

Title	Demonstrate knowledge of chromatography systems		
Level	5	Credits	4

Purpose	People credited with this unit standard are able to: describe chromatography, the distribution between phases in a chromatographic separation, and the instrumental components of a chromatographic system; quantify the components of a mixture from chromatographic results; and recommend a chromatographic system for a given sample.
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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 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.
- The chromatography systems covered by this unit standard are: Gas Liquid Chromatography (GLC); High Pressure Liquid Chromatography (HPLC); and Ion Chromatography.

Outcomes and performance criteria

Outcome 1

Describe chromatography.

Performance criteria

- 1.1 Chromatography is described in terms of separation using mobile and stationary phases.

- 1.2 Chromatography is described in terms of workable phase combinations.
- Range evidence of two examples of workable phase combinations is required.

Outcome 2

Describe the distribution between phases in a chromatographic separation.

Performance criteria

- 2.1 The distribution is described in terms of the system characteristics affecting the separation.
- 2.2 The distribution is described in terms of the sample characteristics.
- 2.3 Examples of sample component are given, and the order of elution of the sample component is predicted in accordance with the chromatographic procedure.
- Range evidence of two examples of elution component is required.

Outcome 3

Describe the instrumental components of a chromatographic system.

Performance criteria

- 3.1 The mobile phase delivery system is described in terms of its composition and requirements.
- 3.2 The sample delivery system is described.
- Range septum, heated port, valve and loop;
HPLC – valve and loop.
- 3.3 The column characteristics are described.
- Range column dimensions, stationary phase, support.
- 3.4 The detection system is described.
- Range thermal conductivity detector (TCD) and flame ionisation detector (FID); ultra violet (UV) and refractive index (RI);
for Ion Chromatography – conductivity.

Outcome 4

Quantify the components of a mixture from chromatographic data results.

Range external calibration curve, internal standard calculation where sample and standards contain equal amounts of internal standard.

Performance criteria

4.1 Components are quantified consistent with the data results.

Outcome 5

Recommend a chromatographic system for a given sample.

Range sample may include – volatile and non-volatile organics, inorganic gases, aqueous-based solutions.

Performance criteria

5.1 The chromatographic system is selected and recommended in accordance with the sample characteristics.

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	17 February 1998	31 December 2014
Review	2	23 November 1999	31 December 2014
Review	3	18 June 2010	31 December 2022
Rollover	4	27 January 2015	31 December 2022
Rollover and Revision	5	15 June 2017	31 December 2022
Revision	6	26 October 2017	31 December 2022
Review	7	22 October 2020	31 December 2022

Consent and Moderation Requirements (CMR) reference	0113
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This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.