

Title: Metallurgical Study – AISI Steel Grades

This report describes experimental results for three steel samples.

The quenching temperature, tempering time and final tensile strength were recorded.

Sample A (Grade 1045)

Carbon: 0.45%

Manganese: 0.60%

Quench Temperature: 830°C

Temper Time: 2 hr

Measured Tensile Strength: 620 MPa

Sample B (Grade 4140)

Carbon: 0.40%

Manganese: 0.90%

Quench Temperature: 850°C

Temper Time: 1.5 hr

Measured Tensile Strength: 950 MPa

Sample C (Grade 5160)

Carbon: 0.60%

Manganese: 0.90%

Quench Temperature: 830°C

Temper Time: 1.2 hr

Measured Tensile Strength: 760 MPa