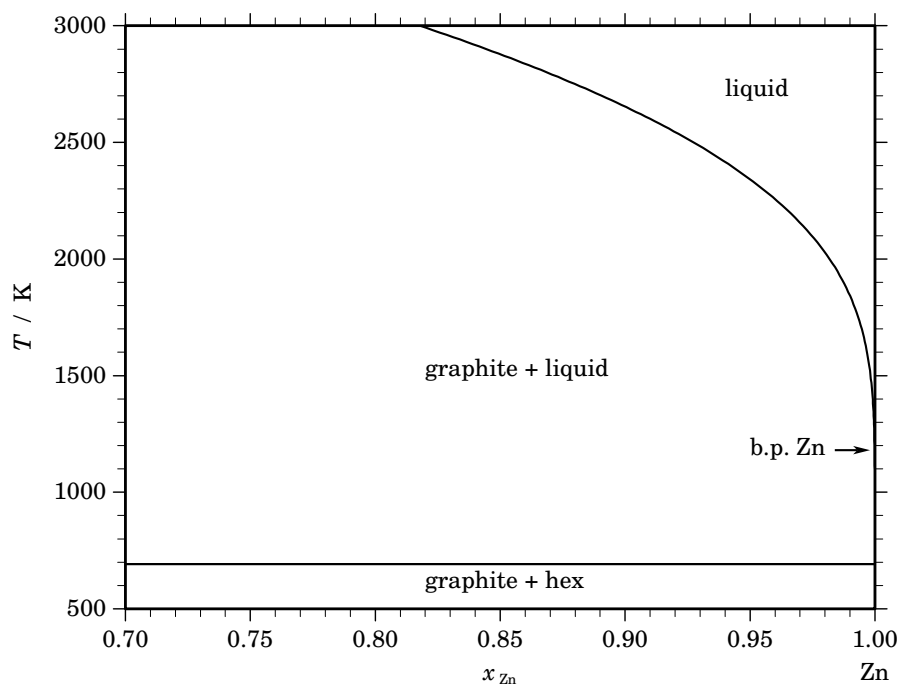


C – Zn (Carbon – Zinc)**Fig. 1.** Calculated phase diagram for the system C-Zn.

Only minor information is available on the carbon-zinc system. The solubility of C in liquid Zn at the boiling point of Zn is only small but no reliable value has been measured [1919Ruf]. The solubility of C in solid Zn is unknown. In an assessment of the ternary system C-Co-Zn, Hämäläinen and Isomäki [2005Häm] evaluated the interaction between carbon and zinc in the melt which allows the calculation of the binary C-Zn phase diagram. This result compares well with the phase diagram given by [2000Tur] which has been calculated with different preconditions. The boiling point of Zn is indicated in the phase diagram although the gas phase has been suppressed in the calculation.

Table I. Phases, structures and models.

Phase	Struktur-bericht	Prototype	Pearson symbol	Space group	SGTE name	Model
liquid					LIQUID	(C,Zn) ₁
graphite	A9	C(graphite)	<i>hP</i> 4	<i>P</i> 6 ₃ / <i>mmc</i>	GRAPHITE	C ₁
hex	A3	Mg	<i>hP</i> 2	<i>P</i> 6 ₃ / <i>mmc</i>	HCP_ZN	Zn ₁

Table II. Invariant reactions.

Reaction	Type	<i>T</i> / K	Compositions / <i>x</i> _{Zn}			$\Delta_r H$ / (J/mol)
liquid \rightleftharpoons graphite + hex	eutectic	692.7	1.000	0.000	1.000	–7322

References

- [1919Ruf] O. Ruff, B. Bergdahl: Z. Anorg. Chem. **106** (1919) 91–94.
[2000Tur] V.Z. Turkevich: J. Superhard Mater. **22** (2000) 11–15.
[2005Häm] M. Hämmäläinen, I. Isomäki: J. Alloys Comp. **392** (2005) 220–224.