

Gases in the Atmosphere

Mark Scheme 2

Level	IGCSE(9-1)
Subject	Chemistry
Exam Board	Edexcel IGCSE
Module	Single Award (Paper 2C)
Topic	Inorganic Chemistry
Sub-Topic	Gases in the Atmosphere
Booklet	Mark Scheme 2

Time Allowed: 30 minutes

Score: /25

Percentage: /100

Grade Boundaries:

9	8	7	6	5	4	3	2	1
>90%	80%	70%	60%	50%	40%	30%	20%	10%

Question number	Answer	Notes	Marks
1 a	C (nitrogen)		1
b	A (argon)		1
c	M1 (formula) CuO M2 (colour) black	ACCEPT correct formula as a product of an equation. The equation need not be balanced IGNORE names IGNORE brown REJECT all other colours	2
d i	C (dilute hydrochloric acid)		1
ii	A (calcium carbonate)		1
iii	in a (gas) syringe / downward delivery in air	ALLOW downward delivery	1
e i	$\text{CO}_2(\mathbf{g}) + \text{Ca}(\text{OH})_2(\mathbf{aq}) \rightarrow \text{CaCO}_3(\mathbf{s}) + \text{H}_2\text{O}(\text{l})$	ACCEPT upper case letters IGNORE words	1
e ii	white precipitate forms / liquid goes milky/cloudy	ACCEPT usual alternatives for precipitate	1

Question number				Answer	Notes	Marks
2	a	(i)	M 1	nitrogen		1
		(ii)	M 1	cross in 2nd box (20)		1
		(iii)	M 1	unreactive		1
			M 2	water		1
	b	(i)	M 1	sulfurous acid / H ₂ SO ₃	Accept sulfuric(IV) acid Accept ph spellings If name and formula given, both must be correct	1
		(ii)	M 1	nitrogen oxide(s) / nitrogen dioxide / NO ₂ / NO _x	Ignore nitrogen monoxide / nitrous oxide and other acidic gases, eg carbon dioxide, sulfur trioxide, hydrogen chloride	1

Question number			Answer	Notes	Marks
2	b	(iii)	M 1 iron/steel/metal corrodes/rusts/reacts	Ignore physical process such as erosion/weathering/wearing away/dissolving Ignore burns/burning	2
			M 2 limestone/marble reacts/corrodes/is eaten away NOT just buildings	Ignore rusts or physical process such as erosion/weathering/wearing away/dissolving Ignore burns/burning	
			M 3 plants/trees/vegetation/crops/named example adversely affected in specific way, eg dies/stunted growth/harmed/damaged	Ignore deforestation Ignore leaching minerals	
			M 4 fish/aquatic animals/pond life/marine life/named example affected in specific way, eg dies/stunted growth/harmed/damaged	Ignore references to just animals	
				Accept destroys as an adverse effect for all marks	
				Any two for 1 each	
					Total 8 marks

Question number	Answer	Accept	Reject	Marks
3 (a)	(i) to allow air / oxygen to enter (the crucible) / to come into contact with the magnesium / solid Ignore references to visual checks of reaction completion	to allow the magnesium to burn / react		1
	(ii) to make sure that <u>all</u> of the magnesium has reacted	to make sure that the (all) magnesium has reacted to complete the reaction		1
(b)	mass of crucible (and lid) + MgO — mass of crucible (and lid) lids must be in both or neither ignore any references to the table of results on page 8	mass of crucible (and lid) at end — mass of crucible (and lid)		1
(c)	(i) all points plotted correctly to nearest gridline (subtract 1 mark for each error) <u>correct</u> straight line of best fit (need not pass through origin) (must be drawn with the aid of a rule)	line as evidence of correct plotting when points cannot be seen		2
	(ii) anomalous point at (0.26, 0.64) circled			1
	(iii) csq on candidate's graph Units not needed, ignore incorrect units			1
			Total	8