

ELECTROPLATING

Answer all the questions below and then check your answers.

1. What is electroplating?
2. Which metals are commonly used in electroplating?
3. What metal might be used to electroplate the bathroom tap shown in the image opposite?

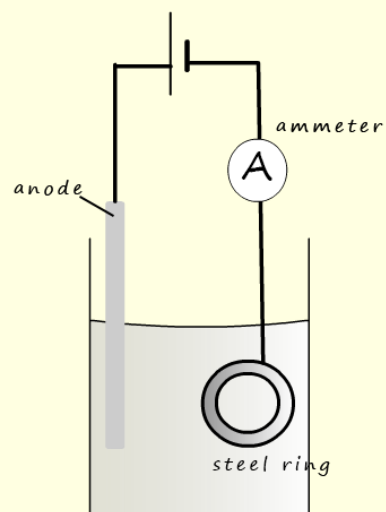
- a. Why is the tap electroplated?
- b. Draw a quick sketch to show how the tap could be electroplated. Label the following: the electrolyte, the anode, the cathode.
- c. Write an ion electron equation for the reduction of chromium ion (Cr^{3+}) to form chromium atoms.



4. What is galvanizing?
 - a. Why is galvanizing carried out and what type of objects are galvanized?

5. The apparatus opposite is being used to silver plate a steel ring.

- What electrolyte could be used?
- Suggest a suitable material for the anode.
- Explain how the ring is silver plated.
- Write an ion-electron half equation for the reactions taking place at the cathode.



Answers

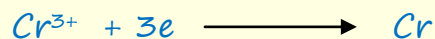
1. What is electroplating? *Electroplating is a process of coating a metal object with a thin layer of another metal using an electric current.*
2. Which metals are commonly used in electroplating? *Silver, gold, copper, zinc, nickel, chromium (chrome) are commonly used to plate other metals.*
3. What metal might be used to electroplate the bathroom tap shown in the image? *Chromium.*

a. Why is the tap electroplated? *Help prevent corrosion and to make tap look attractive.*

b. Draw a quick sketch to show how the tap would be electroplated. Label the following: the electrolyte, the anode, the cathode. *Sketch shown in question 5, except instead of ring have the tap. Use chromium solution as the electrolyte.*



c. Chromium ions are Cr^{3+} . Write an ion electron equation for the reduction reaction taking place at the cathode.



4. What is galvanizing? *Coating a metal with zinc*

a. Why is galvanizing carried out and what type of objects are galvanized?

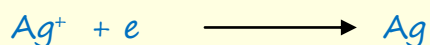
Helps prevent corrosion. Gates, fences, bins, cars

5. The apparatus opposite is being used to silver plate a steel ring.

a. What electrolyte could be used? *silver nitrate or another suitable soluble silver solution.*

b. Suggest a suitable material for the anode. *Scrap silver or an inert electrode such as platinum*

c. Explain how the ring is silver plated. *Silver ions in the electrolyte are attracted to the cathode where they are reduced to form silver atoms. These atoms are plated onto the ring.*



d. Write an ion-electron half equations for the reactions taking place at the anode the cathode.

