

<b>Title</b>	<b>Process crude tall oil from tall oil soap as a by-product of wood pulp manufacturing</b>		
<b>Level</b>	<b>4</b>	<b>Credits</b>	<b>5</b>

<b>Purpose</b>	People credited with this unit standard are able to: demonstrate knowledge of crude tall oil production; and cook black liquor soap for tall oil production.
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<b>Classification</b>	Wood Fibre Manufacturing > Pulp and Paper - Chemical Plants
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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

*Operating parameters* refer to the boundary conditions in which the operations are carried out in crude tall oil production.

*Operating procedures* refer to the process(es) that are worked through, e.g. standard operating procedure (SOP) in crude tall oil production.

*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 and paper 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 crude tall oil production.

#### Performance criteria

- 1.1 Principles of black liquor soap collection and cooking of tall oil soap to produce crude tall oil are explained in terms of soap collection points in the black liquor circuit, soap decanting, and washing.
- 1.2 Chemical processes involved in the cooking of black liquor soap to produce crude tall oil are explained.
- Range chemical processes may include but are not limited to – acidification of soap, temperature, pH, reaction of soap and acid, tall oil separation, spent acid, lignin slurry.
- 1.3 Operating components and process controls of tall oil soap collection and the cooking process are described, and their purpose and operation are explained.
- Range cooking process components may include but are not limited to – weak black liquor tanks, soap tanks, cooking vessel, centrifuge, in-line reactor, scrubber.
- 1.4 Quality parameters for tall oil are explained.
- Range quality parameters may include but are not limited to – acid number, moisture content.
- 1.5 Hazards associated with producing crude tall oil are identified and actions to be taken to minimise, or eliminate the hazard are explained.
- Range hazards may include but are not limited to – chemicals, heat, waste gas, confined space, environmental.
- 1.6 Environmental impact on the effluent system caused by chemical loss to drains is explained.
- 1.7 Consequences of non-compliance with worksite operating procedures are explained.
- Range consequences related to – product quality, health and safety, environmental.
- 1.8 Roles and responsibilities of the crude tall oil production operator are explained.

### Outcome 2

Cook black liquor soap for tall oil production.

**Performance criteria**

2.1 Safe work practices associated with cooking black liquor soap are identified and used.

Range practices may include but are not limited to – isolation procedures, lock-outs or tag-outs, emergency stops, machine guarding, wearing of appropriate safety equipment.

2.2 Equipment is set up, started up, operated, and shut down.

Range equipment may include but is not limited to – environmental control equipment, soap tanks, cooking vessel, centrifuge.

2.3 Separation of tall oil from the spent liquor, and processing of spent liquor, is carried out.

Range separation equipment may include but is not limited to – soap tank, cook tank, centrifuge.

2.4 Essential care and housekeeping requirements are carried out.

2.5 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	30 November 2000	31 December 2024
Review	5	18 December 2006	31 December 2024
Review	6	24 October 2014	31 December 2025
Review	7	30 November 2023	N/A

<b>Consent and Moderation Requirements (CMR) reference</b>	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](mailto:qualifications@hangaarorau.nz) if you wish to suggest changes to the content of this unit standard.