LIST OF FIGURES

1.1 Simplified flow diagram of activities in planning and implementing process and plant design projects 4
1.2 Allowable stress for different materials 11
2.1 Comparison of corrosion rates of zinc and steel in various parts of the world 37
2.2 Examples of poor and proper connections of dissimilar metals 39
2.3 Example of a corrosion-resistant steel insert used in an aluminum casting 40
2.4 Encapsulation of exposed metal connections 40
2.5 Gasket insertion between pipe flanges for sealing purposes and to minimize galvanic corrosion between dissimilar piping metals . . . 41
2.6 Examples of minimizing galvanic corrosion when piping penetrates partitions and bulkheads 43
2.7 Poor and good designs for heat exchanger inlets 45
2.8 Poor and good designs for vessel drainage 45
3.1 Typical glass sight gauges 53
3.2 Liquid-level gauge for an ammonia tank 54
3.3 Effect of temperature on corrosion rates of steels in crude oil containing sulfur 66
3.4 Operating limits for steels in atmospheres containing hydrogen 66
3.5 Effect of temperature on the tensile strength of copper: (A) effect of annealing on strength and ductility; (B) hardened high conductivity copper 80
3.6 Effect of sulfuric acid on aluminum 92
3.7 Effect of nitric acid on stainless steel and aluminum 92