

# CHEMISTRY CHO1O21Y1C

## TOPIC RESOURCE INFORMATION

### ACHIEVEMENT STANDARD 90931 (VERSION 3) CHEMISTRY 1.2

Demonstrate understanding of the chemistry in a technological application

Level 1, Internal

2 credits

## C. MANUFACTURE AND USE OF AMMONIA

Achievement	Achievement with Merit	Achievement with Excellence
<p>The student submits a report that:</p> <ul style="list-style-type: none"> <li>• Describes terms used in report.</li> <li>• Describes at least two uses of ammonia.</li> <li>• Briefly describes the manufacture of ammonia.</li> <li>• Makes some links between their physical and chemical properties of ammonia and its use.</li> <li>• Describes some of the properties of the starting materials.</li> <li>• Includes at least three relevant chemical equations to support their understanding of the chemistry.</li> <li>• Uses typical chemistry vocabulary, symbols, conventions and equations.</li> </ul>	<p>The student submits a report that:</p> <ul style="list-style-type: none"> <li>• Explains terms used in report.</li> <li>• Describes the manufacture/production of ammonia.</li> <li>• Explains how the physical and/or chemical properties apply to its use.</li> <li>• Explains some of the properties of the starting materials and how this is used in the manufacture of ammonia.</li> <li>• Includes relevant symbol chemical equations showing the chemistry of their use.</li> <li>• Uses typical chemistry vocabulary, symbols, conventions and equations.</li> </ul>	<p>The student submits a report that:</p> <ul style="list-style-type: none"> <li>• Uses chemistry terms correctly showing understanding of terms.</li> <li>• Elaborates in detail how the physical and/or chemical properties apply to how the starting materials are obtained and used to make ammonia.</li> <li>• Elaborates on the uses of ammonia relating to its chemistry.</li> <li>• Includes relevant symbol chemical equations showing the chemistry of their manufacture and of their use.</li> <li>• Uses typical chemistry vocabulary, symbols, conventions and equations.</li> </ul>

# ASSESSMENT TIPS

In order to achieve this standard, your presentation must be in your own words and show your understanding of level 1 chemistry.

## TIP 1

If you have difficulty in transforming the text given in the links into your own words, then it is useful to ask yourself questions, such as those listed below. You can get friend or family member to ask you the questions and then record your answers. Transcribe your answers and then weave them into your report.

Please note that these questions are only **some** of the questions you could ask yourself, so don't limit your report to these only!

**Terms** (CHO1041, CHO1043 and SCO1052 are useful)

1. What is a non-metal?
2. What is a molecule?
3. What is a gas?
4. How do we measure acidity or basicity?
5. What is pH?
6. What is cryogenic separation?
7. What chemical equations have I used to support my explanations?

**Application: Ammonia** (CHO1043 and SCO1052 is useful)

1. What is the formula for ammonia?
2. Where is ammonia manufactured in New Zealand?
3. What are the uses of ammonia?
4. How is ammonia made?
5. Can I describe the different starting materials to make ammonia?
6. Can I describe how the different starting materials are obtained/purified?
7. Can I explain the chemistry of the different steps in making ammonia?
8. Can I explain some of the chemistry of how ammonia is useful?
9. Have I written my equations using correct chemical language (e.g. using subscripts)?

## TIP 2

When you read through the links or watch the videos given on *My Te Kura* or in the task, make notes using key words or phrases. When you write your report, use these key words rather than the text given in the links.

# TOPIC RESOURCES

## MANUFACTURE AND USE OF AMMONIA

Your first source is the modules you have completed – CHO1041 and CHO1043. CHO1051 and SCO1052 are also useful.

### EXTRA SOURCES FOR MORE DETAIL

#### GENERAL

[www.chemicalsafetyfacts.org/ammonia/](http://www.chemicalsafetyfacts.org/ammonia/)

[en.wikipedia.org/wiki/Ammonia](http://en.wikipedia.org/wiki/Ammonia)

[www.health.ny.gov/environmental/emergency/chemical\\_terrorism/ammonia\\_tech.htm](http://www.health.ny.gov/environmental/emergency/chemical_terrorism/ammonia_tech.htm)

<https://kids.frontiersin.org/article/10.3389/frym.2019.00041>

#### HABER PROCESS

[https://youtu.be/o1\\_D4FscMnU](https://youtu.be/o1_D4FscMnU)

[https://youtu.be/uMkzxV\\_y7tY](https://youtu.be/uMkzxV_y7tY)

[www.bbc.co.uk/bitesize/guides/z9tvw6f/revision/1](http://www.bbc.co.uk/bitesize/guides/z9tvw6f/revision/1)

#### USES AND ISSUES

[www.stuff.co.nz/business/farming/108633319/poisoning-for-profit-why-greenpeace-wants-to-get-rid-of-synthetic-nitrogen](http://www.stuff.co.nz/business/farming/108633319/poisoning-for-profit-why-greenpeace-wants-to-get-rid-of-synthetic-nitrogen)

[www.goodway.com/hvac-blog/2009/08/ammonia-as-a-refrigerant-pros-and-cons/](http://www.goodway.com/hvac-blog/2009/08/ammonia-as-a-refrigerant-pros-and-cons/)

<https://youtu.be/3edKxUyqHQc>

<https://youtu.be/KiDR8s9Bb3w>

Additional sources may be used and must be quoted (full web link) in the bibliography to verify the source.