Title	**Atmospherically refine pulp**		
Level	**4**	**Credits**	**10**

Purpose	People credited with this unit standard are able to: demonstrate knowledge of atmospheric pulp refiners in pulp making; operate an atmospheric pulp refiner; and monitor and control the performance of an atmospheric pulp refiner.

Classification	Wood Fibre Manufacturing > Pulp Making

Available grade	Achieved

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 an atmospheric pulp refiner.
Operating procedures refer to the process(es) that are worked through, e.g. standard operating procedure (SOP) of an atmospheric pulp refiner.
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 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 atmospheric pulp refiners in pulp making.

Performance criteria

1.1 Function and purpose of atmospheric refiners in the pulp making process are explained.

1.2 Operating parameters and capability of atmospheric refiners are explained.

Range operating parameters may include but are not limited to – throughput capability, energy input, freeness, consistency, refiner plate configuration.

1.3 Operating components and process controls of atmospheric refiners are described and their purpose and operation are explained.

Range refining components may include but are not limited to – distributed control system, seal water system, refiner lubrication system, approach system, hydraulic system, plate mounting.

1.4 Hazards associated with atmospheric refining are identified and actions to be taken to minimise, or eliminate the hazard are explained.

Range hazards may include but are not limited to – hot pulp, steam, moving plant, hot oil, hydraulic pressure, noise.

1.5 Consequences of non-compliance with worksite operating procedures are explained.

1.6 Roles and responsibilities of the refiner operator are explained.

Outcome 2

Operate an atmospheric pulp refiner.

Performance criteria

2.1 Safe work practices associated with operating an atmospheric refiner 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 Atmospheric refiner is set up, started up, operated, and shut down.

2.3 Operating parameters are set and adjusted to enable production requirements to be achieved.

Range operating parameters may include but are not limited to – freeness, consistency, energy input, pulp volume.

2.4 Essential care and housekeeping requirements for the atmospheric refiner are carried out.

Outcome 3

Monitor and control the performance of an atmospheric pulp refiner.

Performance criteria

3.1 Performance of atmospheric refiner is monitored and parameters are controlled in accordance with operating parameters.

Range plant performance – energy consumption, refiner plate condition; performance parameters – consistency, freeness.

3.2 Operating and equipment faults and malfunctions are identified, and relevant corrective actions are taken.

Range operating faults and malfunctions may include but are not limited to – leakage, load backing off, blockages;
equipment faults and malfunctions – mechanical, electrical, hydraulic, pneumatic, instrumentation, distributed control system.

3.3 Quantity and quality of output pulp are monitored to meet specified requirements.

3.4 Selection of next production stage for product and routing of output pulp to further processing stages is carried out.

3.5 Production, maintenance, and quality records are completed.

Planned review date	31 December 2028

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	18 December 2006	31 December 2024
Review	2	24 October 2014	31 December 2025
Review	3	30 November 2023	N/A

Consent and Moderation Requirements (CMR) reference	0173

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.