

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

Purpose	People credited with this unit standard are able to: explain fundamentals of crude tall oil production; and cook black liquor soap for tall oil production.
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Classification	Wood Fibre Manufacturing > Pulp and Paper - Chemical Plants
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Available grade	Achieved
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Explanatory notes

- 1 Definition
Worksite documentation refers to instructions to staff on policy and procedures (including the application of legislation to worksite situations) which are formally documented, and are available for reference at the worksite. Examples are standard operating procedures, specifications, manuals, and manufacturer's information.
- 2 The reference text for this unit standard is Drew, J and Propst, M, *Tall Oil* (New York: Pulp Chemicals Association, 1981). It is available through <http://www.pinechemicals.org/>.
- 3 The following apply to the performance of all outcomes of this unit standard:
 - a All work practices must meet recognised codes of practice and documented worksite health and safety and environmental procedures (where these exceed code) for personal, product, and worksite health and safety, and must meet the obligations required under current legislation, including the Health and Safety in Employment Act 1992, the Resource Management Act 1991, the Hazardous Substances and New Organisms Act 1996, and their subsequent amendments.
 - b All work practices must meet documented worksite operating procedures. This includes the recording (by electronic or non-electronic means) of activities, events, and decisions.
 - c All communications made in relation to this unit standard must be made in accordance with worksite procedures for content, recipient, timing, and method.

Outcomes and evidence requirements

Outcome 1

Explain fundamentals of crude tall oil production.

Evidence requirements

- 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 described in accordance with the reference text.
- Range 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 identified, and their purpose and operation are explained, in accordance with worksite documentation.
- Range weak black liquor tanks, soap tanks, cooking vessel, centrifuge, in-line reactor, scrubber.
- 1.4 Quality parameters for tall oil are described in accordance with the reference text.
- Range acid number, moisture content.
- 1.5 Hazards associated with producing crude tall oil are identified and actions to be taken to isolate, minimise, or eliminate the hazard are described in accordance with worksite documentation.
- 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 described in accordance with worksite documentation.
- 1.7 Consequences of non-conformance with worksite operating procedures are described in accordance with worksite documentation.
- Range consequences relating to – product quality, health and safety concerns, environmental concerns.
- 1.8 Roles and responsibilities of the crude tall oil production operator are described in accordance with worksite documentation.

Outcome 2

Cook black liquor soap for tall oil production.

Evidence requirements

- 2.1 Safe work practices associated with cooking black liquor soap are identified and used in accordance with worksite documentation and legislative requirements.
- Range practices may include but are not limited to – isolation procedures, lock-outs, emergency stops, machine guarding, wearing of appropriate safety equipment.
- 2.2 Equipment is set up, started up, operated, and shut down efficiently in accordance with worksite documentation.
- Range equipment includes 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 in accordance with worksite documentation.
- Range separation equipment – soap tank, cook tank, centrifuge.
- 2.4 Preventative maintenance and cleaning requirements are carried out in accordance with worksite documentation.
- 2.5 Production, maintenance, and quality records are explained and completed in accordance with worksite documentation.

Planned review date	31 December 2019
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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	N/A
Revision	2	27 January 1997	N/A
Review	3	25 February 1999	N/A
Review	4	30 November 2000	N/A
Review	5	18 December 2006	N/A
Review	6	24 October 2014	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>.

Please note

Providers must be granted consent to assess against standards (accredited) by NZQA, before they can report credits from assessment against unit standards or deliver courses of study leading to that assessment.

Industry Training Organisations must be granted consent to assess against standards by NZQA before they can register credits from assessment against unit standards.

Providers and Industry Training Organisations, which have been granted consent and which are assessing against unit standards must engage with the moderation system that applies to those standards.

Requirements for consent to assess and an outline of the moderation system that applies to this standard are outlined in the Consent and Moderation Requirements (CMR). The CMR also includes useful information about special requirements for organisations wishing to develop education and training programmes, such as minimum qualifications for tutors and assessors, and special resource requirements.

Comments on this unit standard

Please contact Competenz qualifications@competenz.org.nz if you wish to suggest changes to the content of this unit standard.