

Title	Analyse oxidation - reduction reactions		
Level	3	Credits	4

Purpose	People credited with this unit standard are able to determine the concentration of an oxidant or reductant by titration, and balance oxidation-reduction reactions.
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Classification	Science > Chemistry
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Available grade	Achieved
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Guidance Information

- 1 The International Union of Pure and Applied Chemistry (IUPAC) conventions for electrochemical cells must be used.
- 2 Concentrations can be expressed as either mol L⁻¹ or g L⁻¹.

Outcomes and performance criteria

Outcome 1

Determine the concentration of an oxidant or reductant by titration.

Range any one oxidant of - I₂, MnO₄⁻, IO₃⁻, Cu²⁺, OCl⁻;
with any one reductant of - Fe²⁺, SO₃²⁻, C₂O₄²⁻, S₂O₃²⁻.

Performance criteria

- 1.1 Oxidation-reduction titrations are carried out in accordance with the given procedures.
- 1.2 Concentrations of oxidant or reductant are calculated from titre values.

Outcome 2

Balance oxidation-reduction reactions.

Performance criteria

2.1 Written oxidation-reduction equations are balanced for given reactants.

Range oxidants may include – O₂, Cl₂, H₂O₂, I₂, Fe³⁺, MnO₂, OCl⁻, MnO₄⁻, IO₃⁻, Cu²⁺, Cr₂O₇²⁻/H⁺;
 reductants may include - Zn, Mg, Fe, H₂, SO₂, H₂S, Fe²⁺, SO₃²⁻, C₂O₄²⁻, S₂O₃²⁻, I⁻;
 evidence of three oxidation-reduction equations is required.

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Status information and last date for assessment for superseded versions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	21 December 1995	31 December 2013
Review	2	31 October 1996	31 December 2013
Revision	3	7 July 1999	31 December 2013
Revision	4	12 February 2003	31 December 2013
Review	5	20 September 2012	31 December 2022
Rollover and Revision	6	15 June 2017	31 December 2022
Review	7	22 October 2020	31 December 2022

Consent and Moderation Requirements (CMR) reference	0226
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This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.