Common Elements

Aluminum
Offers good corrosion resistance and good strength when alloyed with Zn or Si.

Antimony
Increases tensile strength of solders. Poor conductor of heat and electricity.

Bismuth
Low melting when alloyed with SnPb or In. Expands 3.32% on solidification. Non-toxic.

Cadmium
Increases corrosion resistance of solders. Increases service temperature and strength of solder.

Copper
When used in SnPb alloys, slight increase in spread rate, lowers melting temperature.

Gallium
Has one of the longest liquid ranges for metals. Has low vapor pressure.

Germanium
When alloyed with Au or Al, will reduce melting point and increase strength. Contributes to poor solder wettability.

Gold
Highly conductive and corrosion resistant. High melting point is reduced when alloyed with Sn, Si, or Ge.

Indium
Improves wetting of PbAg solders. Resists alkaline corrosion. Bonds glass, quartz, and glazed ceramics.

Lead
Economical material, soft and ductile. Offers increased strength when alloyed with other elements. Toxic.

Silicon
When used with Au or Al, will reduce melting point, increase strength, and improve wettability.

Silver
Exhibits the highest electrical and thermal conductivity of all metals.

Tin
Excellent wetting characteristics. Low strength when used alone but becomes stronger when alloyed.

Zinc
When used in SnPb alloys, lowers spreading rate; when soldering to Al, used to reduce the electrical potential difference.