

<b>Title</b>	<b>Refine paper furnish at low consistency</b>		
<b>Level</b>	<b>4</b>	<b>Credits</b>	<b>10</b>

<b>Purpose</b>	<p>People credited with this unit standard are able to: demonstrate knowledge of refining paper; operate refiners; and monitor and control the performance of refiners at low consistency.</p> <p>This unit is for operators refining paper furnish in preparation for paper making.</p>
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<b>Classification</b>	Wood Fibre Manufacturing > Paper Making
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<b>Available grade</b>	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

*Furnish* refers to the fibrous and non-fibrous constituents of paper (including waste papers, pulps, dyes, and additives) blended into stock preparation to meet the requirements of various paper grades.

*Operating parameters* refers to the boundary conditions in which the operations are carried out in refining paper.

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

*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 paper 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.

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## Outcomes and performance criteria

### Outcome 1

Demonstrate knowledge of refining paper at low consistency.

#### Performance criteria

1.1 Function of refiners in paper making process is explained.

1.2 Operating parameters and capability of refiners are explained.

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

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

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

1.4 Hazards associated with 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 – noise, wet surfaces, heat, rotating equipment.

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

1.6 Roles and responsibilities of the refiner operator are described.

### Outcome 2

Operate refiners at low consistency.

**Performance criteria**

- 2.1 Safe work practices associated with operating and maintaining refiners 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 Refiners are 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 – consistency, energy input, stock volume, freeness.
- 2.4 Essential care and housekeeping requirements for the refiner are carried out.

**Outcome 3**

Monitor and control the performance of refiners.

**Performance criteria**

- 3.1 Performance of refiners are monitored, and parameters are controlled for product quality in accordance with operating parameters.
- Range refiners' performance – energy consumption, refiner plate condition; product quality – 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.
- 3.3 Quantity and quality of output stock are monitored to meet specified requirements.
- 3.4 Selection of next production stage for product and routing of output stock to further processing stages is carried out.
- 3.5 Production, maintenance, and quality records are completed.

<b>Planned review date</b>	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

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](mailto:qualifications@hangaarorau.nz) if you wish to suggest changes to the content of this unit standard.