

90932



NEW ZEALAND QUALIFICATIONS AUTHORITY
MANA TOHU MĀTAURANGA O AOTEAROA

1

SUPERVISOR'S USE ONLY

Level 1 Chemistry, 2013

90932 Demonstrate understanding of aspects of carbon chemistry

9.30 am Thursday 21 November 2013

Credits: Four

Achievement	Achievement with Merit	Achievement with Excellence
Demonstrate understanding of aspects of carbon chemistry.	Demonstrate in-depth understanding of aspects of carbon chemistry.	Demonstrate comprehensive understanding of aspects of carbon chemistry.

Check that the National Student Number (NSN) on your admission slip is the same as the number at the top of this page.

You should attempt ALL the questions in this booklet.

If you need more space for any answer, use the page(s) provided at the back of this booklet and clearly number the question.

Check that this booklet has pages 2–10 in the correct order and that none of these pages is blank.

YOU MUST HAND THIS BOOKLET TO THE SUPERVISOR AT THE END OF THE EXAMINATION.

TOTAL

ASSESSOR'S USE ONLY

You are advised to spend 60 minutes answering the questions in this booklet.

QUESTION ONE: METHANOL

- (a) Draw the structural formula of methanol.



- (b) (i) Identify the type of bonding within a molecule of methanol.

- (ii) Give a reason for your choice.

- (c) Compare and contrast the **complete** combustion of methanol to the **incomplete** combustion of octane.

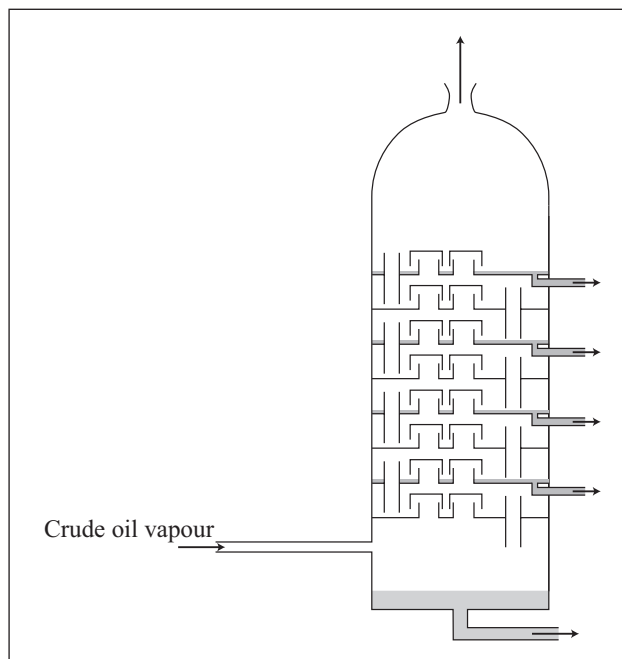
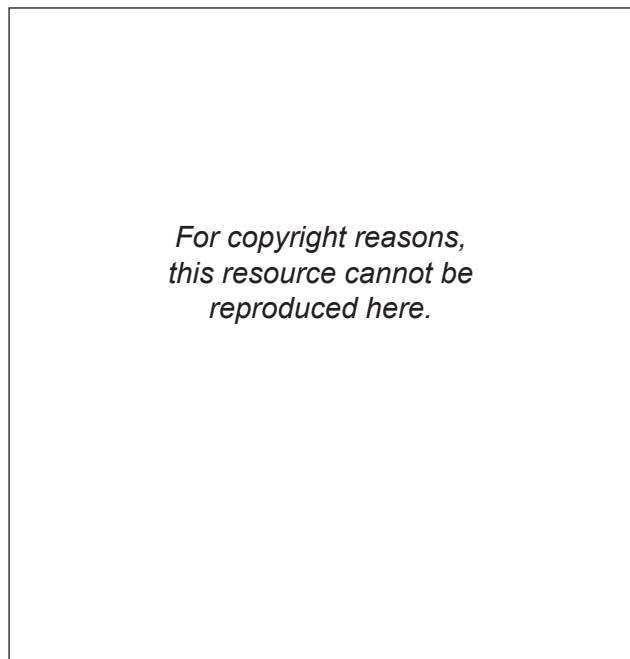
In your answer:

- compare and contrast the combustion reactions of both fuels
- compare and contrast the impacts of the combustion products of **both** fuels on human health **or** the environment
- write a balanced symbol equation for the complete combustion of methanol.

Balanced symbol equation:

QUESTION TWO: FRACTIONAL DISTILLATION

Crude oil is fractionally distilled in tall towers, like the ones shown below, to obtain useful products.



http://photoartforums.com/forums/uploads/1277616145/gallery_85_17_924301.jpg

- (a) Explain why crude oil must be fractionally distilled before it can be used.

- (b) Name TWO of the fractions obtained from the fractional distillation tower, and describe ONE use for each.

Fraction	Name	Use
1		
2		

90932