Database name: TCS Al-alloys Mobility Database
Database acronym: MOBAl1 **Database version:** 1.0
Database owner: Thermo-Calc Software AB
Database segment: Aluminium alloys

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.

MOBAL1 is primarily intended for use in combination with the TTAl thermodynamic database, but is also compatible for use in combination with the SSOL or COST thermodynamic databases.

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.

Included 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										

Included Phases
FCC_A1 LIQUID

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

Assessed Systems
This database contains assessesst impurity diffusion data in FCC Al for all included elements. However, data for B, C, Ca, Sc, Sr and Zr have been estimated due to lack of reliable experimental information. In addition, a binary assessemt for Al-Si (FCC) is included.

There is also assessed data for diffusion in liquid Al for Al, Co, Cr, Cu, Fe, Ga, Ge, Mg, Mn, Ni, Si, Ti, V, and Zn. For remaining elements we use a simple estimate, i.e. $D = 1E\text{-}7 \cdot \exp^{(-30000/RT)}$.

Limits
The database is applicable for most commercial Al-based alloys, care should be taken with alloys including high amounts of alloying elements.

Scientific Models & References
See the Thermo-Calc Software reference list available at:
http://www.thermocalc.com/DOWNLOAD_AREA/References.html

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