

MatE 251 - Fall 2010 - Potential Term Project Topics

1. Effect of solute additions on contact angle
2. Effect of oxidation/aging of copper substrates on solder adhesion
3. Modification of Hume-Rothery Rules for systems exhibiting limited solid solubility
4. Effect of surface-to-volume ratio on dissolution of particles
5. Determination of bond energy from latent heat of melting, latent heat of vaporization and coordination number considerations
6. Evaluation of Pauling's formulation for enthalpy of formation of ionic compounds:
$$\Delta H \text{ (kcal/g-atom)} = -23.07 Z (X_A - X_B)^2$$
7. ΔP as a driving force for diffusion – deflation rate of balloons filled with different gases
8. Effect of surface roughness and directionality of surface roughness on contact angle
9. IMC formation and growth in the Cu-Sn system
10. Be-Cu alloy precipitation hardening – effect of solutionizing and aging on hardness