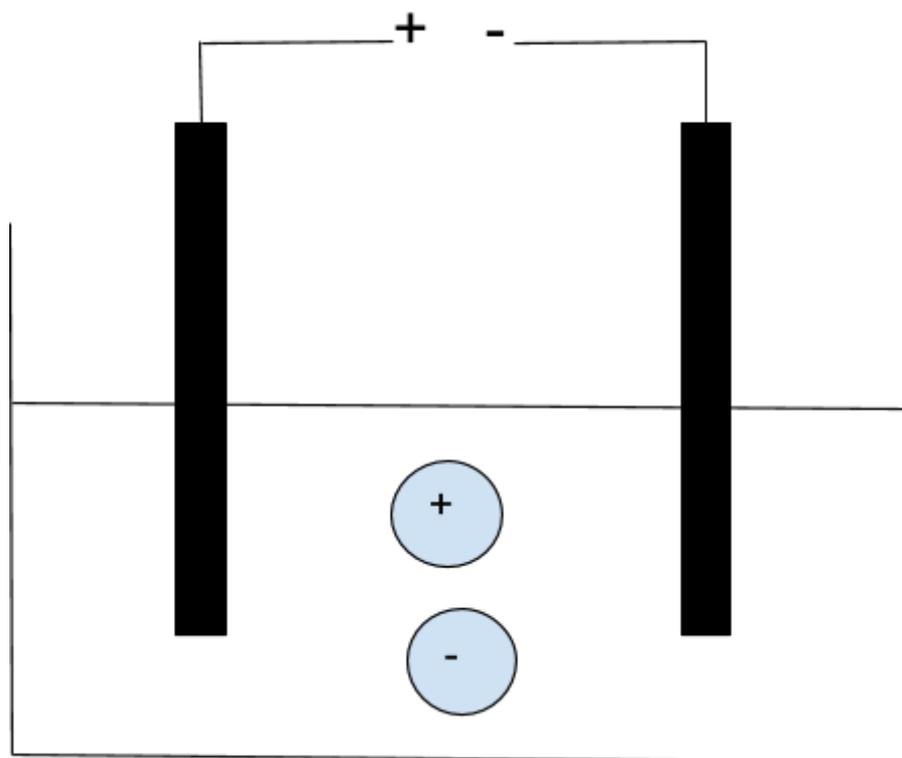


Electrolysis for KS4 Chemistry - Worksheet

1. Complete the diagram with the following labels: anode, cathode, electrode, electrolyte, anion and cation



2. Describe an ionic bond.

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3. Why can't a solid ionic substance conduct electricity?

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4. Why can molten and solutions of ionic substances conduct electricity?

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5. Why is electrolysis used to extract metals like Aluminium from their ores (oxides)

.....
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6. Complete the table

Substance electrolysed	What is formed at the cathode	What is formed at the anode
molten lead iodide		
	Sodium	chlorine
Copper sulfate solution		
calcium bromide solution		
molten aluminium oxide		

7. Complete the half equations

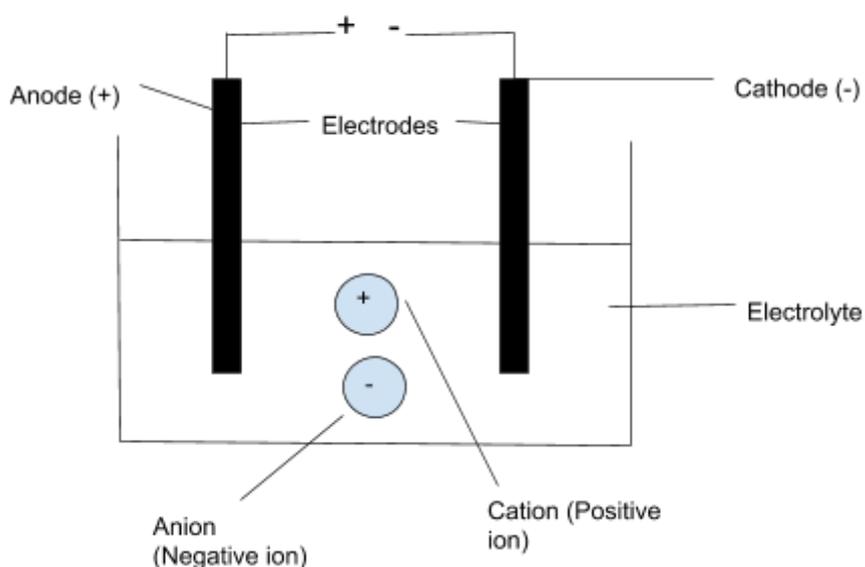
- a) $\text{Na}^+ + \dots \rightarrow \text{Na}$
- b) $\text{Ca}^{2+} + \dots \rightarrow \text{Ca}$
- c) $\dots + 2\text{e}^- \rightarrow \text{Cu}$
- d) $\text{Zn}^{2+} + 2\text{e}^- \rightarrow \dots$

8. Complete the half equations

- a) $2\text{Cl}^- \rightarrow \text{Cl}_2 + \dots$
- b) $2\text{F}^- \rightarrow \dots + 2\text{e}^-$
- c) $2\text{O}^{2-} \rightarrow \dots + 4\text{e}^-$
- d) $\dots \rightarrow \text{Br}_2 + 2\text{e}^-$

Electrolysis for KS4 Chemistry - Worksheet (Answers)

1. Complete the diagram with the following labels: anode, cathode, electrodes, electrolyte, anion and cation



2. Describe an ionic bond.

Electrostatic attraction between positive ions and negative ions

3. Why can't a solid ionic substance conduct electricity?

Ions are in a fixed position and cannot move

4. Why can molten and solutions of ionic substances conduct electricity?

Ions are free to move and carry the charge

5. Why is electrolysis used to extract metals like Aluminium from their ores (oxides)

They are more reactive than carbon, so can't be extracted by heating with carbon.

6. Complete the table

Substance electrolysed	What is formed at the cathode	What is formed at the anode
molten lead iodide	lead	iodine
molten sodium chloride	Sodium	chlorine
Copper sulfate solution	copper	oxygen
calcium bromide solution	hydrogen	bromine
molten aluminium oxide	aluminium	oxygen

7. Complete the half equations

- a) $\text{Na}^+ + \text{e}^- \rightarrow \text{Na}$
- b) $\text{Ca}^{2+} + 2\text{e}^- \rightarrow \text{Ca}$
- c) $\text{Cu}^{2+} + 2\text{e}^- \rightarrow \text{Cu}$
- d) $\text{Zn}^{2+} + 2\text{e}^- \rightarrow \text{Zn}$

8. Complete the half equations

- a) $2\text{Cl}^- \rightarrow \text{Cl}_2 + 2\text{e}^-$
- b) $2\text{F}^- \rightarrow \text{F}_2 + 2\text{e}^-$
- c) $2\text{O}^{2-} \rightarrow \text{O}_2 + 4\text{e}^-$
- d) $2\text{Br}^- \rightarrow \text{Br}_2 + 2\text{e}^-$