

Examiners' Report  
June 2012

GCSE Chemistry 5CH1F 01

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## Introduction

This is the third examination of this Unit in the GCSE Science 2011 course. The Unit is externally assessed through a one hour (60 mark) written paper containing six questions. The Foundation Tier assesses grades G to C. The candidates are challenged with a variety of question styles, including objective, short answer, data analysis and extended writing questions.

It was very encouraging to see the improvement in the quality of answers that candidates are giving to many questions, particularly the extended writing in 5(d) and 6(d).

Successful candidates:

- read the questions carefully and answered them as they were set
- used scientific words correctly
- could analyse data from a table and make comparative statements
- knew the tests for the gases in the specification
- understood the difference between fossil fuels and biofuels
- could write correct advantages and disadvantages of quarrying limestone and methods of disposal of waste.

Less successful candidates:

- did not read the questions carefully, and gave answers that they had probably been told not to include
- did not know the meaning of key scientific words and phrases
- did not understand incomplete combustion, biofuels or why carbonates lose mass when they are heated
- could not write a word equation when they had to work out the missing reactant.

In future, candidates need more practice in analysing data and writing comparative statements about two or more items. Candidates should also revise the factual content of the specification carefully to increase their subject knowledge. They should also practise writing word equations for the reactions from the specification.

This report will provide exemplification of candidates' work, together with tips and/or comments, for a selection of questions. The exemplification will come mainly from questions which required more complex responses from candidates.

### Question 1 (b) (i)

This question was generally well-answered as carbon and carbon dioxide were given in the stem of the question. However, some candidates chose to ignore these and wrote other substances, such as oxygen.

### Question 1 (c)

There were many excellent responses seen to this question. Some candidates failed to score the second mark as they did not compare the reactivity of magnesium with iron, or they just restated the stem of the question. A small number of candidates mistakenly chose lead or silver as they thought that the least reactive metals would corrode more quickly.

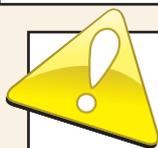
Explain which metal in the list will corrode faster than iron.

magnesium because theres more carbon dioxide <sup>(2)</sup> that after the ore has been smelted,



**ResultsPlus**  
Examiner Comments

This candidate has identified magnesium correctly, but has given an incorrect reason.



**ResultsPlus**  
Examiner Tip

Check that your explanations answer the question.  
This question is about corrosion, not smelting.

Explain which metal in the list will corrode faster than iron.

magnesium because it's the most reactive therefore <sup>(2)</sup>  
reacting with water and oxygen it is also  
higher in the reactivity series than  
iron



**ResultsPlus**  
Examiner Comments

This is an excellent response with a clear explanation.

### Question 1 (d) (i)

A significant number of candidates did not know the meaning of the term alloy. There were many answers referring to a compound or a combination of two metals. Some candidates stated the properties of alloys or described alloy wheels on cars.

(d) Stainless steel is an alloy containing iron and chromium.

(i) State the meaning of the term **alloy**. (1)

something that contains 2 elements



**ResultsPlus**

**Examiner Comments**

This candidate knows a little about alloys, but the answer is too vague. At least one of the elements must be a metal.



**ResultsPlus**

**Examiner Tip**

Use the information given in the question. You were told that stainless steel contains iron and chromium and these are both metals.

Many candidates wrote about an alloy being a compound or a combination of metals.

(d) Stainless steel is an alloy containing iron and chromium.

(i) State the meaning of the term **alloy**. (1)

two metals combined to form a better more useful metal, called an alloy



**ResultsPlus**

**Examiner Comments**

This candidate knows that an alloy can contain two metals, but the metals are not combined together.



**ResultsPlus**

**Examiner Tip**

Learn the meaning of the term alloy.  
Make sure that you know the difference between a mixture and a compound.

### Question 1 (d) (ii)

There were a large number of excellent answers seen to this question. There were a small number of candidates who wrote that iron is corrosive. Be careful - corrodes and is corrosive have different meanings. Some common incorrect answers included that iron is too strong, too heavy or too expensive.

(ii) Cutlery is made of stainless steel.

Give a reason why cutlery is not made of pure iron.

(1)

Because it will not rust.



**ResultsPlus**  
Examiner Comments

This was a common correct answer.

It is important to give the number of reasons asked for in the question.

(ii) Cutlery is made of stainless steel.

Give a reason why cutlery is not made of pure iron.

(1)

because pure iron is too hard, strong

and will corrode, it will break teeth if you  
bit cutlery, difficult to mould into shape



**ResultsPlus**  
Examiner Comments

This question asked for a reason why cutlery is not made of pure iron. This candidate has given several reasons. Although iron will corrode is correct, iron is too hard and strong are incorrect and the candidate does not score the mark.



**ResultsPlus**  
Examiner Tip

Only write the number of answers you are asked for. If you write additional answers and they are incorrect, you will not score the mark. (If the additional answers are correct, you will still score the mark.)

## Question 2 (c)

Although many good answers were seen to this question, there were a significant number of candidates who were confused between evaporation and condensation. Some candidates were confused with the timescale and stated that human consumption and photosynthesis reduced the water vapour. Others mentioned that there are now fewer volcanoes erupting, but they did not mention the Earth cooled to condense the water vapour that was originally in the atmosphere. Some candidates thought this question was about global warming and more water evaporating from the oceans.

(c) There was also a large amount of water vapour in the Earth's early atmosphere. There is a much smaller amount of water vapour in the atmosphere on Earth today.

Explain how the amount of water in the Earth's atmosphere decreased.

(2)

The reason for this is that the water vapour ~~is~~ is said to have evaporated to make the oceans.



**ResultsPlus**  
Examiner Comments

This was a common answer. Many candidates did not know the difference between evaporation and condensation.



**ResultsPlus**  
Examiner Tip

Learn the difference between evaporation and condensation.

(c) There was also a large amount of water vapour in the Earth's early atmosphere. There is a much smaller amount of water vapour in the atmosphere on Earth today.

Explain how the amount of water in the Earth's atmosphere decreased.

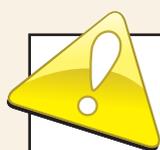
(2)

Because the water vapour was used for oceans.



**ResultsPlus**  
Examiner Comments

This response partly answers the question. However, you have been asked to explain how the amount of water in the atmosphere has decreased and it is worth 2 marks, so this candidate should have added that the water vapour **condensed** to form the oceans.



**ResultsPlus**  
Examiner Tip

Check that your response fully answers the question. If the question asks you to explain something and there are 2 marks for it, you need to write more detail.

- (c) There was also a large amount of water vapour in the Earth's early atmosphere. There is a much smaller amount of water vapour in the atmosphere on Earth today.

Explain how the amount of water in the Earth's atmosphere decreased.

(2)

The water vapour ~~is~~ from the early atmosphere decreased ~~there~~ because it condensed into seas and lakes.



**ResultsPlus**  
Examiner Comments

This is a very good answer, scoring both marks.

## Question 2 (d)

This question was answered quite well. The candidates who used the information given in the word equation, which was intended to help them, often scored both marks. Some candidates did not realise that the water is produced as water vapour, which is also a gas. Unfortunately, many candidates ignored the equation and wrote about other gases such as sulfur dioxide.

(d) Methane burns in air.



This causes small changes in the amounts of some gases in today's atmosphere.

Explain why burning methane changes the amounts of gases in the atmosphere.

(2)

Because methane pollutes the air  
and puts more carbon dioxide in the air  
to ~~more~~ pollute it.



**ResultsPlus**  
Examiner Comments

This response partly answers the question, as it states that more carbon dioxide is put into the air, so it scored 1 mark.

(d) Methane burns in air.



This causes small changes in the amounts of some gases in today's atmosphere.

Explain why burning methane changes the amounts of gases in the atmosphere.

(2)

because since we are taking away oxygen to burn  
methane we are adding more carbon dioxide to the atmosphere  
so the total of gases changes.



**ResultsPlus**  
Examiner Comments

This is a good answer as it states that oxygen is taken away from the air and carbon dioxide is being added.



**ResultsPlus**  
Examiner Tip

The question asks you to explain about changes in the amounts of **gases**. You need to write about more than one gas to score both marks.

## Question 2 (e)

A large number of candidates could state two activities that affect the amount of gases in the atmosphere, with the most common answers being farming, deforestation, respiration and photosynthesis. However, not all candidates read the question carefully, as it did state 'apart from burning fossil fuels' so candidates did not score marks for answers such as burning petrol in cars.

(e) Apart from burning fossil fuels, state **two** other activities that affect the amounts of gases in the atmosphere.

(2)

The amount of cars that pollute  
CO<sub>2</sub> and also planes.



**ResultsPlus**  
Examiner Comments

This is an example of an answer that did not score any marks because cars and planes burn fuels from crude oil that is a fossil fuel.



**ResultsPlus**  
Examiner Tip

Read the question carefully and think about the implications for the answer that you give.

(e) Apart from burning fossil fuels, state **two** other activities that affect the amounts of gases in the atmosphere.

(2)

• deforestation - the less trees there are means less carbon dioxide is taken in and less oxygen released. • photosynthesising - plants will taken in more carbon dioxide and release oxygen



**ResultsPlus**  
Examiner Comments

This is a very good answer which includes two activities that do not involve burning fossil fuels.

### Question 3 (b) (i)

A surprising number of candidates did not realise that hydrochloric acid is used to make chloride salts.

### Question 3 (c)

This question was generally well-answered, with the best candidates using the numerical data in their answer. There were a few candidates who did not understand what indigestion tablets do, as they thought that the tablets contained acid. There were also a few candidates who stated that tablet A neutralises the acid faster than B, even though there was no mention of rate or time in the question.

Explain which tablet, A or B, is the best value for money. (2)

tablet A was the best value for money because  
is neutralised 3 times as much hydrochloric acid than  
tablet B but and it was only 2 times the price.



**ResultsPlus**  
Examiner Comments

This is a very good answer as it states that A neutralises more acid than B, and also refers to the amount of acid and the price.

Explain which tablet, A or B, is the best value for money. (2)

B because the cost of one tablet/p is  
less than it is on A.



**ResultsPlus**  
Examiner Comments

This is a simple answer that scored 1 mark.



**ResultsPlus**  
Examiner Tip

When you are given a table with some data, you must use the data in your answer to score full marks.

### Question 3 (d) (i)

Many candidates knew the test for chlorine and described it very well, although some ignored the question and described electrolysis. Some candidates knew about the test but did not know all the details. For example, they may have known that litmus can be used, but had forgotten, or did not mention, what colour it turns. A surprising number of candidates described the limewater test for carbon dioxide here, or used a splint to test for hydrogen or oxygen.

(i) Chlorine gas was collected in one of the test tubes.

Describe a test to show the gas is chlorine.

(2)

To show if a gas is chlorine you get a damp, <sup>blue</sup> litmus paper and put it over the mouth of a test tube with chlorine, if the litmus paper turns white, then the gas is chlorine.



**ResultsPlus**

**Examiner Comments**

This is a very good answer as it describes how to do the test and the result of the test.

(i) Chlorine gas was collected in one of the test tubes.

Describe a test to show the gas is chlorine.

(2)

Use paper to see what colour it goes when chlorine is added.



**ResultsPlus**

**Examiner Comments**

This candidate has remembered using some paper to test for chlorine but has not stated the type of paper or the actual colour it turns to.



**ResultsPlus**

**Examiner Tip**

When you are asked to describe a test to show the identity of a substance you must describe how you would do the test **and** the result of the test.

Learn all of the gas tests from the specification.

### Question 3 (e)

A large number of candidates scored one mark, usually for the effect of chlorine on humans. Those that scored both marks also stated that chlorine is toxic. However, there were a significant number of candidates who stated that chlorine was flammable or explosive. Some candidates just repeated the question and stated that chlorine is dangerous.

(e) In industry, large amounts of chlorine are produced.

Explain why it could be dangerous to produce large amounts of chlorine in a factory. (2)

Chlorine is a toxic which could kill you so if it ~~was~~ is stuck in a factory it could kill people. The factory would need a ventilation

(Total for Question 3 = 10 marks)



#### ResultsPlus Examiner Comments

This is a very good answer as it states a hazard associated with chlorine, 'toxic', and it states the effect this has on people 'it could kill people'.

(e) In industry, large amounts of chlorine are produced.

Explain why it could be dangerous to produce large amounts of chlorine in a factory. (2)

because it could be dangerous to have large amounts of chlorine in the factory

(Total for Question 3 = 10 marks)



#### ResultsPlus Examiner Comments

This answer repeats the information given in the question and does not add anything new, so does not score any marks.



#### ResultsPlus Examiner Tip

Try to avoid repeating the question.

## Question 4aii

A large number of candidates knew that carbon dioxide turns limewater milky, however, not all of them could describe how to carry out the test. Some candidates ignored the first part of the question that stated that carbon dioxide is produced when propane is burned, and they wrote about blowing through a straw into the limewater. A common error was to heat the limewater. Candidates should know that this is not necessary.

(ii) Propane burns completely to produce carbon dioxide and water.

Describe how you would use limewater to show that carbon dioxide is produced.

(2)

Because when ~~the~~ carbon dioxide is present the limewater goes cloudy / milky.



**ResultsPlus**

**Examiner Comments**

This candidate has described the result of the test but has not described how they would **use** the limewater.

(ii) Propane burns completely to produce carbon dioxide and water.

Describe how you would use limewater to show that carbon dioxide is produced.

(2)

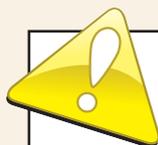
~~the~~ Bubble gas through limewater and if the limewater turns milky its carbon dioxide.



**ResultsPlus**

**Examiner Comments**

This is a very good response in which the candidate has explained how to use the limewater as well as the result of the test.



**ResultsPlus**

**Examiner Tip**

If you are asked how you would use a substance, you need to give some experimental detail in your answer.

### Question 4 (a) (iii)

A surprisingly large number of candidates were unfamiliar with incomplete combustion. Those who had learnt about it invariably wrote about the formation of toxic carbon monoxide.

(iii) Incomplete combustion occurs when propane burns with insufficient oxygen available for complete combustion.

Explain a problem caused by the products of this incomplete combustion.

(2)

The incomplete combustion could result in carbon monoxide which could potentially kill someone if they breath it in enough to make them sleepy.



**ResultsPlus**  
Examiner Comments

This is a very good answer that identifies the gas produced and the effect it has on people.

(iii) Incomplete combustion occurs when propane burns with insufficient oxygen available for complete combustion.

Explain a problem caused by the products of this incomplete combustion.

(2)

Incomplete combustion could cause a pbs problem if there is insufficient oxygen because you are burning it and making it pollute the air.



**ResultsPlus**  
Examiner Comments

Unfortunately, this was a fairly common type of answer in which the candidate has written generally about pollution and does not score any marks.



**ResultsPlus**  
Examiner Tip

Try to avoid general phrases such as causes pollution or bad for the environment.

Write about specific problems caused.

## Question 4 (b) (ii)

Answers to this question were often expressed in general terms. Many candidates have a poor understanding of fossil fuels and biofuels. There were some fairly common misunderstandings, such as that fossil fuels are made from fossils, biofuels do not release any carbon dioxide when they burn and biofuels do not need to be burnt to produce energy. Some candidates thought that biofuels are reuseable. A significant minority confused the fuels and wrote that fossil fuels are renewable.

(ii) Explain how a biofuel is different from a fossil fuel.

(2)

A biofuel is different from a fossil fuel because a biofuel is renewable however a fossil fuel is non-renewable.



**ResultsPlus**  
Examiner Comments

This is a good answer, however it only score 1 mark as it just refers to the same point.

(ii) Explain how a biofuel is different from a fossil fuel.

(2)

when a biofuel is burned it doesnt release pollutants into the atmosphere



**ResultsPlus**  
Examiner Comments

This was a fairly common type of general answer that did not score any marks.



**ResultsPlus**  
Examiner Tip

Try to avoid the use of the word 'pollutants', unless you state what the pollutants are.

## Question 4 (c)

Although some excellent responses were seen to this question, some candidates did not understand the data in the table. Some candidates thought that the fuels need energy to burn and that it is an advantage if there is limited availability of a fuel at a fuel station. Answers to this style of question require candidates to use the data and also **compare** the fuels. For example, answers such as, 'B is good because it is a liquid, produces 47 MJ and has good availability' score no marks as the student has just rewritten the information they have been given. This would score two marks if it was written as 'B is better because although it produces less energy than A, it is cheaper and has better availability'.

Explain which fuel, A or B, would be best for powering a car.

(2)

Fuel B would be best for powering cars because liquids are easier to store than gasses, it's cheaper than fuel A and it is available at fuel stations.



**ResultsPlus**  
Examiner Comments

This was a very good answer that gave three clear reasons why fuel B is better than fuel A.

Explain which fuel, A or B, would be best for powering a car.

A because the fuel is limited at fuel stations which means it never runs out which is a good thing for cars and because there is more energy produced.



**ResultsPlus**  
Examiner Comments

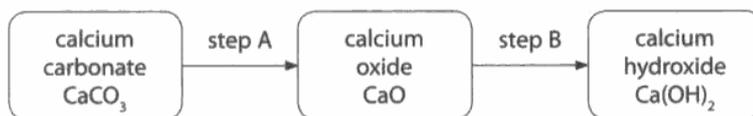
This candidate has correctly stated that fuel A produces more energy. However, they do not understand the meaning of limited as the fuel will run out.

### Question 5 (c) (i)

This question was poorly answered by the majority of candidates. They had forgotten that metal carbonates undergo thermal decomposition to leave metal oxides and release carbon dioxide gas.

(c) Limestone contains calcium carbonate.

Calcium carbonate can be converted into calcium oxide.  
Calcium oxide can then be converted into calcium hydroxide.



(i) A lump of calcium carbonate is heated to convert it into calcium oxide in step A.

Explain why the mass of calcium oxide formed is less than the original mass of calcium carbonate.

(2)

because it has been heated so the mass has reduced because some gases have evaporated into the atmosphere

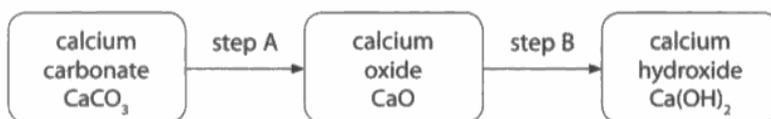


**ResultsPlus**  
Examiner Comments

This is quite a good response as the candidate has realised that the decrease in mass is due to a gas escaping. To score 2 marks, the candidate would need to identify the gas as carbon dioxide.

(c) Limestone contains calcium carbonate.

Calcium carbonate can be converted into calcium oxide.  
Calcium oxide can then be converted into calcium hydroxide.



(i) A lump of calcium carbonate is heated to convert it into calcium oxide in step A.

Explain why the mass of calcium oxide formed is less than the original mass of calcium carbonate.

(2)

Because some of the calcium carbonate is burnt during the heating.



**ResultsPlus**  
Examiner Comments

This is a fairly typical incorrect answer.

### Question 5 (c) (ii)

Many candidates found it difficult to score both marks for this word equation, as they did not realise that water needs to be added to calcium oxide to change it into calcium hydroxide.

(ii) Write the word equation for the reaction in step B.

(2)

Calcium oxide + Hydrogen → Calcium Hydroxide



**ResultsPlus**

**Examiner Comments**

This was the most common incorrect answer. The candidate did score 1 mark for only writing calcium hydroxide on the right side of the equation.

(ii) Write the word equation for the reaction in step B.

(2)

Calcium oxide + H<sub>2</sub>O = Calcium hydroxide.



**ResultsPlus**

**Examiner Comments**

This was a very good answer, scoring both marks. Although the question asked for a word equation, the formula for water is correct and was given credit. It would be better to put an arrow in the equation, but the equals sign was allowed.



**ResultsPlus**

**Examiner Tip**

If you write formulae instead of names of substances, make sure they are correct.

## Question 5 (d)

This 6 mark question was answered very well by a large number of candidates. The examiners reported seeing a significant number of excellent answers with many correct advantages and disadvantages clearly expressed. Some candidates scored lower marks as their responses were too vague, as they wrote statements such as 'bad for the environment', 'causes pollution' or 'people would not want to live there' without explaining why.

\* (d) Even though limestone is an important raw material in the chemical industry, many people are against plans to open new limestone quarries.

Discuss the advantages and disadvantages, to the local community and its surroundings, of opening a new limestone quarry.

(6)

limestone is used for many good things and people use it every day. limestone is an easy formed method to make and sell products for life.

We are running out of limestone and soon if we keep using it we will run out and we will never be able to get the limestone back again.



### ResultsPlus Examiner Comments

This candidate has written a number of points, but unfortunately none of it is worth any credit. The first paragraph mentions that limestone is used for many good things, but this is too general. If the answer had given a specific use for limestone, it would have been level 1. The second paragraph is discussing limestone running out, but that is not a particular disadvantage to the local community.



### ResultsPlus Examiner Tip

If you state that a substance is useful, give a specific example of something it is used for. For example, in this question the candidate could have said that limestone is used as a building material.

\*d) Even though limestone is an important raw material in the chemical industry, many people are against plans to open new limestone quarries.

Discuss the advantages and disadvantages, to the local community and its surroundings, of opening a new limestone quarry.

(6)

limestone is used for many good things and people use it everyday. limestone is an easy formed method to make and sell products for life.

We are running out of limestone and soon if we keep using it we will run out and we will never be able to get the limestone back again.



**ResultsPlus**

**Examiner Comments**

This candidate has stated that buildings can be built with limestone so this is a level 1 answer.

\*d) Even though limestone is an important raw material in the chemical industry, many people are against plans to open new limestone quarries.

Discuss the advantages and disadvantages, to the local community and its surroundings, of opening a new limestone quarry.

(6)

The advantages of opening a limestone quarry would be that you would be able to get a lot of limestone, and it could open up jobs for some people in the community.

Disadvantages would be noise pollution, the large drills and explosions may annoy the local. Also, there would be a lot of dust floating around.



**ResultsPlus**

**Examiner Comments**

This is a good level 2 answer. The candidate has written about one advantage and two disadvantages. The statement about 'being able to get a lot of limestone' could have been extended by stating what the limestone is used for and this would have raised the answer to level 3.

\*d) Even though limestone is an important raw material in the chemical industry, many people are against plans to open new limestone quarries.

Discuss the advantages and disadvantages, to the local community and its surroundings, of opening a new limestone quarry.

(6)

Opening limestone quarries can be a very controversial issue for many reasons. With opening a limestone quarry there can be many advantages, for example ~~an~~ an advantage is that it creates jobs for the local community, to where by <sup>from the local area</sup> it can employ many staff. Another advantage is that it creates raw materials that can be used for many things such as building materials, like cement. However there are also some disadvantages in opening new limestone quarries as from neighbouring residents ~~and~~ and local towns there can be a lot of noise and visible pollution. Other disadvantages include more traffic and the sight of a limestone quarry.



**ResultsPlus**  
Examiner Comments

This is an excellent response as it fully answers the question by describing several advantages and disadvantages of opening a limestone quarry. It is a level 3 answer and was awarded 6 marks.

### Question 6 (a)

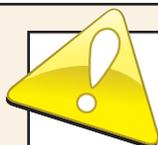
The majority of candidates could see the pattern in the first two parts of this question and apply it correctly to draw the structure of chloroethene.

poly(chloroethene)	$\left[ \begin{array}{cc} \text{H} & \text{Cl} \\   &   \\ -\text{C} & -\text{C}- \\   &   \\ \text{H} & \text{H} \end{array} \right]_n$	chloroethene	
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#### ResultsPlus Examiner Comments

This candidate did not score a mark as they used an incorrect symbol for hydrogen.



#### ResultsPlus Examiner Tip

All symbols start with an upper case letter. Copy the symbols carefully from the question.

poly(chloroethene)	$\left[ \begin{array}{cc} \text{H} & \text{Cl} \\   &   \\ -\text{C} & -\text{C}- \\   &   \\ \text{H} & \text{H} \end{array} \right]_n$	chloroethene	
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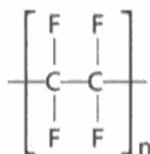
#### ResultsPlus Examiner Comments

This candidate did not score a mark as they included extension bonds on the monomer. These were not present on the two monomers shown above this one in the question.

## Question 6 (b)

A very large number of candidates could explain why PTFE is not a hydrocarbon. A common error was to state that 'it does not contain hydrocarbon'.

(b) The structure of the polymer poly(tetrafluoroethene), PTFE, is



State why this polymer is **not** a hydrocarbon.

(1)

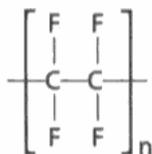
Because there is not carbon or hydrogen present in it -



**ResultsPlus**  
Examiner Comments

This candidate did not score a mark as the answer states that there is no carbon or hydrogen present. There is no hydrogen but there is carbon in PTFE.

(b) The structure of the polymer poly(tetrafluoroethene), PTFE, is



State why this polymer is **not** a hydrocarbon.

(1)

The polymer is not a hydrocarbon because hydrocarbons are made up of only hydrogen and carbon and this polymer doesn't include hydrogen.



**ResultsPlus**  
Examiner Comments

This was a very good answer and scored the mark.

## Question 6 (c)

Many candidates could state a suitable property of PVC that makes it suitable for gutters, but not so many could state more than one property.

One property of poly(chloroethene) is that it is easy to shape.

Describe other properties of poly(chloroethene) that make it suitable for gutters and drainpipes.

(2)

poly(chloroethene) doesn't corrode, it's cheap,  
which is why it's good for gutters  
and drainpipes.



**ResultsPlus**  
Examiner Comments

This candidate scored one mark for does not corrode, but cost is not a property of the material.



**ResultsPlus**  
Examiner Tip

When you are asked to describe a property of a material, consider properties relevant to the use. In this question, properties such as rigid, high strength, low density and waterproof would have been suitable.

One property of poly(chloroethene) is that it is easy to shape.

Describe other properties of poly(chloroethene) that make it suitable for gutters and drainpipes.

(2)

poly(chloroethene) does not react with water. It can also  
be easily shaped to form the shape of the gutter.



**ResultsPlus**  
Examiner Comments

This candidate scored a mark for it does not react with water. They did not score a mark for it can be easily shaped as that was given in the question and they were asked to describe **other** properties.

## Question 6 (d)

There were some excellent answers seen to this question, although some candidates found this question more difficult than 5(d). The most common errors included writing vague advantages or disadvantages, such as, burning releases gases (without stating that these gases could be harmful or toxic), and not explaining which method of disposal would be best for plastic bottles.

\* (d) Waste is often disposed of by putting it in landfill sites, by burning or by recycling.

Discuss the advantages and disadvantages of each disposal method, and explain which disposal method should be used for plastic bottles.

(6)

recycling is used for plastic bottles because you can't burn them you can only recycle them and the advantages and disadvantages of each disposal method is that they are often put of by putting it in landfill sites.



**ResultsPlus**  
Examiner Comments

This answer has stated a suitable method of disposal for plastic bottles but has not mentioned any advantages or disadvantages of any of the methods, so it is level 1.

\*d) Waste is often disposed of by putting it in landfill sites, by burning or by recycling.

Discuss the advantages and disadvantages of each disposal method, and explain which disposal method should be used for plastic bottles.

(6)

The advantages of recycling waste is that we re-use materials ~~rather than~~ which means less materials such as metals need to be wasted. By recycling instead of burning waste less fumes and gases are being produced in our atmosphere, these gases can be harmful to us and the plants and animals. ~~The disadvantages of burning~~ Burning not only affects the atmosphere but it also causes damage to the environment and land. Plastic bottles should be recycled where possible as burning plastic gives off harmful gases.



**ResultsPlus**

**Examiner Comments**

This is a good level 2 answer as the candidate has discussed recycling and burning and has explained why recycling is best for plastic bottles. To achieve level 3, the candidate should have also discussed landfill sites.



**ResultsPlus**

**Examiner Tip**

To score full marks, you should make sure that your response covers all aspects of the question.

\*(d) Waste is often disposed of by putting it in landfill sites, by burning or by recycling.

Discuss the advantages and disadvantages of each disposal method, and explain which disposal method should be used for plastic bottles.

(6)  
Putting it in landfill sites is good because its quick and easy but it takes up alot of space. Burning is good because doesn't take alot of space but it produces harmful gases. Recycling is good because we get to use them again but it costs money. I think we should use recycling because it makes them renewable and it's better for the environment.

(Total for Question 6 = 12 marks)



**ResultsPlus**  
Examiner Comments

This is a good level 3 answer as the candidate has discussed all three methods of disposal and explained which is best for plastic bottles.

## Paper Summary

In order to improve their performance, candidates should:

- read all the information in each question carefully, and use it to help them to answer the question,
- not rewrite the question in their answer,
- learn the meanings of the key scientific words and phrases,
- learn the tests for the gases in the specification, including the correct observation for each test,
- practice analysing data from tables and comparing two or more items,
- practice writing word equations for the reactions in the specification,
- revise fuels, particularly fossil fuels and biofuels,
- revise the thermal decomposition of calcium carbonate and the action of water on calcium oxide.

## **Grade Boundaries**

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