

**martensite**

a hard phase produced when steel is cooled from the hardening temperature at a speed greater than its critical cooling rate, martensite is an acicular (needle-like) phase when seen under microscopic examination

**non-ferrous**

**contains no, or minimal, iron**

**normalising**

a heat treatment process for ferrous alloys involving heating the material above the upper critical temperature then cooling in still air, the objective being to enhance toughness by refining grain size

**pearlite**

a phase of carbon steel and cast iron consisting of ferrite and cementite formed into distinct layers (or lamellae) on slow cooling from austenite

**polymer**

**a giant molecule based on carbon**

potential difference	the work or energy per unit charge needed to move an electron from one point to another; measured in volts
quenching	involves the use of a variety of rates of cooling to cause a steel to harden; media include water, brine and oil
slip	involves the movement of planes of atoms moving relative to each other
steel	an alloy of iron and up to 2% carbon often with other additions of other alloying elements such as manganese, silicon, chromium, nickel and molybdenum
tempering	reheating of a quenched steel to a sub-critical temperature in order to improve ductility and toughness

three force rule

when three forces act on a body and the body is in a state of equilibrium, then the three forces must be concurrent, i.e. they will all intersect a common point

toughness

the ability of a material to withstand shock loading (opposite to brittleness)

transformer

reduce or increase the voltage of an alternating current

vector

when a quantity has a magnitude, direction and sense e.g. displacement, velocity, acceleration

voltage

the amount of energy required to move a small electric charge along a path

---

work hardening

the result of a plastic or permanent deformation of the crystal structure

---