

Database name: TCS Si-based alloys Database
 Database acronym: TCSI
 Database version: 1.2
 Database owner: Thermo-Calc Software AB
 Database segment: Silicon based alloys

Brief Description

TCSI focuses on the impurity solubility in silicon with diamond structure within a 34-element framework. Besides the diamond phase, at least the liquid and the corresponding stable silicide phase with highest Si content are included in each Si-containing binary.

Applications

Solar grade silicon materials

Included Elements (34)

Ag Al As Au B Bi C Ca Co Cr Cu Fe Ga Ge In Li Mg
 Mn Mo N Na Ni O P S Sb Si Sn Te Ti V W Zn Zr

Included Phases (84)

DIAMOND_A4	LIQUID	GAS	BCC_A2	FCC_A1	HCP_A3
BETA_RHOMBO_B	RED_P	CBCC_A12	GRAPHITE	LAVES_C14	LAVES_C15
RHOMBOHEDRAL_A7	SIB3	SIB6	CASI2	COSI2_C1	CRSI2_C40
CUSI_ETA	FESI2_H	FESI2_L	LI12SI7	MG2SI_C1	MN11SI19
MOSI2_C11B	M3SI_A15	M5SI3_D8M	SI3N4	NASI_HT	NASI_LT
NISI2	CRISTOBALITE	QUARTZ	SIP	SIS	SI2TE3_HT
SI2TE3_LT	SI2TI_C54	AB_B31	A6B5_OI44	SI3W5_D8M	SI2ZR_C49
GE3TI5	ALB12	ALP_ZNS	AL4C3	AL4C4SI	AL8C7SI

Only a selection of phases is shown in the table above. In total, TCSI1 contains 84 different solution phases and intermetallic compounds. Please note that compounds having the same crystal structure might have been merged into one phase. One may find a complete list of the phases and corresponding models and constituents in the *extended info*. For more information about the meaning of the phase names, one may also use the command "LIST-SYSTEM CONSTITUENT" in the Database Module.

Assessed Systems

Generally only the diamond phase and Si-rich corner is critically assessed in each Si-containing binary system. The impurity solubility in Si can be calculated with the BINARY Module in Thermo-Calc.

Scientific Models & References

See the Thermo-Calc Software reference list available at: <http://www.thermocalc.com/resources/>