

SMART EXAM RESOURCES
SUBJECT: CHEMISTRY
TOPIC: ELECTROCHEMISTRY
SET-3-QP-MS

ELECTROLYSIS OF COPPER SULFATE

This question is about electricity and chemical reactions.

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(a) Aqueous copper(II) sulfate is an electrolyte.

The electrolysis of aqueous copper(II) sulfate using inert electrodes forms:

- copper at the cathode
- oxygen at the anode.

(i) State what is meant by the term electrolyte.

.....
..... [2]

(ii) State the term given to the Roman numeral, (II), in the name copper(II) sulfate.

..... [1]

(iii) State what happens to the colour of the aqueous copper(II) sulfate as this electrolysis progresses.

..... [1]

(iv) Write an ionic half-equation for the formation of copper at the cathode.

..... [2]

(v) Give the formula of the ion that forms oxygen at the anode.

..... [1]

(b) The electrolysis of aqueous copper(II) sulfate is repeated using **copper** electrodes.

State what happens to the anode.

..... [1]

MARK SCHEME:

Question	Answer	Marks
(a)(i)	M1 ionic compound M2 molten and / or aqueous	2
(a)(ii)	oxidation number (of copper)	1
(a)(iii)	fades / (becomes) colourless	1
(a)(iv)	$\text{Cu}^{2+} + 2\text{e} \rightarrow \text{Cu}$ M1 Cu^{2+} and (any number of) e on left hand side M2 equation correct	2
(a)(v)	OH^-	1
(b)	anode dissolves	1