

Title	Pressure refine wood fibre for pulp production		
Level	4	Credits	20

Purpose	People credited with this unit standard are able to: demonstrate knowledge of pressure refining systems; operate a pressure refining system; and monitor and control the performance of a pressure refining system.
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Classification	Wood Fibre Manufacturing > Pulp Making
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Available grade	Achieved
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Guidance Information

1 Legislation and references

Legislation, regulations and/or industry standards relevant to this unit standard include but are not limited to the:

- Hazardous Substances and New Organisms Act 1996;
- Health and Safety at Work Act 2015;
- Resource Management Act 1991;
- Health and Safety at Work (Major Hazard Facilities) Regulations 2016.

2 Definitions

Operating parameters refer to the boundary conditions in which the operations are carried out in pressure refining.

Operating procedures refer to the process(es) that are worked through, e.g. standard operating procedure (SOP) in pressure refining.

Worksite documentation refers to organisation policies and procedures that are documented in memo, electronic, or manual format and available in the workplace, and are consistent with manufacturer's requirements. They may include but are not limited to – standard operating procedures, site specific procedures, site safety procedures, equipment operating procedures, quality assurance procedures, product quality specifications, references, approved codes of practice, housekeeping standards, environmental considerations, sustainability, on-site briefings, supervisor's instructions, and procedures to comply with legislative and local body requirements relevant to the pulp making industry.

3 Range

Pressure refining system – pressurised refiners, preheaters, impregnators, pre-steaming bins, conveyors, steam handling equipment.

4 Assessment information

Evidence presented for assessment against this unit standard must be consistent with safe working practices and be in accordance with applicable service information, worksite documentation and legislative requirements. This includes the knowledge and use of suitable tools and equipment.

Outcomes and performance criteria

Outcome 1

Demonstrate knowledge of pressure refining systems.

Performance criteria

- 1.1 Principles, purpose, and operation of refining systems in the pulp making process are explained.
- 1.2 Operating parameters and capability of pressure refining systems are explained.
- Range energy consumption, freeness, consistency, plate configuration, hydraulic gap positioning.
- 1.3 Operating components and process controls of pressure refining systems are described and their purpose and operation are explained.
- Range pressure refining components may include but are not limited to – refiner lubrication systems, plug screw, cyclone, steam system, feeder screws, refiner hydraulic system, distributed control system.
- 1.4 Hazards associated with pressure refining are identified, and actions to be taken to minimise, or eliminate the hazards are described.
- Range hazards may include but are not limited to – heat, steam pressure.
- 1.5 Consequences of non-compliance with worksite operating procedures are explained.
- 1.6 Roles and responsibilities of the pressure refining system operator are explained.

Outcome 2

Operate a pressure refining system.

Performance criteria

- 2.1 Safe work practices associated with a pressure refining system are demonstrated.
- Range practices may include but are not limited to – isolation procedures, lock-outs or tag-outs, emergency stops, machine guarding, wearing appropriate safety equipment.
- 2.2 Pressure refining system is set up, started up, operated, and shut down.
- 2.3 Pressure refining system is warmed up.
- 2.4 Operating parameters are set and adjusted to enable production requirements to be achieved.
- Range operating parameters – pressure, energy consumption, consistency, plate configuration, hydraulic gap positioning; production requirements – product quality, production rate.
- 2.5 Essential care and housekeeping requirements for the pressure refining system are carried out.

Outcome 3

Monitor and control the performance of a pressure refining system.

Performance criteria

- 3.1 Pressure refining system is monitored and parameters are controlled in accordance with operating parameters.
- Range parameters may include but are not limited to – pressure, energy consumption, freeness, consistency, refiner plate configuration and condition, steam handling, chemical addition.
- 3.2 Operating and equipment faults and malfunctions are described, and relevant corrective actions are taken.
- Range operating faults and malfunctions may include but are not limited to – plate clashing, pulp shive content, pulp freeness level, process pressure; equipment faults and malfunctions may include but are not limited to – electrical, mechanical, hydraulic, instrumentation, distributed control system.
- 3.3 Production rate is regulated and adjusted to meet downstream operation requirements.
- 3.4 Production, maintenance, and quality records are completed.

Planned review date	31 December 2028
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Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	22 February 1995	31 December 2024
Revision	2	27 January 1997	31 December 2024
Review	3	25 February 1999	31 December 2024
Review	4	18 December 2006	31 December 2024
Review	5	24 October 2014	31 December 2025
Review	6	30 November 2023	N/A

Consent and Moderation Requirements (CMR) reference	0173
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This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

Comments on this unit standard

Please contact Hanga-Aro-Rau Manufacturing, Engineering and Logistics Workforce Development Council qualifications@hangaarorau.nz if you wish to suggest changes to the content of this unit standard.