MOBMG1: TCS Mg-alloys Mobility Database

Database name:	TCS Mg-alloys Mobility Database	*Database acronym:*	MOBMG
Database owner:	Thermo-Calc Software AB	*Database version:*	1.0

MOBMG is a CALPHAD-type kinetic database containing atomic mobility data for Mg-based alloys. It is compatible with the thermodynamic database TCMG.

Applications

Coupled with a compatible thermodynamic database, MOBMG can be used to calculate various diffusivities in both solid and liquid solution phases, and most importantly to simulate diffusion-controlled phenomena, such as solidification, nucleation, growth / dissolution and coarsening of precipitates, in Mg-based alloys by using the add-on Diffusion Module (DICTRA) and/or Precipitation Module (TC-PRISMA).

Included Elements (24)

Ag	Al	Ca	Ce	Cu	Fe	Gd	K	La	Li	Mg	Mn
Na	Nd	Ni	Pr	Sc	Si	Sn	Sr	Th	Y	Zn	Zr

Included Phases

HCP_A3 LIQUID

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 simulation. However, these phases will be treated as so-called diffusion “NONE”, i.e. there will be 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

All data sets are critically assessed against experimental information whenever available. The fact that the amount of experimental diffusion data is very limited for Mg-based alloys has made it necessary to use ab-initio calculations and sound empirical rules extensively in the development of this kinetic database.