

Also of interest is the actual atomic mechanism involved in a particular diffusing system. Many of the postulated mechanisms, along with possible means of identification are discussed by Chalmers,¹⁰ Mehl,¹¹ Barrer,² and Le Claire.¹² In particular, a good discussion of interstitial diffusion (which is what Au and Ag into Pb is assumed by many to be), is contained in Diffusion In Solids by Shewmon.¹³ Also of possible interest along this line are the calculations of Stern and Eyring¹⁴ pertaining to the change of diffusion constant with pressure for a lead solvent system.

Lead was chosen as a solvent material for this study because of the rapid rates of diffusion of materials in it, and because reliable data at atmospheric pressure existed for comparison.⁴ Ag was chosen as a solute over Au because the former possesses advantages of experimental technique (compare the present work with that of Ascoli, Germagnoli, and Mongini).³ Another influencing factor in the choice of the chemical system was the possibility that if Ag did diffuse interstitially, the diffusion rate might increase with pressure.³¹