Static Electricity

Electricity · 4 questions · step-by-step answers at the end

Name: Date: Score: / 4

USEFUL EQUATIONS

$Q = It$

Questions

Show your working in the space under each question.

1. Why are aircraft earthed with a cable during refuelling?

2. A polythene rod is rubbed with a cloth and becomes negatively charged. Explain what happened, and the charge on the cloth.

3. Two balloons are rubbed with the same cloth and hung side by side. What happens, and why?

4. Why does spray paint reach the back of an earthed car part?

Step-by-step answers

Static Electricity

1. Fuel flowing through the pipe builds up static charge. Earthing lets it flow away so **no spark** can ignite the fuel vapour.

2. 1. Friction transfers **electrons from the cloth to the rod**.
   2. The rod has extra electrons, so it is negative.
   3. The cloth has lost the same number of electrons, so it has an **equal positive charge**.

   Answer: Electrons moved from cloth to rod; the cloth is equally positive

3. They **repel**: both gained the same type of charge.

4. The charged droplets follow the **electric field lines**, which curve round to the earthed object.