**ADAMIS**

**Solder**



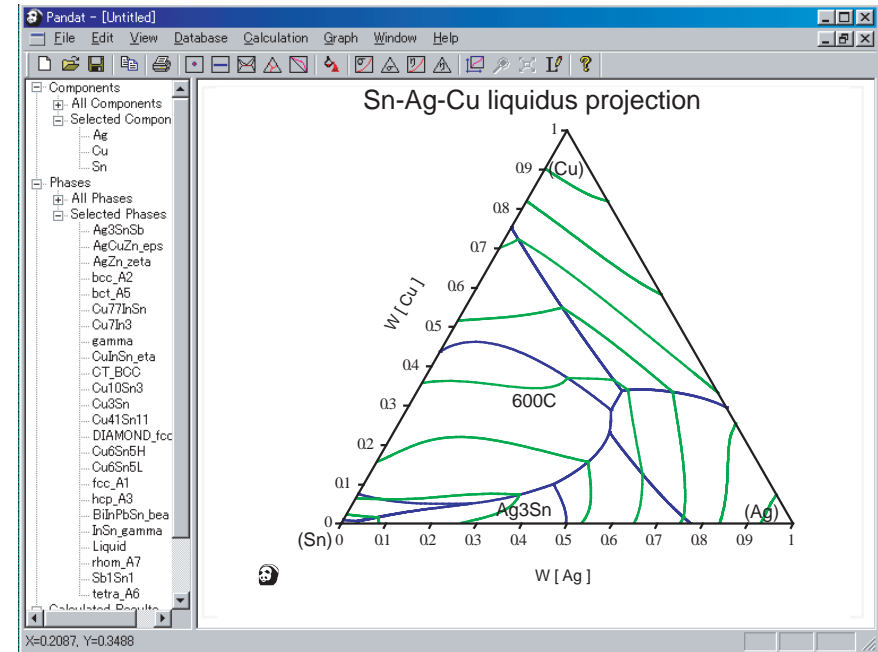**Calculated surface tension in Sn-Pb at 250C**

# Alloy Database for Micro-Solders



Sn-Ag-Cu liquidus projection
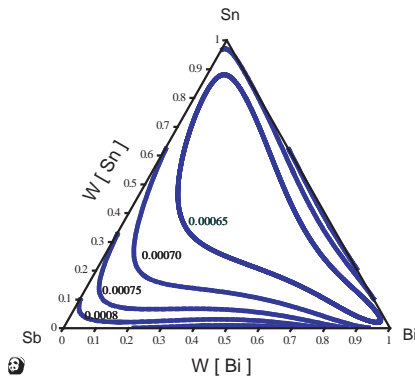


**Calculated viscosity
in Sn-Bi-Sb system at 900K**
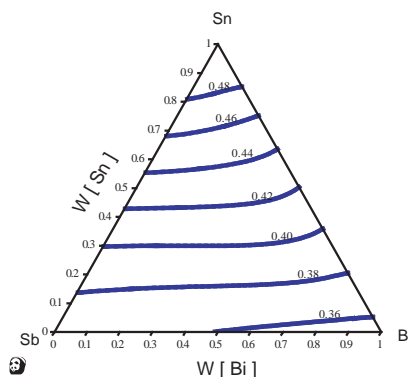


**Calculated surface tension
in Sn-Bi-Sb system at 900K**

**ADAMIS database contains 8 elements:
Ag, Bi, Cu, In, Pb, Sb, Sn and Zn.**

**System requirements:
Windows 2000/XP**

**Application
Lead-free and lead-bearing solders
for multi-component alloys.**

**ADAMIS** is a Thermodynamic Database specifically for calculating phase diagrams in micro soldering alloy systems. Developed by Professor Ishida's laboratory at Tohoku University in Japan, ADAMIS is based on comprehensive experimental and thermodynamic data accumulated using the CALPHAD method.

**ADAMIS** database contains 8 elements:
  Ag, Bi, Cu, In, Pb, Sb, Sn and Zn.

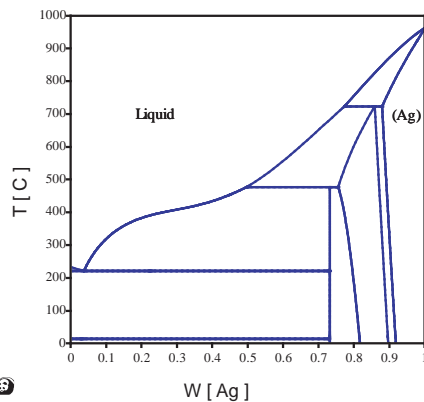**ADAMIS** supports all combinations of elements, and all composition ranges.

**ADAMIS** system is integrated with the Multi-Component Phase Diagram Calculation Software, PANDAT.

Related information such as the surface tension and viscosity of the liquid phase can also be predicted, thus rendering the database as a valuable tool for developing lead-bearing and lead-free solders.



**Calculated Sn-Ag-Cu 600C isotherm**

### Solidification Simulations

The solidification of multi-components alloys can be simulated using Scheil models. In comparison with the equilibrium solidification, the formation of the liquid phase due to segregation in the Scheil calculation increases the freezing range. The addition of Bi strongly causes liquid formation at low temperature.

The presence of the liquid phase at these temperatures due to non-equilibrium solidification is considered to be one of the reasons for the lifting-off phenomenon.



**Solidification in Sn-3wt%Ag-10wt%Bi using Scheil model**
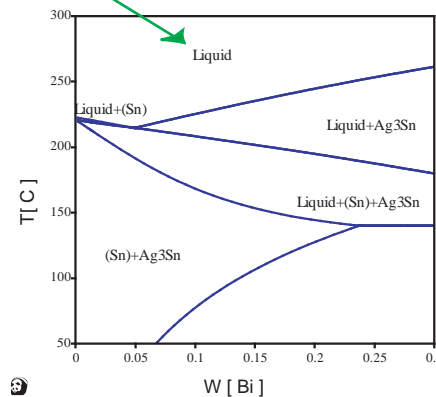
### User Friendly Interface

The user-friendly Microsoft Windows-based interface completes complex calculations with only a few mouse clicks. All functions are clearly organized in the menu and displayed in the toolbar.
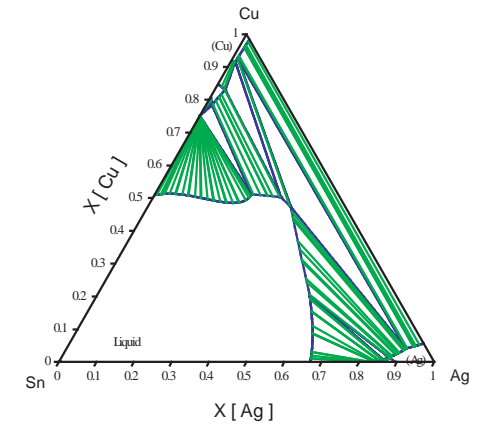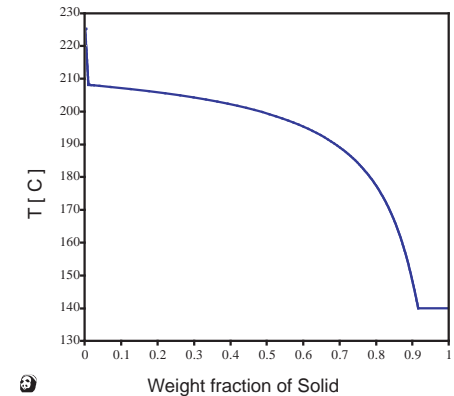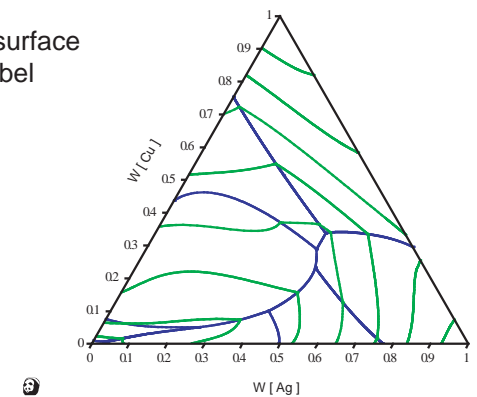
### Liquidus Projections

ADAMIS can calculate the liquidus surface for multi-component systems and label the regions of primary phases.

label phase regions with a mouse click.

### Phase Diagrams



**Calculated Sn-Ag binary system**



**Calculated Sn-3wt%Ag-Bi isopleth**



**Calculated Sn-Ag-Cu  liquidus projection**