

Additional Applied Science A

General Certificate of Secondary Education **A335/01**

Unit 4: Harnessing Chemicals (Foundation Tier)

Mark Scheme for June 2010

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Mark schemes should be read in conjunction with the published question papers and the Report on the Examination.




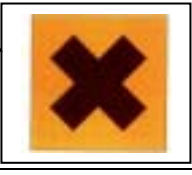
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Any enquiries about publications should be addressed to:

OCR Publications
PO Box 5050
Annesley
NOTTINGHAM
NG15 0DL

Telephone: 0870 770 6622
Facsimile: 01223 552610
E-mail: publications@ocr.org.uk

Question	Expected Answers	Marks	Additional Guidance
1 (a)	<div style="display: flex; flex-direction: column; align-items: flex-start;"> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">corrosive</div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">harmful</div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">toxic</div> <div style="border: 1px solid black; padding: 5px;">oxidising</div> </div> <div style="display: flex; flex-direction: column; align-items: center; margin-top: 10px;">     </div>	[3]	4 correct responses = 3 marks 3 or 2 correct responses = 2 marks 1 correct response = 1 mark
(b)	any two from: idea of protecting the public/emergency crew idea of protecting the environment idea of not making the problem any worse be able to tackle it safely	[2]	1 mark each with a maximum of two marks
Total		[5]	

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Question		Expected Answers	Marks	Additional Guidance
2	(a)	Health and Safety Executive/HSE (1)	[1]	correct answer only
	(b)	bulk (1)	[1]	
	(c) i	3 (1)	[1]	
	ii	7 (1)	[1]	
	(d) i	catalyst (1)	[1]	
	ii	A = condenser (1) B = heating mantle (1) C = flask (1)	[3]	allow letters by correct names on list.
		Total	[8]	

Question			Expected Answers	Marks	Additional Guidance
3	(a)	i	idea of (insoluble) <u>solid</u> dispersed in/mixed with a <u>liquid</u> (1)	[1]	ignore floating ignore examples of suspensions
		ii	any correct response (1)	[1]	e.g. paint/tippex/hot chocolate/sand in water/muddy water/toothpaste apply list principle if more than one response given
	(b)		inorganic, from a never lived source (1)	[1]	do not allow if more than one box ticked
	(c)		idea of safe to swallow /take (1) correct explanation why (1)	[2]	consequences (if not pure) for second point
	(d)		idea of multiplying by 200 (1) 80 (grams per litre) (1)	[2]	allow 80 (grams per litre) = 2 marks If answer = 8 then check for ECF in working (ie use of 100 rather than 1000 for conversion) = 1 mark
			Total	[7]	

Question		Expected Answers	Marks	Additional Guidance
4	(a)	idea of rate increases (1)	[1]	OWTTE
	(b)	i		
		increases (1) because of <u>larger/bigger surface area</u> (1)	[2]	ORA
		ii		
		idea that the rate decreases (1)	[1]	OWTTE
	(c)	i		
		water (1) carbon dioxide (1)	[2]	either order allow <u>correct</u> formulae (₂ as a subscript / correct symbols)
		ii		
		idea of heat given out (1)	[1]	not just energy given out
		Total	[7]	

Question		Expected Answers	Marks	Additional Guidance
5	(a)	<u>chemically named</u> insoluble substance (1)	[1]	allow correct formula ignore common names (sand, plastic, limestone marble chips)
	(b)	solution (1) precipitate/ppt (1) filtration/filtering (1)	[3]	correct order
	(c)	sodium nitrate (1)	[1]	allow correct formula NaNO ₃
	(d)	idea of different purity / grade / quality(1) idea of different use (1)	[2]	allow 'costs more to make' if qualified by reference to more steps involved in purification (1) ignore reference to concentrations allow "analytical and laboratory grade" (2)
	(e)	idea of $(1.3/2.0) \times 100$ (1) 65 (%) (1)	[2]	allow 65 (%) = 2 marks
		Total	[9]	
		Paper Total	[36]	

OCR (Oxford Cambridge and RSA Examinations)
1 Hills Road
Cambridge
CB1 2EU

OCR Customer Contact Centre

14 – 19 Qualifications (General)

Telephone: 01223 553998

Facsimile: 01223 552627

Email: general.qualifications@ocr.org.uk

www.ocr.org.uk

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Head office
Telephone: 01223 552552
Facsimile: 01223 552553

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