

Title	Process crude sulphate turpentine and red oil as a by-product of wood pulp manufacturing		
Level	4	Credits	5

Purpose	People credited with this unit standard are able to: demonstrate knowledge of sulphate turpentine production; and refine crude sulphate turpentine and crude red oil.
----------------	---

Classification	Wood Fibre Manufacturing > Pulp and Paper - Chemical Plants
-----------------------	---

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 the production of sulphate turpentine.

Operating procedures refer to the process(es) that are worked through, e.g. standard operating procedure (SOP) in the production of sulphate turpentine.

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.

Outcomes and performance criteria

Outcome 1

Demonstrate knowledge of sulphate turpentine production.

Performance criteria

- 1.1 Origins of turpentine and red oil within the kraft process are explained.
- 1.2 Turpentine and red oil recovery process, and the equipment used, are explained.
- 1.3 Quality parameters for turpentine and red oil are explained.
- Range quality parameters for turpentine include – moisture content, sulphur content, pinene content, composition; quality parameters for red oil include – moisture content.
- 1.4 Operating parameters and capability of sulphate turpentine and red oil processing are explained.
- Range operating parameters may include but are not limited to – pump capacity, tank volumes, flows, production rates, safe operating envelope.
- 1.5 Hazards associated with processing crude sulphate turpentine and red oil are identified and actions to be taken to minimise, or eliminate the hazard are described.
- 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 sulphate turpentine and red oil processing operator are explained.

Outcome 2

Refine crude sulphate turpentine.

Performance criteria

2.1 Safe work practices associated with refining crude sulphate turpentine 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 appropriate safety equipment.

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

Range plant may include but is not limited to – decanters, water wash process, hypochlorite washing process.

2.3 Decanting and washing of crude sulphate turpentine are carried out.

2.4 Production rate is regulated in accordance with process requirements.

2.5 Production, maintenance, and quality records are completed.

Outcome 3

Refine crude red oil.

Performance criteria

3.1 Safe work practices associated with refining crude red oil 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.

3.2 Plant is set up, started up, operated, and shut down.

Range plant may include but is not limited to – decanters, water wash process, hypochlorite washing process.

3.3 Decanting and washing of crude red oil are carried out.

3.4 Production rate is regulated in accordance with process requirements.

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	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

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.