

Problem 7.36

- (a) Think of it like any chemical reaction. The driving force for recrystallization is that the new crystals have a lower Gibbs free energy than the old crystals. The system may lower energy by getting rid of the highly strained and deformed crystals resulting from plastic deformation. The reaction is endothermic, requiring some heat input for activation.
- (b) Again we lower the Gibbs Free Energy. This time, it's because we lowering the total grain boundary area per unit volume as the grains grow. The driving force thermodynamically is the lower Gibbs Free Energy of the larger grains, which have less surface area per unit volume than the finer grains.