

# Sample Assessment Task Year 12 Chemistry

## Sample for implementation for Year 12 from Term 4, 2018

### Context:

Students develop a question for a scientific investigation related to a particular hydrocarbon. They will carry out secondary research and record their investigation in a Process Diary related to the Depth Study integrated with Module 7: Organic Chemistry. This knowledge and these skills can be applied to understanding the implications of chemistry for society and the environment.

<b>Task number:</b> 3	<b>Weighting:</b> 25%	<b>Timing:</b> Term 3, Week 9
<b>Outcomes assessed</b> A student: <ul style="list-style-type: none"><li>▪ analyses the structure of, and predicts reactions involving, carbon compounds CH12-14</li><li>▪ develops and evaluates questions and hypotheses for scientific investigation CH11/12-1</li><li>▪ analyses and evaluates primary and secondary data and information CH11/12-5</li><li>▪ solves scientific problems using primary and secondary data, critical thinking skills and scientific processes CH11/12-6</li><li>▪ communicates scientific understanding using suitable language and terminology for a specific audience or purpose CH11/12-7</li></ul>		
<b>Nature of the task</b> The task will consist of two parts: <ul style="list-style-type: none"><li>▪ production of a Process Diary containing the research summary and bibliography</li><li>▪ completion of an in-class task, consisting of knowledge and understanding of organic chemistry and an extended response in. The Process Diary may be used as reference in this task and will be submitted with the in-class task</li></ul>		

## Marking criteria

### Knowledge and understanding

**CH12-14** Analyses the structure of, and predicts reactions involving, carbon compounds

Students:

- describe the procedures required to safely handle and dispose of organic substances
- gather only relevant and specific information about the applications or uses of hydrocarbons

### Questioning

**CH11/12-1** Develops and evaluates questions and hypotheses for scientific investigation

Students:

- develop a relevant question for scientific investigation

### Analysis and problem solving

**CH11/12-5** Analyses and evaluates primary and secondary data and information

Students:

- assess relevance and reliability of the gathered information
- collate useful and relevant information into a Process Diary that relates to hydrocarbons and their uses and applications
- evaluate the effect of the chosen hydrocarbon on society and the environment

**CH11/12-6** Solves scientific problems using primary and secondary data, critical thinking skills and scientific processes

Students:

- formulate and use cause and effect relationships to justify inferences made within the response and the conclusions and recommendations made

### Communicating

**CH11/12-7** Communicates scientific understanding using suitable language and terminology for a specific audience or purpose

Students:

- propose ideas in a coherent and logical way and correctly use scientific terminology and principles
- present information on the science and chemistry of the chosen hydrocarbon
- summarise from a range of sources and appropriately acknowledge sources

## Sample Questions:

Refer to your Process Diary to answer the following questions.

### Question 1

Describe the procedures required to safely handle and dispose of organic substances, including the hydrocarbon that you researched.

### Question 2

#### **Hydrocarbon Exploration and Production – a Balance between Benefits to the Society and Impact on the Environment**

**Abdulrauf Rasheed Adebayo and Bassam Tawabini** (King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia)

*“There is an increasing concern for alternate sources of fuel due largely to the environmental impacts of hydrocarbon exploration, production and usage. Global warming and marine pollution are the top on the list. However, the efforts and achievements of the industry over the years towards safer operations and greener environment seem to be ignored or unacknowledged.”*

Use your knowledge of hydrocarbons, their application or uses to examine the environmental, economic and sociocultural implications of obtaining and using hydrocarbons from the Earth.

Evaluate the statement made by **Abdulrauf Rasheed Adebayo and Bassam Tawabini** from King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia.

## Marking Guidelines

Students:	Range of Marks
<ul style="list-style-type: none"> <li>▪ develop a relevant and effective question for a scientific investigation</li> <li>▪ demonstrate comprehensive knowledge and understanding of the science and chemistry of the chosen hydrocarbon and the procedures required to safely handle and dispose of organic substances</li> <li>▪ evaluate the effect of the chosen hydrocarbon on society and the environment</li> <li>▪ justify inferences made within the response and the conclusions and recommendations made</li> <li>▪ presents a Process Diary that relates to hydrocarbons and their uses and applications</li> <li>▪ assess the relevance and reliability of the gathered information</li> <li>▪ use scientific terminology and principles effectively</li> <li>▪ acknowledge sources appropriately and thoroughly</li> </ul>	21–25
<ul style="list-style-type: none"> <li>▪ develop a relevant question for a scientific investigation</li> <li>▪ demonstrate accurate knowledge and understanding of the science and chemistry of the chosen hydrocarbon and the procedures required to safely handle and dispose of organic substances</li> <li>▪ discuss the effect of the chosen hydrocarbon on society and the environment</li> <li>▪ explain inferences made within the response and the conclusions and recommendations made</li> <li>▪ presents a Process Diary that collates useful and relevant information referring to hydrocarbons and their uses and applications</li> <li>▪ describe the relevance and reliability of the gathered information</li> <li>▪ use scientific terminology and principles</li> <li>▪ acknowledge sources appropriately</li> </ul>	16–20
<ul style="list-style-type: none"> <li>▪ develop a question for scientific investigation</li> <li>▪ demonstrate sound knowledge and understanding of the science or chemistry of the chosen hydrocarbon and outlines the procedures required to handle and dispose of organic substances</li> <li>▪ describe the effect of the chosen hydrocarbon on society and the environment</li> <li>▪ describe inferences made within the response and the conclusions made</li> <li>▪ presents a Process Diary that outlines the applications or uses of hydrocarbons</li> <li>▪ describe relevance or reliability of the gathered information</li> <li>▪ use some scientific terminology</li> <li>▪ acknowledge sources</li> </ul>	11–15
<ul style="list-style-type: none"> <li>▪ develop a question for investigation</li> <li>▪ demonstrate basic knowledge and understanding of the science or chemistry of the chosen hydrocarbon or identifies the procedures required to handle and dispose of organic substances</li> <li>▪ outline the effect of the chosen hydrocarbon on society and the environment</li> <li>▪ state inferences made within the response and the conclusions made</li> <li>▪ presents a Process Diary that identifies the applications or uses of hydrocarbons</li> <li>▪ outlines the relevance or reliability of the gathered information</li> <li>▪ use limited scientific terminology</li> <li>▪ acknowledge some sources</li> </ul>	6–10

Students:	Range of Marks
<ul style="list-style-type: none"> <li>▪ state a question for investigation</li> <li>▪ gather some relevant information about the chemistry or application or use of hydrocarbons</li> <li>▪ present an incomplete Process Diary that relates to hydrocarbons and their uses and applications</li> <li>▪ use some scientific terms</li> <li>▪ attempt to acknowledge some sources</li> </ul>	1–5

### Teacher Comments

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