

Use of Amount of Sub; Masses

Pure Subs

Mark Scheme

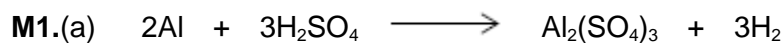
Level	GCSE (9-1)
Subject	Combined Science: Trilogy - Chemistry
Exam Board	AQA
Topic	5.3 Quantitative Chemistry
Sub-Topic	Use of Amount of Sub; Masses Pure Subs
Difficulty Level	Bronze Level
Booklet	Mark Scheme

Time Allowed: 32 minutes

Score: /32

Percentage: /100

Grade Boundaries:



formulae correct

1

balancing correct

1

(b) $40 + 2(14 + (3 \times 16))$

1

$= 164$

allow 164 with no working shown for 2 marks

1

(c) $(17.4 + 17.6 + 16.9) / 3$

1

$= 17.3$

allow 17.3 with no working shown for 2 marks

1

[6]

M2.(a) would melt

accept they have a low melting point

allow lose their shape

ignore would soften when hot

ignore boiling point

1

(b) to speed up the reaction

accept can use a lower temperature

accept less energy needed

1

(c) (i) mass spectrometer

allow mass spectroscopy

1

- (ii) any **one** from:
- ignore reliable*
 - ignore more precise*
 - accurate
 - sensitive
 - rapid / quicker
 - small amount of sample

1

- (d) any **two** from:
- allow concentration*
 - pressure
 - temperature
 - catalyst **or** initiator
 - solvent

2

[6]

M3.(a) 1 / one

1

- (b) (i) protons

1

- (ii) neutrons

1

- (iii) 7

1

(c)	(i)	losing	1
	(ii)	a positive	1
	(iii)	electrostatic	1
(d)		high melting points	1
		strong bonds	1
(e)	(i)	58.5	1
	(ii)	mole	1
(f)		very small (particles) or <i>ignore tiny / small / smaller / microscopic etc.</i> 1-100nm in size or (particle with a) few hundred atoms	1
			[12]

M4. (a) (i) hydrochloric

1

(ii) insoluble 1

filtration 1

(iii) crystallisation 1

(b) any **four** from:

any reference to incorrect bonding = max 3

- calcium atom reacts with **2 chlorine atoms**
- calcium atoms lose electrons
accept calcium ion is formed
- lose **two** electrons
accept calcium has a 2+ charge / calcium ion has a 2+ charge
allow Ca^{2+}
- chlorine atoms **gain** electrons
accept chloride ion formed
- gain one electron
accept chlorine / chloride has a negative charge / is a negative ion/ is a negative particle
allow Cl_-
if no other marks awarded allow ionic bonding or complete outer shell for 1 mark

4

[8]