

Metals

Mark Scheme 3

Level	IGCSE
Subject	Chemistry
Exam Board	CIE
Topic	Metals
Sub-Topic	
Paper Type	Alternative to Practical
Booklet	Mark Scheme 3

Time Allowed: 48 minutes

Score: /40

Percentage: /100

1 Table of results

For all experiments

Initial temperature boxes correctly completed

18, 26, 16, 22

and final temperature boxes correctly completed (3) –1 for each incorrect

19, 29, 21, 41

Differences correctly completed (1)

[4]

1, 3, 5, 19

(a) bubbles/fizz (1)

[1]

(b) Appropriate scale for y-axis (1)

4 bars correctly drawn (2), –1 for incorrect bar

[3]

(c) (i) Experiment 1 (1)

[1]

(ii) Experiment 4 (1)

[1]

(d) correct reference to particle size/surface area (1)

different chemicals used owtte (1)

[2]

(e) reason (1) for specified reagent (1)

e.g. marble chips (1) visible at end of reaction (

[2]

(f) temperature changes would be smaller/less (1)

larger volume of acid (1)

[2]

- 2 table of results
- (a) temperatures correctly completed(3) differences(1)
- | | | |
|-----------|----|---|
| zinc | 24 | 5 |
| iron | 25 | 4 |
| magnesium | 23 | |
- 1 for each incorrec [4]
- (b) (i) magnesium(1) [1]
- (ii) gas evolved rapidly/reacts(1) greatest (temperature) difference(1) [2]
- (iii) hydrogen(1) [1]
- (c) Table of results temperatures correct (6) [6]
- | Time /s | zinc | magnesium |
|---------|------|-----------|
| 0 | 24 | 26 |
| 10 | 27 | |
| 20 | 29 | |
| 30 | 33 | |
| 40 | 37 | |
| 50 | 40 | |
| 60 | 43 | |
- (d) Graph. Points plotted correctly(2) - 1 for each incorrect
Smooth lines(1) labels(1) [4]
- (e) temperature after 5s/ 25-26°C \pm 0.5°C(1) indication on grid(1) [2]
- (f) sketch line for Mg below powder Mg(1)
sketch line for iron powder below zinc/ any line below top curve(1) [2]
- (g) prevent heat loss/insulation(1) [1]
- (h) one improvement e.g. use a burette/pipette to measure solution/ lid(1) [1]