Title	**Demonstrate knowledge of the composition and analysis of polluted and unpolluted air**		
Level	**6**	**Credits**	**5**

Purpose	People credited with this unit standard are able to: describe the composition of the normal atmosphere and atmospheric circulation; describe sources, effects, and control of atmospheric pollutants; identify analytical devices for atmospheric analysis and for gaseous pollutants at source; describe sources, monitoring, and control of indoor air pollution and occupational exposure; and discuss the application of the Resource Management Act 1991 to air quality and air discharges.

Classification	Science > Chemistry

Available grade	Achieved

Guidance Information

1 All work must be carried out in accordance with the quality management system, documented protocol system or Standard Operating Procedures (SOP) typically acceptable in a commercial or research laboratory.

2 Health and Safety practices must conform to Australian/New Zealand Standard AS/NZS 2243:2010 Set – *Safety in Laboratories*, available at http://www.standards.co.nz and http://infostore.saiglobal.com/store.

3 Legislation applicable to this unit standard includes:
Health and Safety at Work Act 2015;
Hazardous Substances and New Organisms Act 1996.

4 Glossary
Laboratory procedures refer to documented systems or processes of operation, which may be found in a SOP manual, quality management system or protocol system documentation. These procedures are external and/or internal laboratory requirements governing laboratory work.

Outcomes and performance criteria

Outcome 1

Describe the composition of the normal atmosphere and atmospheric circulation.

Performance criteria

1.1 Component percentages are identified in relation to normal atmosphere.

Range nitrogen, oxygen, argon, carbon dioxide, water vapour.

1.2 Features of atmospheric circulation are described in relation to normal atmosphere.

Range adiabatic lapse rate, inversion layer, Hadley cells.

Outcome 2

Describe sources, effects, and control of atmospheric pollutants.

Performance criteria

2.1 Natural and anthropogenic atmospheric pollutants are described in terms of their sources.

Range sulphur compounds, fluorides, lead chlorofluorocarbons, greenhouse gases, nitrogen oxides, hydrocarbons, particulates, photochemical smog.

2.2 Atmospheric pollution is described in terms of its effects.

Range acid rain, ozone depletion, greenhouse effect, photochemical smog.

2.3 The minimisation of atmospheric pollution is described in terms of control technology.

Outcome 3

Identify analytical devices for atmospheric analysis and for gaseous pollutants at source.

Performance criteria

3.1 Instrumental methods for the analysis of specific pollutants are identified in relation to atmosphere.

Range gas chromatography, infrared, spectrometry, chemiluminescence, electrochemical methods.

Outcome 4

Describe sources, monitoring, and control of indoor air pollution and occupational exposure.

Performance criteria

4.1 Indoor air pollution and occupational exposure are described in terms of their sources.

Range may include but is not limited to – formaldehyde, radon, organic solvents, tobacco smoke, asbestos.

4.2 Indoor air pollution and occupational exposure are described in terms of monitoring and controlling them in accordance with laboratory procedures.

This unit standard is expiring. Assessment against the standard must take place by the last date for assessment set out below.

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	22 December 1996	31 December 2014
Revision	2	19 February 1998	31 December 2014
Review	3	23 November 1999	31 December 2014
Review	4	18 June 2010	31 December 2022
Rollover	5	27 January 2015	31 December 2022
Rollover and Revision	6	15 June 2017	31 December 2022
Revision	7	26 October 2017	31 December 2022
Review	8	22 October 2020	31 December 2022

Consent and Moderation Requirements (CMR) reference	0113

This CMR can be accessed at http://www.nzqa.govt.nz/framework/search/index.do.