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90933M



909335



NEW ZEALAND QUALIFICATIONS AUTHORITY
MANA TOHU MĀTAURANGA O AOTEAROA

QUALIFY FOR THE FUTURE WORLD
KIA NOHO TAKATŪ KI TŌ ĀMUA AO!

SUPERVISOR'S USE ONLY

Te Mātauranga Matū, Kaupae 1, 2017

90933M Te whakaatu māramatanga ki ngā āhuatanga o ētahi pūmotu

9.30 i te ata Rātū 14 Whiringa-ā-rangi 2017
Whiwhinga: Whā

Paetae	Kaiaka	Kairangi
Te whakaatu māramatanga ki ngā āhuatanga o ētahi pūmotu.	Te whakaatu māramatanga hōhonu ki ngā āhuatanga o ētahi pūmotu.	Te whakaatu māramatanga matawhānui ki ngā āhuatanga o ētahi pūmotu.

Tirohia mēnā e rite ana te Tau Ākonga ā-Motu (NSN) kei runga i tō puka whakauru ki te tau kei runga i tēnei whārangi.

Me whakamātau koe i ngā tūmahi KATOA kei roto i tēnei pukapuka.

He taka pūmotu me ētahi atu rauemi tautoko kei te Pukapuka Rauemi L1-CHEMMR.

Mēnā ka hiahia whārangi atu anō mō ō tuinga, whakamahia ngā whārangi wātea kei muri o tēnei pukapuka, ka āta tohu ai i ngā tau tūmahi.

Tirohia mēnā e tika ana te raupapatanga o ngā whārangi 2–19 kei roto i tēnei pukapuka, ka mutu, kāore tētahi o aua whārangi i te takoto kau.

HOATU TE PUKAPUKA NEI KI TE KAIWHAKAHAERE HEI TE MUTUNGA O TE WHAKAMĀTAUTAU.

TAPEKE

MĀ TE KAIMĀKA ANAKE

TŪMAHI TUATAHI

- (a) Tātuhia te whakanahatanga irahiko mō ia ngota konumohe me te ngota pungatara ki te tapawhā i raro.

Ka taea e koe te kōrero mō te taka pūmotu kei te pukapuka rauemi.

Ngota konumohe	Ngota pungatara

- (b) He rerekē ngā whana hiko o te katote konumohe me te katote pungatara.

Whakamāramahia he aha i pēnei ai.

I tō tuhinga, me:

- whakauru te whakanahatanga irahiko mō ngā katote e rua
- whakahāngai ngā whana o ngā katote ki te tūnga o ngā ngota ki te taka pūmotu.

Katote konumohe	Katote pungatara

QUESTION ONE

- (a) Draw the electron arrangement for each of the atoms aluminium and sulfur in the boxes below. You may refer to the periodic table in the resource booklet.

Aluminium atom	Sulfur atom

- (b) Aluminium ions and sulfide ions have different charges.

Explain why this occurs.

In your answer, you should:

- include the electron arrangement for both ions
- relate the charges of the ions to the position of the atoms on the periodic table.

Aluminium ion	Sulfide ion

(c) He konganuku Rōpū 2 te konupūmā me te konupora.

Whakatauritea ngā tauhohenga matū o ēnei konganuku e rua ina motuhake te tauhohe ki te wai me te waikawa pūhaumāota waimeha.

I tō tuhinga me whakauru koe:

- ngā kitenga ka puta ina tauhohea ia konganuku ki te wai
- ngā kitenga ka puta ina tauhohea ia konganuku ki te waikawa pūhaumāota waimeha
- ngā whārite tohu taurite mō te tauhohe o te **konupūmā** ki te wai me te waikawa pūhaumāota waimeha.

Te whārite tohu taurite mō te tauhohe o te konupūmā ki te wai:

Te whārite tohu taurite mō te tauhohe o te konupūmā ki te waikawa pūhaumāota waimeha:

**He wāhi anō mō tō
tuhinga mō tēnei tūmahi
kei te whārangi 6.**

(c) Calcium and magnesium are both Group 2 metals.

Compare and contrast the chemical reactions of these two metals when reacted separately with water and dilute hydrochloric acid.

In your answer, you should include:

- observations that would be made when each metal reacts with water
- observations that would be made when each metal reacts with dilute hydrochloric acid
- balanced symbol equations for **calcium** reacting with water and dilute hydrochloric acid.

Balanced symbol equation for calcium reacting with water:

Balanced symbol equation for calcium reacting with dilute hydrochloric acid:

**There is more space
for your answer to this
question on page 7.**

ASSESSOR'S
USE ONLY

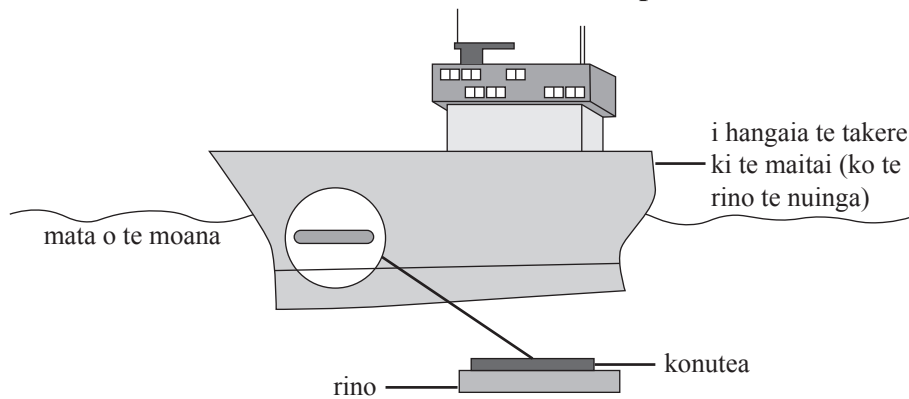
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TŪMAHI TUARUA

- (a) Tuhia kia RUA ngā āhuatanga ōkiko mō tēnā mō tēnā o ngā pūmotu pungatara me te konumatā.

- (b) Ka tāpirihia ngā poraka konutea ki ngā takere o ngā kaipuke matai (rino) i ētahi wā, e ai ki te hoahoa i raro.

**Ngā poraka konutea kua whakamaua
ki te takere o tētahi kaipuke**



He mea urutau i: http://demo.shuledirect.co.tz/notes/view_notes/y02Lp9A41tPKV-TIdE49kA/VFVU1c54ULfgMQQgLpxqZQ/AWyJ1HpuURzJiH-csFGUUA

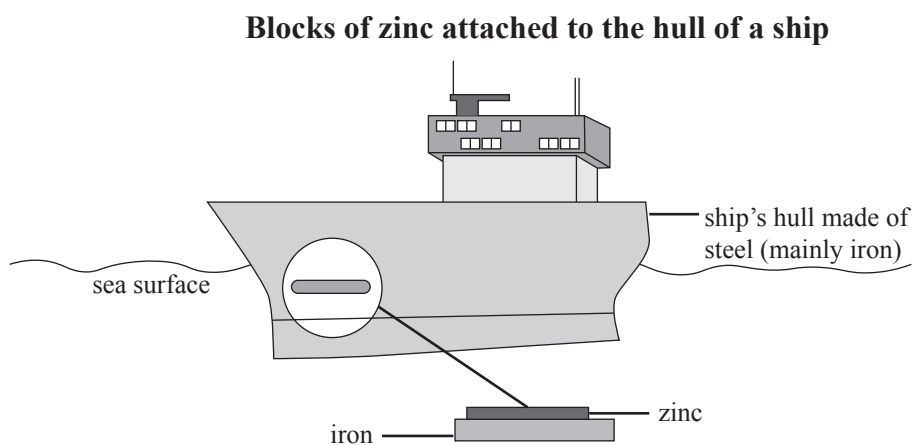
Whakamāramahia mai he aha i mahia ai ēnei poraka mai i te konutea, ā, he aha i whakamaua ai ki te takere kaipuke.

Ka taea e koe te kōrero mō te raupapatanga hohe kei tō pukapuka rauemi.

QUESTION TWO

- (a) Give TWO physical properties for each of the elements sulfur and lead.

- (b) Zinc blocks are sometimes added to the hulls of steel (iron) ships, as shown in the diagram below.



Adapted from: http://demo.shuledirect.co.tz/notes/view_notes/y02Lp9A41tPKV-TIdE49kA/VFVU1c54ULfgMQQgLpxqZQ/AWyJ1HpuURzJiH-csFGUUA

Explain why these blocks are made from zinc and why they are used on the hull of a ship.
You may refer to the activity series in the resource booklet.

(c) He whānau koranu te **zamak**, ā, ko te konutea te konganuku taketake me ngā pūmotu koranu o te konumohe, konupora me te konukura.

(i) Whakamāramahia mai he aha i whakamahia ai te koranu i ētahi wā kaua ko ngā konganuku urutapu.

(ii) Ka taea te zamak te whakamahi hei hanga rei.

Whakamāramahia whānuitia ngā hua pai o te tāpiri i ngā pūmotu konumohe, konupora me te konukura ki te konutea hei hanga i te koranu zamak.

(c) **Zamak** is a family of alloys with a base metal of zinc, and with alloying elements of aluminium, magnesium, and copper.

(i) Explain why alloys are sometimes used instead of pure metals.

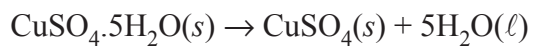
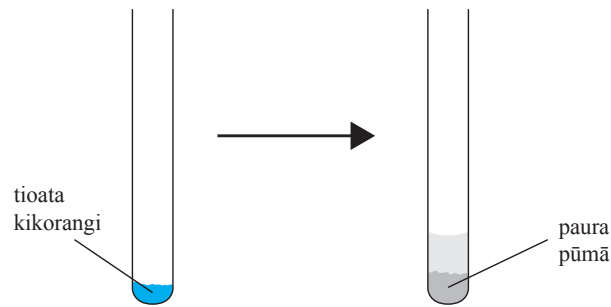
(ii) Zamak can be used to make jewellery.

Elaborate on the advantages of adding the elements aluminium, magnesium, and copper to zinc to make the alloy zamak.

TŪMAHI TUATORU

- (a) Whakaahuahia ngā āhuatanga e RUA o te haukini.

- (b) Ina tāpirihia he waikawa pungatara kukū ki te konukura(II) pākawa pungatara iti, ka huri te tae mai i te kikorangi ki te pūmā.



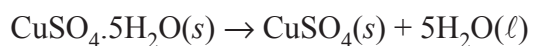
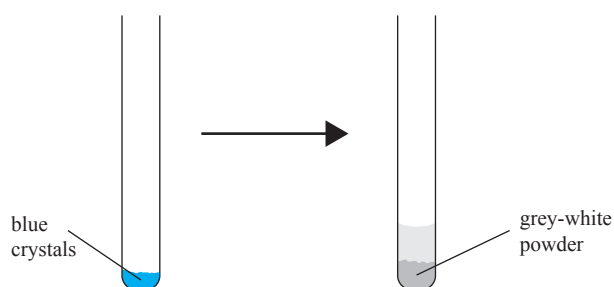
Whakamāramahia mai te mahi a te waikawa pungatara kukū i roto i tēnei tauhohenga, kātahi ka tūhono koe i ngā kitenga ki ngā momo kei roto.

Me kōrero koe mō ngā hoahoa me te whārite kei runga.

QUESTION THREE

- (a) Describe TWO properties of ammonia.

- (b) When concentrated sulfuric acid is added to a small amount of copper(II) sulfate, the colour changes from blue to grey-white.



Explain the role of the concentrated sulfuric acid in this reaction, linking the observations to the species involved.

You should refer to the diagrams and the equation given above.

- (c) Chlorine and ozone can both be used to disinfect water.

Compare and contrast the use of these two substances for disinfecting water.

In your answer, you should include:

- physical and/or chemical properties for each substance
- advantages and disadvantages of using each of the substances to disinfect water
- relevant balanced symbol equations.

**He whārangi anō ki te hiahiatia.
Tuhia te (ngā) tau tūmahi mēnā e tika ana.**

TAU TŪMAHI

MĀ TE
KAIMĀKA
ANAKE

English translation of the wording on the front cover

Level 1 Chemistry, 2017

90933 Demonstrate understanding of aspects of selected elements

9.30 a.m. Tuesday 14 November 2017
Credits: Four

90933M

Achievement	Achievement with Merit	Achievement with Excellence
Demonstrate understanding of aspects of selected elements.	Demonstrate in-depth understanding of aspects of selected elements.	Demonstrate comprehensive understanding of aspects of selected elements.

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.

A periodic table and other reference material are provided in the Resource Booklet L1–CHEMR.

If you need more room for any answer, use the extra space provided at the back of this booklet and clearly number the question.

Check that this booklet has pages 2–19 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.