

Electromagnets

2. Current

CONCEPT 3

STATIC ELECTRICITY

NOTES

Electric charge can either flow or be gathered in one place. Charge that is flowing is called a current and when it gathers in one place (i.e. does not flow) it is called static electricity.

Electric charge flows through conductors, such as copper wire. Electric charge does not flow through insulators. Charge can only build up on a conductor if it is isolated (not connected to another conductor). Charge builds up on an insulator, even if it is connected to a conductor, because the electric charge cannot easily flow away. Plastics such as polythene, nylon and acetate are all insulators. Air is also a good insulator.

Charge can be moved from one insulator to another just by rubbing the insulators together.

There are two types of static charge, positive and negative. Both types are produced in the same way – by transferring negative charge (electrons). Insulators would normally have a neutral charge; the positive charges and the negative charges are equal so balance out. When two insulators are rubbed together they become charged by friction. This results in some negative charge (electrons) being transferred from one material to the other, leaving one insulator with an overall negative charge and the other with an overall positive charge. Note that only negative charge can move, positive charge cannot.