

Title	Demonstrate knowledge of glue and glue systems, and test glue systems for wood product manufacturing		
Level	4	Credits	15

Purpose	People credited with this unit standard are able to: demonstrate knowledge of properties, characteristics, types of glue, and glue systems used in wood manufacturing industries; test glue samples and interpret results; explain adhesive failures in wood product manufacturing; describe storage, environmental, and health and safety issues in relation to glue systems for wood product manufacturing.
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Classification	Solid Wood Manufacturing > Wood Product Manufacturing Skills
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Available grade	Achieved
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Guidance Information

- 1 Legislation
Health and Safety at Work Act 2015.
Hazardous Substances and New Organisms Act 1996.
Resource Management Act 1991.
- 2 Definitions
Accepted industry practice refers to approved codes of practice and standardised procedures accepted by the wider wood manufacturing industry as examples of best practice.
Workplace procedures refer to documented policies and procedures set by the organisation carrying out the work, and to documented or other directions provided to staff, and applicable to the tasks being carried out. 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, on-site briefings, supervisor’s instructions, and procedures to comply with legislative and local body requirements relevant to the wood manufacturing sector.
- 3 Assessment information
All activities and evidence must meet workplace procedures and accepted industry practice.
- 4 Range
This unit standard is relevant for all glue systems.

- 5 Recommended unit standards for entry:
 Unit 15055, *Demonstrate knowledge of the principles of finger jointing in solid wood manufacturing*; or
 Unit 15056, *Demonstrate knowledge of the principles of laminating in wood product manufacturing*.

Outcomes and performance criteria

Outcome 1

Demonstrate knowledge of properties, characteristics, and types of glue used in wood manufacturing industries.

Performance criteria

- 1.1 Glue types are identified by exposure categories, end-use, and preparation.

Range glue types may include but are not limited to – resorcinol formaldehyde (RF), phenol resorcinol formaldehyde (PRF), melamine urea formaldehyde (MUF), polyvinyl acetate (PVAc) single-pot and two-pot, aqueous polymer isocyanate (API), polyurethanes (PUR);
 exposure categories – internal, exterior protected, exterior exposed;
 end use – structural, non-structural;
 preparation – single-pot, two-pot.

- 1.2 Commercial glues are identified from each glue type.

Range glue types may include but are not limited to – RF, PRF, MUF, PVAc, PVAc with cross linker, API, PUR;
 identification – supplier-given name, glue type, exposure category, extender or filler (if required), catalyst or hardener;
 evidence is required of three glue types.

- 1.3 Conditions which shorten pot-life are described.

Range conditions may include – temperature, humidity, type of glue, viscosity, mix time, excessive hardener;
 evidence is required of three conditions.

- 1.4 Relevant factors required for reliable glue application and bonding are identified.

Range may include but is not limited to – shelf-life, storage temperature, accurate measurement of ingredients, accurate mixing, correct glue spread, correct open assembly time;
 evidence is required of four.

Outcome 2

Demonstrate knowledge of glue systems.

Performance criteria

- 2.1 Hazards associated with preparing, using, and testing glue for wood product manufacturing are identified and actions to be taken to manage the hazard are described.
- Range hazards may include but are not limited to – moving equipment, chemical fumes, chemical spillage; actions may include but are not limited to – isolation procedures, lock-outs, emergency stops, machine guarding, the wearing of appropriate safety equipment, adequate ventilation.
- 2.2 Operating components of the glue system are identified, and their purpose is explained.
- 2.3 Operating parameters and processing capacity of the glue system are defined.
- 2.4 Equipment used for glue testing is described.
- 2.5 Glue ingredient specifications used in the workplace are described, and the actions to be taken with out of specification ingredients are explained.

Outcome 3

Test glue samples and interpret results.

Performance criteria

- 3.1 Glue samples are tested.
- Range may include but is not limited to – viscosity, microwave, gel test, temperature, examination of cured test samples, ratio; evidence for two is required.
- 3.2 Results are recorded and interpreted in terms of in-specification or out-of-specification and any required action is taken.

Outcome 4

Explain adhesive failures in wood product manufacturing.

Performance criteria

- 4.1 Causes of adhesive failures in wood product manufacturing are identified.
- Range evidence of six causes are required.
- 4.2 Physical characteristics that indicate the likely causes of adhesive failure in wood products are explained.
- 4.3 Processes for determining adhesive failure are described.

4.4 Causes of adhesive failures on samples of given products are explained.

Outcome 5

Describe storage, environmental, and health and safety issues in relation to glue systems for wood product manufacturing.

Performance criteria

- 5.1 Maximisation of shelf-life of glue is explained in relation to stock rotation, temperature control, and airtight containers.
- 5.2 Importance of bund walls and emergency procedures is explained.
- 5.3 Disposal of glue washings, glue waste, and empty containers is described.
- 5.4 Signage, labelling, hazard identification, and restricted access requirements are described.
- 5.5 Personal protective clothing and first aid requirements are described in accordance with Material Safety Data Sheets (MSDS).

Planned review date	31 December 2024
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Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	18 December 2006	31 December 2014
Review	2	18 April 2013	N/A
Review	3	27 August 2020	N/A

Consent and Moderation Requirements (CMR) reference	0013
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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 Competenz qualifications@competenz.org.nz if you wish to suggest changes to the content of this unit standard.