

Title	Perform titrimetric analyses		
Level	4	Credits	6

Purpose	People credited with this unit standard are able to: calibrate and maintain titration equipment; prepare volumetric standard solutions; and perform titrimetric analyses.
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Classification	Science > Chemistry
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Available grade	Achieved
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Guidance Information

- 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.
- 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>.
- Legislation applicable to this unit standard includes:
Health and Safety at Work Act 2015;
Hazardous Substances and New Organisms Act 1996.
- Glossary
Volumetric analytical techniques refers to spectrophotometric and titrimetric techniques.
Specified standards refer to those recognised by the Standards Institute of New Zealand or equivalent for calibration.
Certified reference value is a value traceable to a national or international standard.
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.
- General requirements for the competence of testing and calibration laboratories can be found at the official website International Accreditation New Zealand (IANZ) <http://www.ianz.govt.nz>.

Outcomes and performance criteria

Outcome 1

Calibrate and maintain titration equipment.

Range balances, burettes, pipettes, volumetric flasks, pH meter.

Performance criteria

- 1.1 Equipment is calibrated against manufacturer's specifications in accordance with specified standards.
- 1.2 Equipment is maintained in accordance with laboratory procedures and manufacturer's specifications.

Outcome 2

Prepare volumetric standard solutions.

Performance criteria

- 2.1 Solvent and solute are selected, and amount is calculated and measured to required accuracy for the analysis in accordance with laboratory procedures.
- 2.2 Secondary standard is established by titration against primary standard.

Outcome 3

Perform titrimetric analyses.

Performance criteria

- 3.1 Procedure, equipment, and indicators are selected to meet the needs of an acid-base titration.
- 3.2 Titration is carried out and the amount of analyte is determined to within a relative accuracy of $\pm 5\%$ of the certified reference value.

Replacement information	This unit standard and unit standard 26342 replaced unit standard 8435.
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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	18 June 2010	31 December 2022
Rollover	2	27 January 2015	31 December 2022
Rollover and Revision	3	15 June 2017	31 December 2022
Revision	4	26 October 2017	31 December 2022
Review	5	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>.