BINARY PHASE DIAGRAMS OF TRANSITION ELEMENTS

Group B

Mn  Fe  Co  Ni  Tc  Ru  Rh  Pd  Re  Os  Ir  Pt

Group A

Ti  V  Cr  Zr  Nb  Mo  Hf  Ta  W

Format:

°C

3000
2500
2000
1500
1000

For each element in the Phase Diagrams of Transition Elements, there is a corresponding phase diagram that shows the phase regions as a function of temperature. These diagrams are typically used to predict the phases that will form during a phase transformation.

A15-type phases

Laves-type phases

Sigma phases

αMn-type phases

Nomenclature:

BCC — α  FCC — γ  HCP — ε

SYSTEMATIC RELATIONSHIPS AMONG BINARY PHASE DIAGRAMS OF THE TRANSITION ELEMENTS

The phase diagrams are arranged in a systematic manner, with the elements grouped into groups A and B. The phase diagrams for each group are shown in a grid format, with the temperature on the vertical axis and the atomic composition on the horizontal axis.

Group B Elements

Mn  Re  Os  Ir  Pt

Group A Elements

Ti  Zr  Hf  V  Nb  Ta  Cr  Mo  W

Diagrams published for a particular binary system by various investigators can conflict with one another, and in critical cases of the published data is virtually indispensable. The three-volume Handbook of Phase Diagrams for Equilibrium Alloy Systems (H. K.annel et al., 1963) is an excellent source for information on binary systems. This is the first in a series of six volumes that provide phase diagrams for all elements.

For each element in the Phase Diagrams of Transition Elements, the author has used the publications of the Handbook of Phase Diagrams for Equilibrium Alloy Systems to compile the phase diagrams shown in this book.

REFERENCES

The references for the Phase Diagrams of Transition Elements are not explicitly listed in the text. However, they are likely to include works such as the Handbook of Phase Diagrams for Equilibrium Alloy Systems and other relevant literature on phase diagrams and phase transformations.

The user is urged to consult these references for qualitative data and the chart contains only qualitative phase diagrams. The chart cannot be used for quantitative analysis.