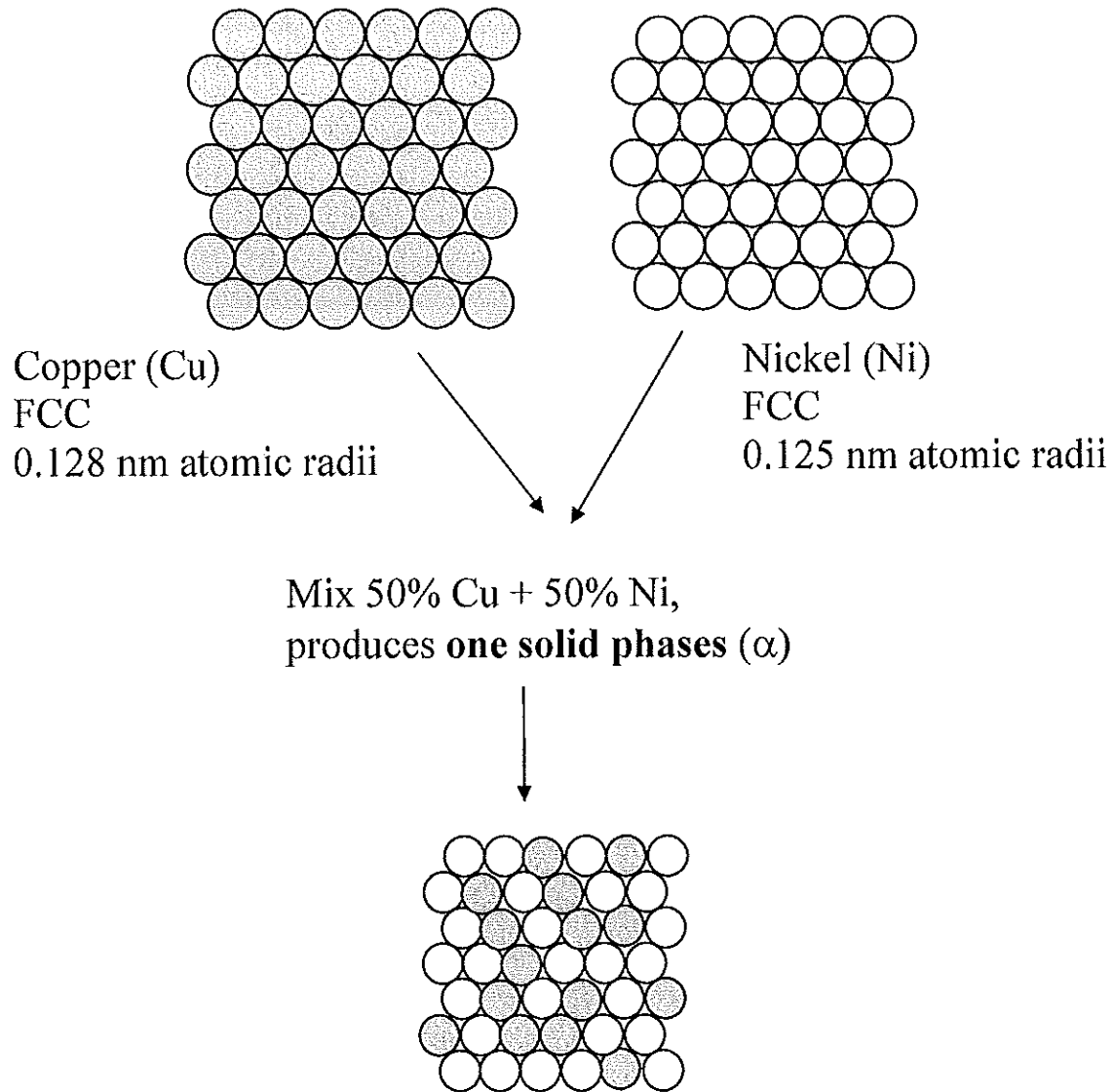


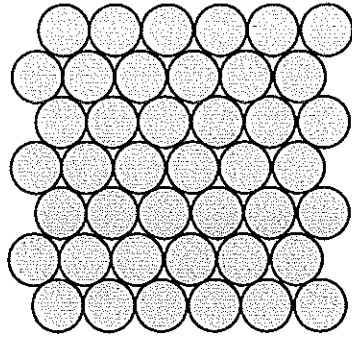
Fully soluble system (example, Cu-Ni)

The two constituents are not full soluble in each other

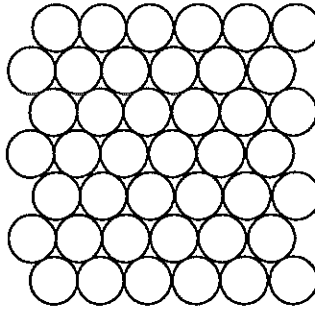


Binary eutectic system (example, lead-tin)

The two constituents are not full soluble in each other.

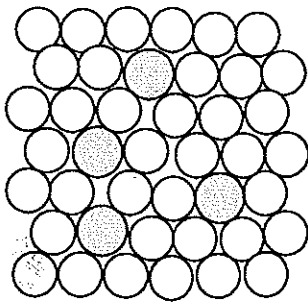


Lead (Pb)  
FCC  
0.175 nm atomic radii

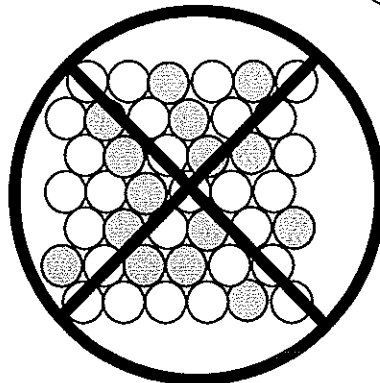


Tin (Sn)  
Tetragonal  
0.151 nm atomic radii

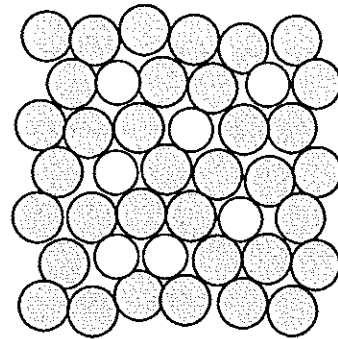
Mix 50% Pb + 50% Sn, gives  
**two solid phases ( $\alpha$  and  $\beta$ )**



$\alpha$  (mostly Sn with some Pb)



Not this!



$\beta$  (mostly Pb with some Sn)