----	----	--	--	--	--	--	--	--	--	--	--

#### STBC1: SGTE Thermal Barrier Coating database

**Database name:** SGTE Thermal Barrier Coating database  
**Database acronym:** STBC1  
**Elements:** 5  
**Brief description:** Database for thermal barrier coatings of Al<sub>2</sub>O<sub>3</sub>-GD<sub>2</sub>O<sub>3</sub>-Y<sub>2</sub>O<sub>3</sub>-ZrO<sub>2</sub>.  
**Applications:** Research, design and engineering of thermal barrier coatings.

**Version:** 1.1  
**Database Segment:** Thermal Barrier Coatings

**Including Elements:**

Al	Gd	O	Y	Zr															
----	----	---	---	----	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

### Slag, molten salts, oxides and ionic solutions

#### SLAG2: TCS Fe-containing slag database

**Database name:** TCS Fe-containing slag database **Version:** 2.2  
**Database acronym:** SLAG2 **Database Segment:** Fe-containing slag  
**Elements:** 30  
**Brief description:** Database for liquid slag phase, Fe-rich liquid phase (dilute solution), pure FeO liquid phase, a large gaseous mixture phase, and many stoichiometric solids and solid solution phases (e.g., oxides, silicates, sulfides, phosphates, halites, etc.).  
**Applications:** Metallurgy, alloy design and engineering.

**Including Elements:**

Ag	Al	Ar	B	C	Ca	Co	Cr	Cu	F	Fe	H	Mg	Mn	Mo	N	Na
Nb	Ni	O	P	Pb	S	Si	Sn	Ti	U	W	V	Zr				

#### ION3: TCS Ionic solutions database

**Database name:** TCS Ionic solutions database **Version:** 3.0  
**Database acronym:** ION2 **Database Segment:** Ionic Solutions  
**Elements:** 20  
**Brief description:** Database for oxides, silicates, carbides, nitrides, sulphides and arsenide's.  
**Applications:** Ceramics, superconductors, metal/alloy processing, hard materials, materials corrosion and fusion processes.

**Including Elements:**

Ag	Al	As	Bi	C	Ca	Cr	Cu	Fe	La	Mg	Mn	N	Ni	O	S	Si
Sr	Y	Zr														

#### NOX2: NPL Oxide solutions database

**Database name:** NPL Oxide solutions database **Version:** 2.0  
**Database acronym:** NOX2 **Database Segment:** Oxides and Silicates  
**Elements:** 6  
**Brief description:** Contains critically-assessed data for many oxides and silicates.  
**Applications:** Ceramics, metal/alloy processing, mineral processing and materials corrosion, etc.

**Including Elements:**

Al	Ca	Fe	Mg	O	Si											
----	----	----	----	---	----	--	--	--	--	--	--	--	--	--	--	--

#### SALT1: SGTE Molten salts database, v1

**Database name:** SGTE Molten salts database **Version:** 1.2  
**Database acronym:** SALT1 **Database Segment:** Corrosion and Salts  
**Elements:** 17  
**Brief description:** Database for molten salts.  
**Applications:** Hot salt corrosion of alloys, high energy lamp design and more.

**Including Elements:**

Br	C	Ca	Cl	Cr	Cs	F	H	I	K	Li	Mg	Na	O	Rb	S	Zn
----	---	----	----	----	----	---	---	---	---	----	----	----	---	----	---	----

### Metallurgical & materials processing & environmental

#### TCMP2: TCS Materials processing database

**Database name:** TCS Materials processing database **Version:** 2.5  
**Database acronym:** TCMP2 **Database Segment:** Metals Processing  
**Elements:** 35  
**Brief description:** Database for liquid slag, metallic liquid, various solid phases and gaseous species.  
**Applications:** Materials processing and environmental controls in steel/alloy production and metallurgical engineering, environment-friendly recycling / re-melting / re-processing treatments of industrial, chemical and nuclear wastes, as well as sintering, incineration and combustion processes.

##### Including Elements:

Ag	Al	Ar	B	Bi	C	Ca	Cd	Cl	Co	Cr	Cu	F	Fe	H	K	Mg
Mn	Mo	N	Na	Nb	Ni	O	P	Pb	S	Sb	Si	Sn	Ti	U	W	V
Zn																

#### TCES1: TCS Sintering/incineration/combustion database

**Database name:** TCS Sintering/incineration/combustion database **Version:** 1.1  
**Database acronym:** TCES1 **Database Segment:** Metals Processing  
**Elements:** 30  
**Brief description:** Database for solid phases and gaseous species.  
**Applications:** Environmental controls in steel and alloy production and metallurgical engineering, environment-friendly treatments of industrial waste and nuclear waste.

##### Including Elements:

Al	As	Br	C	Ca	Cd	Cl	Cr	Cu	F	Fe	H	Hg	I	K	Mg	Mn
N	Na	Ni	O	P	Pb	S	Sb	Si	Sn	Te	Ti	Zn				

### Aqueous solutions

#### TCAQ2: TCS Aqueous solution database

**Database name:** TCS Aqueous solution database **Version:** 2.5  
**Database acronym:** TCAQ2 **Database Segment:** Aqueous solutions  
**Elements:** 84  
**Brief description:** Database suitable for calculating thermodynamic properties of complex aqueous solution phases.  
**Applications:** Materials corrosion processes; Hydro-metallurgy, Aqueous chemistry, Geochemistry and Environmental chemistry.

##### Including Elements:

Ag	Al	Ar	As	Au	B	Ba	Be	Bi	Br	C	Ca	Cd	Ce	Cl	Co	Cr
Cs	Cu	Dy	Er	Eu	F	Fe	Ga	Gd	Ge	H	He	Hg	Ho	I	In	Ir
K	Kr	La	Li	Lu	Mg	Mn	Mo	N	Na	Nb	Nd	Ne	Ni	O	Os	P
Pb	Pd	Pr	Pt	Ra	Rb	Re	Rh	Ru	S	Sb	Sc	Se	Si	Sm	Sn	Sr
Ta	Tb	Te	Th	Ti	Tl	Tm	U	W	V	Xe	Y	Yb	Ze	Zn	Zr	

#### AQS2: TGG Aqueous solution database

**Database name:** TGG Aqueous solution database **Version:** 2.5  
**Database acronym:** AQS2 **Database Segment:** Aqueous solutions  
**Elements:** 83  
**Brief description:** Database suitable for calculating thermodynamic properties of complex aqueous solution phases.  
**Applications:** Materials corrosion processes; Hydro-metallurgy, Aqueous chemistry, Geochemistry and Environmental chemistry.

##### Including Elements:

Ag	Al	Ar	As	Au	B	Ba	Be	Bi	Br	C	Ca	Cd	Ce	Cl	Co	Cr
Cs	Cu	Dy	Er	Eu	F	Fe	Ga	Gd	H	He	Hf	Hg	Ho	I	In	K
Kr	La	Li	Lu	Mg	Mn	Mo	N	Na	Nb	Nd	Ne	Ni	O	P	Pb	Pd
Pm	Pr	Pt	Ra	Rb	Re	Rh	Rn	Ru	S	Sb	Sc	Se	Si	Sm	Sn	Sr
Tb	TC	Th	Ti	Tl	Tm	U	W	V	Xe	Y	Yb	Ze	Zn	Zr		

### Minerals

#### GCE2: TGG Geochemical/Environmental database

**Database name:** TGG Geochemical/Environmental database **Version:** 2.3  
**Database acronym:** GCE2 **Database Segment:** Geochemistry and Environment  
**Elements:** 46  
**Brief description:** Database for about 600 minerals.  
**Applications:** Geochemistry, Geophysics, Hydro-metallurgy, Aqueous chemistry and Environmental chemistry.

##### Including Elements:

Ag	Al	Ar	As	Au	B	Ba	Be	Br	C	Ca	Cd	Cl	Co	Cr	Cs	Cu
F	Fe	Ga	Gd	H	Hg	I	K	Li	Mg	Mn	Mo	N	Na	Ni	O	P
Pb	Rb	S	Se	Si	Sn	Sr	Ti	U	W	V	Zn					

### Nuclear materials

#### NUMT2: TCS/AEAT Pure radionuclides database

**Database name:** TCS/AEAT Pure radionuclides database **Version:** 2.1  
**Database acronym:** NUMT2 **Database Segment:** Nuclear Materials  
**Elements:** 44

**Brief description:** Database for about 600 condensed and gas phase substances, including pure radio nuclides.

**Applications:** This database can be applied to a wide range of nuclear related applications, which can be modelled adequately, or to a first approximation, using pure substances. However, it can also be coupled with other pure substance databases (e.g. SSUB) or solution databases (e.g. NUOX, SSOL and TCFE) to increase the range of applications which can be studied.

**Including Elements:**

Ag	Al	Am	B	Ba	Bi	C	Ca	Cd	Ce	Cl	Co	Cr	Cs	Eu	F	Fe
H	I	In	Kr	La	Mg	Mn	Mo	Na	Nb	Nd	Ni	O	Pd	Pr	Pu	Rh
Ru	Sb	Si	Sn	Sr	Tc	Te	U	Xe	Zr							

#### NUOX4: TCS/AEAT Nuclear oxides database

**Database name:** TCS/AEAT Nuclear oxides database **Version:** 4.2  
**Database acronym:** NUOX4 **Database Segment:** Nuclear Materials  
**Elements:** 11

**Brief description:** Database for nuclear oxide solution system, gas excluded.

**Applications:** This database has been developed primarily for studying molten core-concrete interactions. However, it can also be applied to any relevant system or application which comprises essentially the constituent oxides. It can also be coupled with pure substance databases (e.g. NUMT and SSUB) or solution databases (e.g. SSOL and TCFE) to increase the range of applications which can be studied.

**Including Elements:**

Al	Ba	Ca	Ce	La	Mg	O	Si	Sr	U	Zr						
----	----	----	----	----	----	---	----	----	---	----	--	--	--	--	--	--

#### TCNF2: TCS Nuclear fuels database

**Database name:** TCS Nuclear fuels database **Version:** 2.1  
**Database acronym:** TCNF2 **Database Segment:** Nuclear Fuels  
**Elements:** 10

**Brief description:** Database for nuclear fuel cells.

**Applications:** Research and engineering of nuclear fuel cells.

**Including Elements:**

Am	Np	Pu	U	Zr	C	N	O	H	He							
----	----	----	---	----	---	---	---	---	----	--	--	--	--	--	--	--

### Mobility databases

#### MOB2: TCS Alloys mobility database

**Database name:** TCS Alloys mobility database **Version:** 2.5  
**Database acronym:** MOB2 **Database Segment:** Iron and Steel  
**Elements:** 75  
**Brief description:** MOB2 is a kinetic database containing mobility data primarily but not limited to Fe-based alloys. Data is present in a format suitable for simulation of diffusion controlled phenomena using the DICTRA simulation software, and/or for use together with any Thermo-Calc programming interface. MOB2 is compatible and recommended for use in combination with the SSOL (SGTE Solution Database) thermodynamic database, and also the TCFE5 (TCS Steels/Fe-Alloys Database version 5) and earlier versions of TCFE.

**Applications:** Primarily for aiding alloy design and the optimization of manufacturing processes, through simulation of different diffusion controlled phenomena, such as e.g. microsegregation during solidification, homogenisation, kinetics of phase transformations, precipitate growth/dissolution kinetics, carburization, nitriding and much more.

##### Including Elements:

Ag	Al	Am	As	Au	B	Ba	Be	Bi	C	Ca	Cd	Co	Cr	Cs	Cu	Dy
Er	Fe	Ga	Gd	Ge	Hf	Hg	Ho	In	Ir	K	La	Li	Lu	Mg	Mn	Mo
N	Na	Nb	Nd	Ni	Np	Os	P	Pa	Pb	Pd	Pr	Pt	Pu	Rb	Re	Rh
Ru	S	Sb	Sc	Se	Si	Sm	Sn	Sr	Ta	Tb	Tc	Te	Th	Ti	Tl	Tm
U	V	W	Y	Yb	Zn	Zr										

#### MOBFE1: TCS Steels/Fe-Alloys mobility database

**Database name:** TCS Steels/Fe-Alloys mobility database **Version:** 1.0  
**Database acronym:** MOBFE1 **Database Segment:** Iron and Steel  
**Elements:** 22  
**Brief description:** MOBFE1 is a kinetic database containing mobility data limited to Fe-based alloys. Data is present in a format suitable for simulation of diffusion controlled phenomena using the DICTRA simulation software, and/or for use together with any Thermo-Calc programming interface. MOBFE1 is compatible and recommended for use in combination with the TCFE6 (TCS Steels/Fe-Alloys Database) thermodynamic database.

**Applications:** Primarily for aiding alloy design and the optimization of manufacturing processes, through simulation of different diffusion controlled phenomena, such as e.g. microsegregation during solidification, homogenisation, kinetics of phase transformations, precipitate growth/dissolution kinetics, carburization, nitriding and much more.

##### Including Elements:

Al	Ar	B	C	Ca	Co	Cr	Cu	Fe	Mg	Mn	Mo	N	Nb	Ni	O	P
S	Si	Ti	W	V												

#### MOBNI1: TCS Ni-alloys mobility database

**Database name:** TCS Ni-alloys mobility database **Version:** 1.0  
**Database acronym:** MOBNI1 **Database Segment:** Ni-based superalloys  
**Elements:** 22  
**Brief description:** MOBNI1 is a kinetic database containing mobility data for Ni-based alloys present in a format suitable for simulation of diffusion controlled phenomena using the DICTRA simulation software, and/or for use together with any Thermo-Calc programming interface.

**Applications:** Used together with the DICTRA software and a thermodynamic database for Ni-based alloys (e.g. TTNI), then the MOBNI1 database can be used in order to study several different phenomena of interest to Ni-based superalloys design and manufacturing, such as e.g. microsegregation during solidification, homogenisation kinetics, precipitate growth/dissolution kinetics, interdiffusion in Ni-base superalloy coating/substrate compounds, and much more.

##### Including Elements:

Al	B	C	Co	Cr	Cu	Fe	Hf	Mn	Mo	N	Nb	Ni	O	Re	Ru	Si
Ta	Ti	W	V	Zr												

### Mobility databases continued

#### MOBAL1: TCS Al-alloys mobility database

**Database name:** TCS Al-alloys mobility database

**Version:** 1.0

**Database acronym:** MOBAL1

**Database Segment:** Aluminium alloys

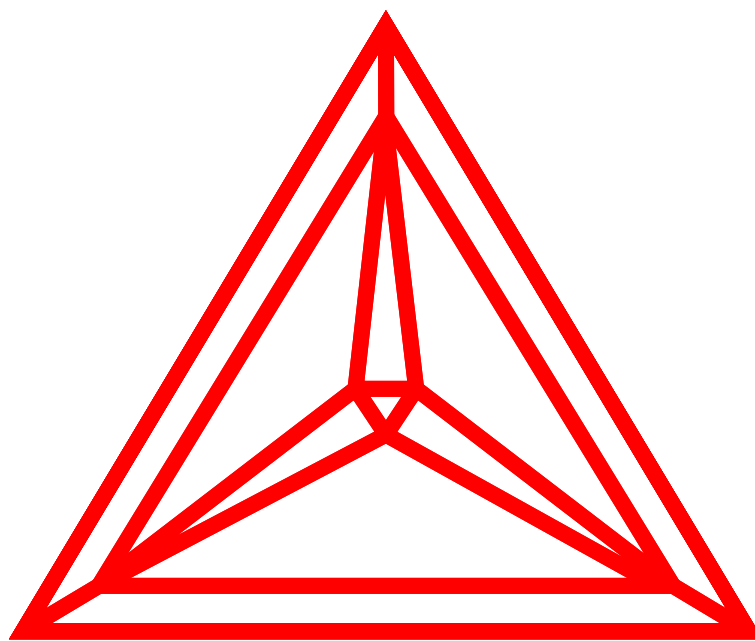
**Elements:** 41

**Brief description:** MOBAL1 is a kinetic database containing mobility data for Al-based alloys present in a format suitable for simulation of diffusion controlled phenomena using the DICTRA simulation software, and/or for use together with any Thermo-Calc programming interface.

**Applications:** Used together with the DICTRA software and a thermodynamic database for Al-alloys (e.g. TTAL) the MOBAL1 database can be used in order to study several different phenomena of interest to aluminium alloys, such as e.g. microsegregation during solidification, homogenisation kinetics, growth/dissolution kinetics of precipitates, interdiffusion in Al-compounds, and much more.

**Including Elements:**

Ag	Al	Au	B	Be	C	Ca	Cd	Ce	Co	Cr	Cs	Cu	Fe	Ga	Ge	H
In	La	Li	Mg	Mn	Mo	Na	Nb	Nd	Ni	Pb	Pd	Pr	Sb	Sc	Si	Sm
Sn	Sr	Ti	Tl	V	Zn	Zr										



**Thermo-Calc Software**

[www.thermocalc.com](http://www.thermocalc.com)