

Relevant Issues: Each student needs to answer the following questions when submitting his/her report on the respective experiment.

Tensile Test

1. List at least 3 ASTM standards for tensile testing including standards' names and numbers.
2. What are the typical testing speed and sample/specimen dimension suggested by the ASTM standard for tensile testing?

Fatigue Test

1. List at least 2 ASTM standards for fatigue testing including standards' names and numbers.
2. Why you need to test multiple sample/specimen?

Creep Test

1. List at least 3 ASTM standards for creep testing including standards' names and numbers.
2. Why there is a need for different standardized test methods?

Hardness Test

1. List at least 3 ASTM standards for hardness testing including standards' names and numbers.
2. Discuss the differences between standard Rockwell and Brinell hardness tests.

Impact Test

1. List at least 3 ASTM standards for impact testing including standards' names and numbers.
2. Discuss the differences between standard Charpy and Izod impact tests.

Phase Diagram

1. Do you expect to obtain the exact alloy composition after conducting the phase diagram experiment? Why or why not?
2. Explain how you obtained the temperatures for beginning and ending of solidification from the cooling curve.

Microscopic Examination

1. How the average grain size is measured according to the ASTM standard?
2. Is the ASTM standard test method for determining the average grain size only applicable to specific metal(s) or alloy(s)? Explain.

Bending Test

1. List at least 3 ASTM standards for bending/flexure testing including standards' names and numbers.
2. What is the typical sample/specimen dimension used in the ASTM standard for bending/flexure testing?

Compression and Fracture Toughness Tests

1. List at least 3 ASTM standards for compression testing including standards' names and numbers.
2. List at least 3 ASTM standards for fracture toughness testing including standards' names and numbers.