

Assignment #22

11.4 Compute the volume percent of graphite, V_{Gr} , in a 3.5 wt% C cast iron, assuming that all the carbon exists as the graphite phase. Assume densities of 7.9 and 2.3 g/cm³ for ferrite and graphite, respectively.

11.12 Give the distinctive features, limitations, and applications of the following alloy groups: titanium alloys, refractory metals, superalloys, and noble metals.

11.22 Give the approximate temperature at which it is desirable to heat each of the following iron–carbon alloys during a full anneal heat treatment:

- (a) 0.25 wt% C
- (b) 0.45 wt% C
- (c) 0.85 wt% C
- (d) 1.10 wt% C.

11.D11 A cylindrical piece of 8640 steel is to be austenitized and quenched in moderately agitated oil. If the hardness at the surface of the piece must be at least 49 HRC, what is the maximum allowable diameter? Justify your answer.