



## External Assessment Report 2010

Subject	<b>Chemistry</b>
Level	<b>Intermediate 1</b>

The statistics used in this report are pre-appeal.

This report provides information on the performance of candidates which it is hoped will be useful to teachers/lecturers in their preparation of candidates for future examinations. It is intended to be constructive and informative and to promote better understanding. It would be helpful to read this report in conjunction with the published question papers and marking instructions for the Examination.

# Comments on candidate performance

## General comments

The number of centres presenting candidates for Intermediate 1 Chemistry continues to increase — with 18 new centres and 18 returning centres in 2010. However, the total number of centres entering candidates for this examination decreased by 6 — indicating a turnover in centres.

Most of the candidates presented for this examination appear to come from an S4 cohort (approximately 89% of candidates were from S4 with 6% being presented from S3).

In contrast to 2009, only a small number of scripts were returned without every question being attempted. Whilst candidates appeared to find the language used in questions accessible, they appeared to perform better in questions requiring a short response and continued to find questions requiring more detailed answers challenging.

Candidates continue to perform better in section A (average score 63%) than section B (average score 59%) — this is the same as in 2009.

## Areas in which candidates performed well

Section A questions: 2, 5, 9, 13, 14, 18, 19.

Section B questions:

- Q1 (a) Symbol for mercury
- Q1 (b) Mercury is a metal
- Q1 (c) Use for mercury
- Q2 (a) Hazard symbol for sulphuric acid
- Q2 (b), (c) Completing table and pie-chart
- Q3 (a) Good description of a chemical reaction
- Q3 (c) Rate of reaction with powder
- Q4 (a), (b) Use of proteins and completing the molecular formula
- Q6 (b) Test for hydrogen — generally well done, but a few wrong answers of 'glowing splint pops'
- Q6 (c) PPA question on reactivity of metals
- Q7 (b) Graph
- Q8 (a) Substances needed for rusting
- Q9 (a) Fossil fuels — generally well done but the common wrong answer was petrol
- Q9 (c) Test for carbon dioxide
- Q10 (c) Thermoplastic
- Q11 (b) Property of fertilisers
- Q11 (c) Legumes plants
- Q12 (a), (b) PPA burning carbohydrates
- Q13 (a) Reading information from graph
- Q13 (b) Naming a sugar — common wrong answers were carbohydrates or starch
- Q13 (c) Health problem from eating too much fat — common wrong answer was diabetes
- Q14 (a), (b) Additives, percentage calculation and antibiotic

## Areas which candidates found demanding

Section A questions: 4, 11, 12, 20.

Section B questions:

Q3 (b) Candidates were unable to take information from diagram and write it as a word equation.

Q4 (c) Few candidates were able to correctly identify a group of atoms as a molecule.

Q5 (a) Elements found in lead bromide. Surprisingly many candidates added in oxygen.

Q5 (b) Relating bonding and melting points. Poorly done, the common wrong answer was low (melting point) and weak (bonds).

Q5 (c) Ionic bonding and conductivity. Very poorly done, the most common wrong answer was C (lead bromide solution).

Q6 (a) Naming the zinc salt. Common wrong answers were zinc hydroxide and zinc hydrochloride.

Q7 (a) Alloy. Most candidates identified the mixture of metals as a compound.

Q8 (b) (i) Colour change when using rust indicator.

Q8 (b) (ii) Metal to protect iron from rusting.

Q9 (b) Forming coal. Common wrong answer was 'plants and animals'.

Q10 (a) Cracking. Very poorly attempted, common wrong answers were distillation, polymerisation or fermentation.

Q10 (b) Naming polyethene.

Q11 (a) Naming an essential element.

## Advice to centres for preparation of future candidates

- ◆ Centres should stress to candidates that they should read the introduction to a question before attempting the question, as many candidates were simply repeating an answer already given in the stem of the question. For example: 8 (a) 'water is needed for rusting'. Candidates gave the answer 'water'.
  
- ◆ Candidates should take care when drawing bar graphs:
  - Lines as straight as possible, preferably drawn with a ruler
  - Shading should be kept within bars
  
- ◆ Thermoplastic. To achieve a full mark, candidate's answer must reflect that both heat and a change of shape are required. An answer which implies heat only, eg it melts, will achieve a ½ mark. An answer which only suggests a change of shape will receive no marks.
  
- ◆ Centres should stress to candidates how to use the name of the polymer given in the question in naming the monomer.
  
- ◆ Centres are also advised to encourage both staff and pupils to access SQA's website to make use of the available examination papers and marking instructions.

## Statistical information: update on Courses

Number of resulted entries in 2009	3058
Number of resulted entries in 2010	2934

## Statistical information: performance of candidates

### Distribution of Course awards including grade boundaries

Distribution of Course awards	%	Cum. %	Number of candidates	Lowest mark
Maximum Mark — 60				
A	31.3%	31.3%	917	41
B	23.6%	54.8%	692	36
C	20.1%	74.9%	590	31
D	9.1%	84.0%	267	28
No award	16.0%	100.0%	468	—

### General commentary on grade boundaries

While SQA aims to set examinations and create marking instructions which will allow a competent candidate to score a minimum of 50% of the available marks (the notional C boundary) and a well prepared, very competent candidate to score at least 70% of the available marks (the notional A boundary), it is very challenging to get the standard on target every year, in every subject at every level.

Each year, therefore, SQA holds a grade boundary meeting for each subject at each level where it brings together all the information available (statistical and judgemental). The Principal Assessor and SQA Qualifications Manager meet with the relevant SQA Head of Service and Statistician to discuss the evidence and make decisions. The meetings are chaired by members of the management team at SQA.

The grade boundaries can be adjusted downwards if there is evidence that the exam is more challenging than usual, allowing the pass rate to be unaffected by this circumstance.

The grade boundaries can be adjusted upwards if there is evidence that the exam is less challenging than usual, allowing the pass rate to be unaffected by this circumstance.

Where standards are comparable to previous years, similar grade boundaries are maintained.

An exam paper at a particular level in a subject in one year tends to have a marginally different set of grade boundaries from exam papers in that subject at that level in other years. This is because the particular questions, and the mix of questions are different. This is also the case for exams set in centres. If SQA has already altered a boundary in a particular year in say Higher Chemistry this does not mean that centres should necessarily alter boundaries in their prelim exam in Higher Chemistry. The two are not that closely related as they do not contain identical questions.

SQA's main aim is to be fair to candidates across all subjects and all levels and maintain comparable standards across the years, even as Arrangements evolve and change.