

Questions 2005-2016:

KEY POINTS / QUESTIONS:

DETAILS / ANSWERS:

MICROSCOPIC INSPECTION:

Is a detailed inspection using a microscope. It is used to check grain size and for some impurities

MACROSCOPIC INSPECTION:

Is a visual examination to find physical defects that can be detected by the eye or a low powered magnifying glass.

WHAT IS THE ELASTIC STAGE:

During this stage the specimen extends proportionally to the load applied and will return to its original shape if the force is removed.

WHAT IS THE ELASTIC LIMIT:

It is the point up to which the extension of the specimen is proportional to the load applied. It is the end of the elastic range, after this point the specimen stays stretched

WHAT IS THE PLASTIC STAGE:

In the plastic stage there is a large increase in length of the specimen with a relatively small applied load. The specimen is also subjected to work hardening and will neck and fracture.

WHAT DOES A TENSILE TEST SHOW:

- Tensile strength
- Properties such as ductility and shear strength
- Young's Modulus
- Proof stress
- Percentage elongation
- Percentage reduction in area

HOW TO PREVENT FATIGUE FAILURE:

- Remove sharp corners
- Reduce vibration while in use
- Improve surface finish
- Prevent corrosion

REASONS FOR DESTRUCTIVE TESTING:

- To give data on properties such as hardness, toughness, ductility, strength etc.
- To determine the suitability of a material for a product
- Method of quality control
- To determine the success of heat treatment processes

Summary: