

Mark Scheme (Results)

March 2011

GCSE

360Science

GCSE Additional Science
Structured Paper C2 (5018H/1H)

GCSE Chemistry
Structured Paper C2 (5038H/1H)

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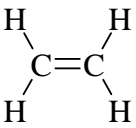
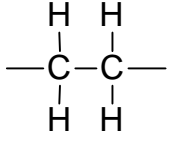
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5018H & 5038H Mark Scheme

Question Number	Answer	Allow	Reject/ Ignore	Mark
1(a)	 ;  ; C ₃ H ₆ ; poly(propene) ;	Allow repeat unit based on any alternative alkene given in left hand box, but REJECT propene Allow C ₂ H ₃ CH ₃ etc. Allow polypropene	Reject repeat units without linking bonds Ignore brackets around repeating unit and 'n'	(4)
1(b)	(Molecules) containing double bonds ;		Ignore spare/ free bonds	(1)
1(c)	turns (orange/ yellow/ brown to) colourless ;	Decolourise	Ignore clear, discoloured	(1)
1(d)	break down of (large) molecules / chains / hydrocarbons (into: smaller / more useful / shorter ones) ;		Reject idea of 'chain of molecules'	(1)

Question Number	Answer	Allow	Reject/ Ignore	Mark
1 (e)	Any use of a plastic where it is an advantage to be BOTH waterproof AND colourless e.g. food bags / (clear) packaging / cling film / goggles / (shed) window (glazing) ;	Allow any use based on BOTH properties Note: candidates do not have to recall uses, just suggest based on both properties so a use of other plastics can be credited e.g. fishing line – made of nylon but should be waterproof and colourless.	Reject glass Ignore plastic bags	(1)

Question Number	Answer	Allow	Reject/ Ignore	Mark
1 (f)	Any two from: <ul style="list-style-type: none"> 1. polymers do not rot /not biodegradable / persist ; 2. so landfill is quickly used up ; 3. harm animals ; 4. polymers cannot be recycled / wastes the material ; 		Ignore any gases etc produced by decomposition	(2)

Question Number	Answer	Allow	Reject/ Ignore	Mark
2(a)	both have one / same number of outer electron(s) / electronic configuration ends in 1 / same outer shell ;	both lose one / same number of electron(s)	Ignore same group	(1)

Question Number	Answer	Allow	Reject/ Ignore	Mark
2(b)(i)	charged particle / atom / group of atoms / molecule ; that has gained/ lost electron Allow atom with positive charge	Ignore charged element / element that has lost an electron etc.	(1)

Question Number	Answer	Allow	Reject/ Ignore	Mark
2(b)(ii)	K^+ ;		Reject k^+ , $K+$, K_+	(1)

Question Number	Answer	Allow	Reject/ Ignore	Mark
2(c)(i)	Any two from: <ol style="list-style-type: none"> 1. strong (electrostatic) forces/ bonds ; 2. between ions/ionic bonds ; 3. needs lots of energy / heat ; 4. (energy needed) to separate ions ; 		if mention covalent bonding / molecules / intermolecular forces only point 3 can be scored	(2)

Question Number	Answer	Allow	Reject/ Ignore	Mark
2(c)(ii)	Na_2SO_4 ;	Allow charges on ions e.g. $Na^+_2SO_4^{2-}$		(1)

Question Number	Answer	Allow	Reject/ Ignore	Mark
3(a)(i)	28 → 34 ; (34) x 10 = 340 (tonnes) ; OR moles N ₂ = 280/28 = 10 (mol); (34) x 10 = 340 (tonnes);	170 tonnes for 1 mark		(2)

Question Number	Answer	Allow	Reject/ Ignore	Mark
3(a)(ii)	13.9 (%) ;	Allow any number of sig figures from 13.90728.....		(1)

Question Number	Answer	Allow	Reject/ Ignore	Mark
3(b)(i)	equilibrium moves to RHS / products ; which has fewer molecules / moles / smaller volume ;	forward reaction increases more than backward	Ignore any answers based on rate	(2)

Question Number	Answer	Allow	Reject/ Ignore	Mark
3(b)(ii)	expensive plant / expensive energy / lots of energy / risk of explosion / increased risk of leak ;	Allow 'creating high pressure' expensive	Ignore unexplained 'higher cost'	(1)

Question Number	Answer	Allow	Reject/ Ignore	Mark
4(a)	$2 \text{H}_2\text{O}_2 \rightarrow 2 \text{H}_2\text{O} + \text{O}_2$; ; all 3 formula correct ; balancing correct formulae ;	Multiples	Ignore state symbols	(2)

Question Number	Answer	Allow	Reject/ Ignore	Mark
4(b)	2 x OH bonds in an H_2O molecule ; rest of molecule correct (must have scored 1 st mark);	Any combination of symbols for electrons allowed	Reject molecules with other formulae e.g. O_2H , H_2O_2 Ignore inner shells if correct	(2)

Question Number	Answer	Allow	Reject/ Ignore	Mark
4(c)	catalyst/ lowers activation energy ;	Allow explanation of catalytic activity		(1)

Question Number	Answer	Allow	Reject/ Ignore	Mark
4(d)(i)	(gives out / evolves / produces) heat / energy ;	There is an increase in temperature		(1)

Question Number	Answer	Allow	Reject/ Ignore	Mark
4(d)(ii)	Any two from: 1. bond breaking requires energy / endothermic ; 2. bond making releases energy / exothermic ; 3. overall, more energy released than required ;	Allow heat in place of energy	Ignore number of bonds	(2)

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