OCR
RECOGNISING ACHIEVEMENT

GCE

Chemistry B

Advanced GCE **A2 H035**

Advanced Subsidiary GCE **AS H435**

Report on the Units

June 2009

HX35/MS/R/09

OCR (Oxford Cambridge and RSA) is a leading UK awarding body, providing a wide range of qualifications to meet the needs of pupils of all ages and abilities. OCR qualifications include AS/A Levels, GCSEs, OCR Nationals, Key Skills, Entry Level qualifications, NVQs and vocational qualifications in areas such as IT, business, languages, teaching/training, administration and secretarial skills.

It is also responsible for developing new syllabuses to meet national requirements and the needs of students and teachers. OCR is a not-for-profit organisation; any surplus made is invested back into the establishment to help towards the development of qualifications and support which keep pace with the changing needs of today's society.

This report on the Examination provides information on the performance of candidates which it is hoped will be useful to teachers in their preparation of candidates for future examinations. It is intended to be constructive and informative and to promote better understanding of the syllabus content, of the operation of the scheme of assessment and of the application of assessment criteria.

Reports should be read in conjunction with the published question papers and mark schemes for the Examination.

OCR will not enter into any discussion or correspondence in connection with this Report.

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REPORTS ON THE UNITS

H035 Chief Examiner's report

This was the first award of the new Specification at AS and all went smoothly. One major change was the inclusion of an Advance Notice article in F332 (with the timing increased by 15 minutes over 2848) to replace the Open Book paper. Candidates seemed to take this in their stride. The F333 Tasks were also new. F331 was very similar to 2850, except that the number of marks (but not the time) had been cut down.

In F331 and F332, the Principal Examiners' report many good things about the ability and knowledge of the candidates. However, it is clear that candidates need to practise writing longer answers clearly and using correct chemical terminology. They must also note carefully the command words used in questions.

F333 assesses skills via Tasks taken under controlled conditions. Centres have coped well with the demands of this unit. The Tasks were well received by Centres and most found the mark-schemes fairly comprehensive and certainly easy to apply. One of the main issues with the moderation of F333 was clerical errors and Centres are urged to check their addition carefully.

The use of OCR's secure Interchange portal for distribution of the Advance Notice Article, Tasks and support materials worked well. Some Centres were not initially aware of the fact that the Tasks and the Advance Notice Article were available on Interchange and not sent out in hard copy. It is hoped that this will not be an issue in the future. An e-mail updates service is available to alert centres to changes on the Interchange pages. To be notified by e-mail when changes are made to **GCE Chemistry B (Salters)** pages please e-mail GCEscienceTasks@ocr.org.uk including your centre number, centre name, a contact name and the subject line **GCE Chemistry B (Salters)**. **It is strongly recommended that all centres register for this service.**

Another on-line initiative introduced this session has been the automatic generation of a moderation sample, with e-mail notification of the sample to the Examinations Officer at the centre. Teachers are advised to check with their Examinations Officer that the e-mail address supplied to OCR is correct. If the e-mailed sample request does not reach the centre then a delay is inevitable. For authentication purposes any change to the e-mail address must be sent by fax to Centre Services on 01223 552646 on centre-headed paper.

A third on-line initiative has been the facility to submit practical marks electronically via Interchange (more details are in the Exams Officer Update, April 2009, Issue 14, p. 4; see www.ocr.org.uk/Data/exams_officers/Exams_Officer_Update_Issue14.pdf). There is no requirement to complete the old paper-based MS1 forms as an electronic iMS1 form is automatically produced; this can be printed out. Considerable time is saved in the generation of the moderation sample as the automated e-mail sample request is produced from the electronic data. Centres are advised to consider this option as an alternative to the old paper based MS1s. Details of the arrangements have been sent to Examinations Officers.

Upcoming INSET events in 2009/2010

OCR AS Level Chemistry B (Salters) (H035): *Get ahead – raising standards through exam feedback*

This **full day** course will:

- Allow you to share good practice and ideas on new approaches
- Demonstrate standards for the internal assessment of coursework and externally assessed components
- Consider post-summer results documentation, such as question papers, reports and mark schemes
- Discuss helpful approaches for preparing candidates for the external examination
- Review the support and resources available from OCR.

Course dates and codes –
Wednesday 14 October 2009 (London, course code OSCI3, event code 01),
Monday 2 November 2009 (Manchester, course code OSCI3, event code 02),
Thursday 12 November 2009 (Birmingham, course code OSCI3, event code 03),
Wednesday 18 November 2009 (Newport, course code OCSI3, event code 04),
Tuesday 24 November 2009 (Plymouth, course code OSCI3, event code 05),
Thursday 3 December 2009 (London, course code OSCI3, event code 06),

Fee – £173 including refreshments, lunch and course materials. £205 if you book within 7 days of the course date.

OCR A2 Level Chemistry B (Salters) (H435): *Get Started –successful first delivery of the Individual Investigation (F336)*

This **full day course** will:

- Discuss the presentation of candidate portfolios
- Review the support and resources available from OCR
- Answer teachers' questions linked to the teaching of the standards
- Explain the administration procedures for the assessment of coursework and/or testing
- Provide an opportunity to network and share ideas for best practice
- Discuss the Individual Investigation in detail and application of the mark descriptors.

Course dates and codes –
Tuesday 13 October 2009 (London, course code OSCI2, event code 01),
Wednesday 11 November 2009 (Birmingham, course code OSCI2, event code 02).

Fee – £173 including refreshments, lunch and course materials. £205 if you book within 7 days of the course date.

OCR AS/A Level Chemistry B (Salters) (H035/H435): *Get Started – successful first delivery*

This **full day course** will:

- Review the support and resources available from OCR
- Answer teachers' questions linked to the teaching of the standards
- Explain the administration procedures for assessment of coursework and/or testing
- Provide an opportunity to network and share ideas for best practice.

Course dates and codes –
Wednesday 10 March 2010 (London, course code OSCI1, event code 01),
Thursday 18 March 2010 (Birmingham, course code OSCI1, event code 02).

Note: this course is an updated version of the sessions that ran in previous years.

Fee – £173 including refreshments, lunch and course materials. £205 if you book within 7 days of the course date.

To book a course

Online: you can view and book your training event online by visiting our new EventBooker service at **www.ocr.org.uk/eventbooker**
By e-mail: use the booking form on **www.ocr.org.uk** and e-mail it to: **training@ocr.org.uk**
By fax: please complete and return the booking form to: 024 7649 6399
By post: please complete and return the booking form to: OCR Training, Progress House, Westwood Way, Coventry CV4 8JQ

Please note: we cannot take telephone or provisional bookings.
Please note: training programmes are correct at time of going to print. Please visit EventBooker at **www.ocr.org.uk/eventbooker** to search for the most up-to-date event details.

F331 Chemistry for Life

General Comments

This paper generated a wide mark range with marks from single figures to the high fifties.

Examiners reported no problems with candidates failing to complete the paper.

One issue which this paper threw up was the lack of precision in the chemical language candidates used in answering some of the questions. It is recognised that this is the first paper taken after GCSE and examiners were as liberal as they could be in awarding marks for answers that encompassed the main thrust of the mark scheme.

Comments on Individual Questions

Question 1

Part a(i), unsurprisingly, was answered well by most candidates and a(ii) proved no problem for the more able candidate; however a(iii) was the first of those questions showing a lack of precision in some candidate answers, with the time taken for half an atom to decay often quoted.

In b(i) the most common wrong process was to double the time taken after two half lives however error carried forward marks were awarded in part b(ii). Some candidates unfortunately drew curves which cut the x-axis, the significance of the decay process therefore being missed.

In part c, answers to the limitations of radioisotopes with short half-lives, were particularly loose, with many answers veering towards the suggestion that the radioactive decay stopped altogether rather than dropped off so quickly it was difficult to detect. The fusion question, 1d, proved little problem to most candidates.

Numerical answer: 1b(iii) 500 - 1000 years.

Question 2

Parts a and b were generally well answered, although some candidates did not seem to realise that the Newlands Periodic Table does attempt to group elements, but horizontally.

Part c(ii) caused a problem for a large majority of candidates. The command word 'describe' was misinterpreted as 'explain' by many, with corresponding answers being in terms of a rationale of why the melting points showed the pattern in the table, instead of a simple description of the change from metallic to giant covalent (network) and then simple molecular structures.

Tip for teachers

Explain, with examples, the meaning of the various command words eg describe; explain; suggest; and therefore the nature of any associated answer.

Numerical answers: 2b(i) 0. 220 - 0.300 nm

Question 3

Part a was another example of candidates not reading the question carefully enough and answering albeit similar questions from previous sessions. This question asked for an explanation of autoignition and not octane number.

The vast majority of candidates gave a sensible answer for the bond length in part b(i), however answers correctly describing and explaining the trend in bond enthalpies proved more challenging for many candidates. Parts c(i) and (ii) along with d(i) and (ii) produced a variety of responses and seemed quite Centre dependent. It was not uncommon to find the majority of candidates from a particular Centre almost quoting the 'Chemical Ideas' textbook in their explanation of the shape of lead tetraethyl (part c) and the mechanism of heterogeneous catalysis (part d). The quality of written communication mark for d(i) was awarded for the correct spelling of 'heterogeneous' and was scored by very few.

Question 4

Many candidates in part a(i) failed to score the first mark (aliphatic) viewing the ring as a benzene ring. Part a(ii) was well answered and it was pleasing to note that very few candidates missed out a sign for the energetics calculation in part (iii).

Part a(iv) proved difficult to score two for all but the most able candidates. Average bond enthalpies gained one mark, but this was missed by some candidates because they talked in vague terms about average enthalpy. Many spurious answers about heat losses and lack of standard conditions were produced, with candidates failing to realise the significance of the gaseous state for bond enthalpies and that the standard state for limonene is liquid. The calculation in part (v) also produced a variety of answers; many forgetting that the limonene only constituted one percent of the lemon juice. The use of significant figures was however significantly better this session than for previous papers.

Classifying the organics in the table in b(i) yielded all possible marks from zero to three. Ether being the most common non-scorer followed by ethan-1-ol and propan-1-ol and in b(ii) a significant minority did not draw a branched six carbon hydrocarbon, although they could still score the naming mark in b(iii) as an error carried forward. A majority of candidates scored both marks for the final part question (c) explaining the increase in enthalpy.

Numerical answers: 4a(iii) -5946 4a(v) 0.00735 (or in standard form)

F332 Chemistry of Natural Resources

General Comments

Candidates' marks covered a wide range, from single figures upwards, although marks above eighty were rare. There was no suggestion that candidates had a problem with the length of the paper, with answer spaces that were left blank indicating a lack of knowledge and understanding rather than lack of time.

Good attempts were made at routine calculation questions, with answers being clearly set out, and showing what was being calculated at each stage. This allowed candidates to gain credit via the 'error carried forward' rules if they had made a mistake. There were also good responses to questions requiring candidates to write equations, calculate oxidation states and consider links between chemical concepts and their industrial or everyday applications.

Marks were generally much lower on questions that required candidates to write at greater length, where there was often a lack of detailed factual knowledge and poor literacy skills, particularly with regards to the use of appropriate technical vocabulary. Candidates also scored less well on the non-routine calculations and the question on a reaction mechanism.

Comments on Individual Questions

Question 1

This was a high scoring question for many candidates, although less able candidates found the longer answer in part (e) more difficult and this part proved to be a good discriminator between candidates working towards different grades.

a) Most answered this correctly.

b)

i) Most candidates gained some credit here for recognising the importance of the 2:1 ratio, but many forgot to convert the mass to grams when calculating the moles of sodium chloride.

ii) There were many correct answers here, but few gained the mark by simply stating that the reaction has 100% atom economy.

c)

i) Candidates made good use of the information in the table and the majority of candidates scored both marks here.

ii) Most answered this correctly.

iii) The least able candidates did not score here, but about half the cohort scored both marks. Those gaining only one mark often had the electrons on the wrong side of the equation.

iv) There were many correct answers here, although a small minority gave the answer in terms of electron shells rather than sub-shells.

d)

i) A large majority of candidates scored both marks here.

ii) A large proportion of candidates scored both marks for this question, but about a third of candidates failed to score at all. In some cases there was a lack of understanding of what the question was asking for and answers were words like oxidised and reduced.

iii) The most able candidates scored this mark; many wrong answers were referring to the electronegativity of the elements.

iv) Few candidates scored this mark, with answers often stating that bromine was used directly in substances instead of being used to make them.

e) There was a wide spread of marks here, with many candidates appreciating that the intermolecular bond was instantaneous dipole - induced dipole. Only a few obtained both marks for describing how these intermolecular bonds arise. Answers often used ‘atom’ and ‘molecule’ as if they are the same and, because of this, it was sometimes difficult to tell if candidates were writing about intermolecular bonds or the covalent bonds holding the molecules together. Only the best scored all the marks.

Question 2

This question was a high scoring question for many candidates, with good marks being gained from the calculation questions, although the questions on intermolecular bonds and equilibria were not generally so well done.

a)

i) The majority of candidates scored this mark.

ii) Many candidates scored both marks here, with more gaining one mark for correct state symbols, even if the equation itself was incorrect.

iii) Only about a quarter of candidates scored this mark. The most common errors were writing the formula for a sulphide instead of a sulphate or assuming silver ions have a charge of 2+.

b)

i) A large majority of candidates gained some credit here, with many getting both marks. Those scoring only one mark generally stated that the reaction moved to the left, rather than the position of equilibrium.

ii) Many candidates failed to score here, with answers often stating that the amounts of reactants and products are equal or that the forward reaction equals the backwards reaction, without using the word rate. The most able candidates often scored both marks.

c)

i) Many candidates scored this mark. Those who failed to score often did not make a comparison between the strength of intermolecular bonds in the two chemicals, for example ‘the intermolecular bonds in chloromethane are weak’ rather than ‘the intermolecular bonds in chloromethane are weaker (than in water’).

ii) Only about a quarter of candidates scored any marks here. Most drew a hydrogen bond instead of a permanent dipole – permanent dipole bond. Many failed to include partial charges on the atoms on both ends of both C-Cl bonds.

iii) Only the most able candidates scored this mark.

iv) This question was generally well answered, with about half the candidates gaining both marks. Those gaining only one mark had often forgotten to convert the energy to Joules.

v) Most candidates gained some credit here, with about half of them scoring full marks. Those getting incorrect answers in (iv) often scored full marks by application of the 'error carried forward' rule.

d)

i) A large majority of candidates scored this mark.

ii) Three quarters of candidates scored here, with half of all candidates gaining full credit.

iii) Very few candidates scored this mark, with answers often being too vague to gain credit (eg: 'shake the mixture with an alkali', without indicating an appropriate named alkali).

iv) About a third of candidates scored here for naming a suitable anhydrous salt.

v) Most candidates gained at least one mark here, either for working out the relative molecular masses for the two compounds or for working out the number of moles of butan-1-ol. Many candidates were then stuck as to how to proceed, although about a third went on to gain full marks. Those gaining full credit frequently produced well-presented answers, which showed clearly what was being calculated at each stage.

Question 3

Scores here were often slightly lower than on the first question.

a)

i) About half of the candidates gained this mark. Incorrect responses often stated that fossil fuels are being burnt, but did not give their answer in an industrial context.

ii) A large proportion of candidates scored both marks here and very few failed to gain any credit.

b) About a third of candidates failed to score on this question, giving vague answers referring to radiation reflected off Earth and/or greenhouse gases. Some candidates confused global warming with ozone depletion. Overall, this question was very discriminating, with the very best candidates gaining full credit or close to full marks for clearly worded accounts. Many gained some credit, but answers showed poor levels of literacy and inappropriate choices of technical language. Many failed to address the effect of increasing amounts of carbon dioxide and how this could increase global warming.

c)

i) Less than half the candidates scored this mark. Many gave incorrect answers referring to the larger volume of the ocean compared to a lake, or wrote answers in terms of volcanic activity.

ii) Most candidates scored here, with many gaining both marks. Some scored only one mark because their second method was vaguely worded, for example 'dispose of it underground'.

Question 4

The quality of answers to this question was variable, with many candidates scoring less well than on previous questions. A large proportion of candidates had difficulty with the reaction mechanism, organic reaction conditions and the method required to gain information from an infra-red spectrum.

a) Most gained this mark.

b) Most scored here, although some candidates had difficulty working out how to draw the attachment to the benzene ring.

c)

i) Many scored both the available marks. A small minority did not score because they had the colour change the wrong way round.

ii) The most able scored this mark, with weaker candidates attempting to give a systematic name for the carbocation shown rather than a general name for the type of intermediate.

iii) Less than half the candidates scored here, with full marks being a rarity. Many showed a complete misunderstanding of the mechanism, producing a confused answer that did not suggest that bromide ions and chloride ions would be present. There was frequent use of the terms bromine ion and chlorine ion, or references to bromine and/or chlorine having partial charges.

d)

i) Only about a third of candidates worked out that hydrogen bromide would be required for this reaction.

ii) Marks on this question were low. Some candidates scored one mark for stating that an electrophile has a (partial) positive charge or is electron deficient, but few candidates scored the second mark for 'bond by accepting a pair of electrons'.

iii) A minority of candidates scored well on this question. A few scored marks for an appropriate catalyst, but marks greater than one were rare.

e)

i) Half the candidates scored this mark. Those failing to score often stated that the OH group was not on the end of the chain, which was insufficient detail to gain credit.

ii) The most able candidates scored well here, gaining at least three marks. The least able did not seem to understand how to use the spectrum to link to the structure of the chemical. Some gained credit for writing about appropriate bond types, but did not give a wavenumber range from the spectrum to support their argument.

Question 5

For many candidates, this was the lowest scoring question, with marks on the parts worth more than three marks being particularly low.

a) Most gained two marks here, but few gained full credit, with answers to the meaning of photochemical dissociation lacking sufficient detail to gain the second mark.

b) Few failed to score at all here, but marks above four were rare. Some candidates misinterpreted or misread the question and wrote answers about ozone depletion and

production in our current atmosphere and the effects of CFCs and other atmospheric pollutants. Good answers included appropriate equations and gained the quality of written communication mark for showing how the steps they described are linked to one another.

c) Most candidates scored here, with the most common reason for failing to gain full credit being an incorrect attempt, or lack of attempt, to convert both values to the same units.

d) Marks on this part question were very low, with most candidates failing to score more than one mark, if any. Many answers were vague and it was unclear what the candidate was suggesting was being oxidised, iron or iron(II) sulphide. Many who included an equation incorrectly gave an iron oxide of formula FeO_2, instead of taking a correct formula for an oxide from the article.

e) The majority of candidates scored two marks here for describing the pattern in temperature change with increasing altitude. Few attempted to explain why these changes exist. Those who did offer an explanation often felt it was sufficient to quote directly from the article, which did not give a detailed enough explanation to gain credit.

f) Most scored one mark for describing the difference in concentration, density or pressure of the troposphere and stratosphere, but few gained the second mark for ‘more collisions per second’.

F333 Chemistry in Practice

Organisation of work

Most centres adapted well to this new assessment component. However, before undertaking assessment of practical skills it is recommended that teachers familiarise themselves with the Practical Skills Handbook.

Candidates' work was usually well organised and labelled. Candidates may attempt more than one Task from each category with the best mark from each category being used to make up the overall mark. To help track candidate marks an interactive Marks Spreadsheet is available on Interchange, from the GCE Chemistry B (Salters) page. If used, Centres should send a copy to the Moderator along with the Mark Sheet, MS1.

Centres should group the candidate's four best Tasks together loosely (eg with a treasury tag) when submitting work to the moderator and to include a copy of the skill I Competence Record Card (available on Interchange).

Conduct of Tasks

All Tasks for used in the assessment of skills II to V should be carried out under controlled conditions. Candidates are not allowed to modify or add to their answers after the Task has been handed in to their teacher. It should be rare, therefore, for candidates' work sent for moderation to include answers that have been crossed out and replaced.

Skill I

The expected documentation to support the award of marks for skill I was not always included with the moderation sample. Centres should use the Competence Record Card available from OCR or devise their own document to show that the activities undertaken by candidates cover all of the six required types of practical work and to include marks or teacher comments noted during the year to help inform the award of marks for skill I.

The marks awarded to candidates by most Centres for skill I showed the expected good match with marks gained by candidates in skill II and skill IV Tasks. This suggests that Centres are applying the descriptors for skill I in an appropriate manner.

Skills II-V

The marks awarded to candidates by Centres for skills II to V represented a generally accurate application of Mark Schemes to candidates' work. There were, however, a number of cases where candidate answers were marked as correct even though they did not match the expected answers given in the Mark Scheme.

In skill II Tasks, Mark Schemes give very precise guidance about what is required in tables of recorded data and the marks available for candidate results when compared to the value obtained by the teacher. Sometimes marks were awarded that were not consistent with this guidance.

In skills III Tasks, Mark Schemes allow for candidate errors made in one part of the Task to be carried forward to subsequent parts to avoid penalising the candidate twice for the same error. Not all Centres applied this idea effectively.

The Mark Schemes in skill IV Tasks often include precise observations that are expected in order for candidates to be awarded marks. In some cases marks were awarded even though the expected observations were not included or were very vague. For example, if the mark scheme requires candidates to observe that a precipitate dissolves then an answer that says that the solid sinks to the bottom of the test tube should not be awarded a mark. If the mark scheme requires candidates to identify the formation of two layers in a test tube then this should be made explicit in the candidates' answer to gain a mark.

In skill V Task questions, candidates were sometimes asked to explain reactions in terms of acid/base or redox behaviour. In these cases it is necessary for candidates to use terms associated with acid and bases or oxidation and reduction in their answers rather than general comments about reactivity or displacement. Where structures of organic functional groups are required it is acceptable for candidates to include 'R' for alkyl groups or to use specific examples such as methyl or ethyl groups.

If, after using one of the Tasks, a Centre believes that an answer not included in the Mark Scheme should be marked as correct they should immediately check this with OCR using the e-mail address GCEScienceTasks@ocr.org.uk.

Clerical Errors

A minority of Centres sent in marks which contained clerical errors. Sometimes this arose from transcription errors made in transferring candidate marks from their work to a spreadsheet. Sometimes it arose because a candidate had carried out more than one Task in the same skill area and the highest scoring Task was not used to calculate the total mark. The most common error, however, arose because Centres had awarded a non-integer mark out of 6 for skill I. The mark for skill I should be a the best fit whole number when judged against the marking descriptors so that when doubled to give a mark out of 12 it generates an even number.

Security of Tasks

Distribution of the practical Tasks is limited to those candidates who are currently undertaking that Task. Task sheets should be photocopied and issued to candidates at the start of the Task. They must be counted out and in; numbering the documents may help to keep track of them. In no circumstances should practical Task assessment materials be posted to a website where they can be accessed by the public.

All unused Tasks and candidates' scripts must be collected after the assessment and stored securely or destroyed.

All F333 Tasks, Mark Schemes and Instructions are live assessment materials for the life of the specification. These should be kept secure at all times even if they are not valid for assessment this year as they may be reissued in subsequent years. Tasks must only be made available to candidates for them to complete under controlled conditions and the completed Tasks must be submitted to the teacher at the end of the lesson. Mark Schemes and Instructions must be kept securely and not made available to candidates.

Availability of files on Interchange

Each year, Tasks (and Instructions for teachers and technicians) are available from 1 June, Mark Schemes are available from 1 September and all Tasks, Instructions and Mark Schemes are removed by 15 May in the following year.

Clarifications/modifications to Tasks and Mark Schemes

From time to time OCR may need to publish clarification for a Task in light of centre queries. Centres should ensure that they check Interchange before using a Task for assessment to ensure that no modifications have been posted and that a check is made before final submission of marks to OCR by 15 May.

An e-mail alerts service is available. To be notified by e-mail when changes are made to GCE Chemistry B (Salters) pages Centres should e-mail GCEScienceTasks@ocr.org.uk including their Centre number, Centre name, a contact name and the subject line GCE Chemistry B (Salters). It is strongly recommended that all Centres register for this service.

Re-submitting Tasks in future years

Only OCR Tasks from Interchange clearly marked with the current assessment year, ie 1 June 2009 to 14 May 2010, can be used for practical assessment during that period.

However, if a candidate wishes to improve their mark they could re-submit their best 1 June 2008 to 14 May 2009 Task(s), along with a new (from the 1 June 2009 to 14 May 2010 selection on Interchange) Task from the other skill area(s). However, the marks confirmed by the Moderator when the Task was first submitted cannot be 'carried forward'. Teachers will be able to re-mark the Task in light of any comments made by the original Moderator and it will be re-moderated when it is re-submitted. Up to three skills Tasks per student may be re-submitted (for example a student may have performed well in their skills II, III and IV in June 2009 and re-submit them for moderation with a new skill V Task in June 2010 – chosen from the skill V Tasks available for assessment in the June 2010 session).

Where a candidate wishes to improve their mark, their skill I mark can be re-submitted (their Competence Record Card will need to be re-submitted for moderation) or, where they have fulfilled the assessment criteria, their skill I can be re-assessed and their new mark, along with a new Competence Record Card, submitted for moderation.

Grade Thresholds

Advanced GCE Chemistry B (Salters) (H035 H435)
June 2009 Examination Series

Unit Threshold Marks

Unit		Maximum Mark	A	B	C	D	E	U
F331	Raw	60	47	42	37	32	27	0
	UMS	90	72	63	54	45	36	0
F332	Raw	100	69	60	51	43	35	0
	UMS	150	120	105	90	75	60	0
F333	Raw	60	51	46	41	37	33	0
	UMS	60	48	42	36	30	24	0

Specification Aggregation Results

Overall threshold marks in UMS (ie after conversion of raw marks to uniform marks)

	Maximum Mark	A	B	C	D	E	U
H035	300	240	210	180	150	120	0

The cumulative percentage of candidates awarded each grade was as follows:

	A	B	C	D	E	U	Total Number of Candidates
H035	17.8	35.1	53.4	68.9	82.8	100.0	8931

8931 candidates aggregated this series

For a description of how UMS marks are calculated see:
http://www.ocr.org.uk/learners/ums_results.html

Statistics are correct at the time of publication.

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