

Achievement Standard

Subject Reference	Chemistry 2.2		
Title	Carry out an investigation into chemical species present in a sample using qualitative analysis		
Level	2	Credits	3
		Assessment	Internal
Subfield	Science		
Domain	Chemistry		
Status	Registered	Status date	29 November 2018
Planned review date	31 December 2020	Date version published	29 November 2018

This achievement standard involves carrying out an investigation into chemical species present in a sample using qualitative analysis.

Achievement Criteria

Achievement	Achievement with Merit	Achievement with Excellence
<ul style="list-style-type: none"> Carry out an investigation into chemical species present in a sample using qualitative analysis. 	<ul style="list-style-type: none"> Carry out an in-depth investigation into chemical species present in a sample using qualitative analysis. 	<ul style="list-style-type: none"> Carry out a comprehensive investigation into chemical species present in a sample using qualitative analysis.

Explanatory Notes

- This achievement standard is derived from *The New Zealand Curriculum*, Learning Media, Ministry of Education, 2007, Level 7. The standard is aligned to the Nature of Science achievement objectives and the Material World achievement objectives:
 - Investigating in Science – Develop and carry out investigations that extend their science knowledge, including developing their understanding of the relationship between investigations and scientific theories and models
 - Communicating in Science – Use accepted science knowledge, vocabulary, symbols, and conventions when evaluating accounts of the natural world and consider the wider implications of methods of communication and representation employed
 - Participating and Contributing - Use relevant information to develop a coherent understanding of socio-scientific issues that concern them, to identify possible responses at both personal and societal levels;
 and is related to the material in the *Teaching and Learning Guide for Chemistry*, Ministry of Education at <http://seniorsecondary.tki.org.nz>.

This standard is also derived from *Te Marautanga o Aotearoa*. For details of *Te Marautanga o Aotearoa* outcomes to which this standard relates, see the [Papa Whakaako](#) for the relevant learning area.

Safety procedures outlined in *Safety and Science: A Guidance Manual for New Zealand Schools*, Learning Media, Ministry of Education, 2000, should be followed: <https://stanz.nzase.org.nz/app/uploads/2015/05/Safety-and-Science.pdf>.

2 *Carry out an investigation into chemical species present in a sample using qualitative analysis* involves:

- collecting primary data using an identification procedure
- identifying chemical species present by matching primary data to the procedure
- linking the chemical species to the compound present in the sample
- describing the significance of an identified chemical species for people and/or the environment.

Carry out an in-depth investigation into chemical species present in a sample using qualitative analysis involves:

- explaining the identification of chemical species present by linking the primary data to the procedure
- writing relevant equations to explain all the changes occurring during the identification procedure
- explaining the significance of an identified chemical species for people and/or the environment.

Carry out a comprehensive investigation into chemical species present in a sample using qualitative analysis involves:

- justifying the identification of chemical species present by linking secondary data and chemical principles to the reactions occurring during the analysis
- discussing the significance of an identified chemical species for people and/or the environment.

3 *An identification procedure* may include:

- identifying ions based on solubility rules and the formation of complex ions
- identifying organic compounds based on functional group reactions.

4 *Secondary data* may include:

- solubility rules and formulae of complex ions
- a functional group reaction map
- relevant scientific literature.

5 Conditions of Assessment related to this achievement standard can be found at <http://ncea.tki.org.nz/Resources-for-Internally-Assessed-Achievement-Standards>.

Replacement Information

This achievement standard replaced AS91162.

Quality Assurance

- 1 Providers and Industry Training Organisations must have been granted consent to assess by NZQA before they can register credits from assessment against achievement standards.
- 2 Organisations with consent to assess and Industry Training Organisations assessing against achievement standards must engage with the moderation system that applies to those achievement standards.

Consent and Moderation Requirements (CMR) reference

0233