

Rate(speed) of Reaction

Mark Scheme 5

Level	IGCSE
Subject	Chemistry
Exam Board	CIE
Topic	Chemical Reactions
Sub-Topic	Rate (speed) of Reactions
Paper Type	Alternative to Practical
Booklet	Mark Scheme 5

Time Allowed: 53 minutes

Score: /44

Percentage: /100

1	Add known mass of manganese oxide	1
	To (measured volume of) hydrogen peroxide	1
	Bubbles	1
	Test gas with glowing splint	1
	Result	1
	Filter	1
	Dry solid	1
	Reweigh and compare	1
	(max 6)	[6]

- 2 (a) smooth line/curve (1) **(1)**
- (b) result at 60s (1) not on curve or similar (1) **(2)**
- (c) calcium carbonate is being used up/acid gets more dilute (1) **(1)**

- 3 (a) because precipitate formed/goes cloudy (1)
sulphur (1)/turbid **[2]**
- (b) reference to fair test/comparison/same depth **[1]**
- (c) sodium thiosulphate/water 1st/2nd acid, last **[1]**
- (d) (i) all points correct (3), -1 for any incorrect
smooth line (1)
label (1) **[5]**
- (ii) line lower down (1)
does not touch other line (1) **[2]**
- (e) times would be longer (1) because solution more spread out/reference to
surface area/depth (1) **[2]**

- 4 (a) (i) Smooth line graph [1]
 (ii) result at 5 minutes (1)
 not on curve (1)/gas escapes, gone down [2]
- (b) 0.8 g [1]
- (c) reference to leak/loss of gas (1)
 \therefore volumes lower (1) [2]

5

Table. Times read correctly:

4s (1)

8s (1)

14s (1)

30s (1)

82s (1)

5

- (a) Points plotted correctly (3) (-1 for each incorrect)
 Smooth line graph (1)

4

- (b) Read from graph - should be = 48 (1) § (1)
 Indication on graph (1)

2

1

- (c) (i) Experiment 1 (1)

1

- (ii) Greatest concentration/amount of bromate (1)
 Therefore more collisions (1)

2

- (d) (i) Two errors:
 e.g. use of m cylinder inaccurate (1)/use of timer (1)/detecting when
 cross not visible

2

- (ii) Improvements:
 e.g. use of burette (1)/use of computer data logging (1)/use of
 colourimeter (1) insulate repeat and average

2