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| Title | Produce resin items to finished product specifications for composites | | |
| Level | 3 | Credits | 30 |

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| Purpose | People credited with this unit standard are able to select and prepare materials, resources, equipment, and consumables to produce resin items; produce resin items; demould laminated items; and prepare for and finish items to specifications. |
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| Classification | Composites > Production Composites |
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| Available grade | Achieved |
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Guidance Information

- 1 All required equipment must be set up, started, operated, and shut down in accordance with workplace policies and procedures.
- 2 All work practices must meet recognised codes of practice such as the Code of Practice for Health and Safety in the Manufacture of Composites Based on Synthetic Resins (Fibreglass), 1998. This code, and other relevant codes of practice, are available at <http://worksafe.govt.nz/worksafe>.
- 3 All work practices must meet recognised codes of practice and documented worksite health and safety procedures (where these exceed code) for personal, product, and worksite health and safety, and must meet the obligations required under the Health and Safety at Work Act 2015, Hazardous Substances and New Organisms Act 1996, and Resource Management Act 1991, and any subsequent amendments.
- 4 Definitions

Equipment refers to tools, machinery, and cleaning utensils.

Materials refer to resins, catalyst, reinforcements, cores, waxes, polymers (teflon), extenders and/or additives.

Process specifications refer to the documented order and method of applying the materials used to manufacture the item (time, materials, temperature, and application rates).

Product specifications refer to the documented requirements of the manufactured item.

Resin refers to vinylester, epoxy, laminated polyester, phenolic, or any other resin type used in the marine or composite industry.

Resources refer to moulds, work station, or laminating and post cure plant.

Workplace policies and procedures refer to the documented procedures and policies for providing guidelines of the tasks and activities carried out in the workplace. This typically includes relevant health and safety policies to manage risk in the workplace.

5 Range

Evidence of two different types of resins to produce two different items; items produced must include external corners, internal corners, concave surfaces, and convex surfaces.

Outcomes and performance criteria**Outcome 1**

Select and prepare materials, resources, equipment, and consumables to produce resin items.

Performance criteria

- 1.1 Materials, resources, equipment, and consumables are selected and prepared in accordance with product specifications, and workplace policies and procedures.

Outcome 2

Produce resin items.

Performance criteria

- 2.1 Resin items are produced in accordance with product and process specifications, and workplace policies and procedures.
- 2.2 Cured resin items are checked to ensure product specifications are met.
- 2.3 Produced resin items are checked and remedial action is taken if required to ensure product specifications are met.

Outcome 3

Demould laminated items.

Performance criteria

- 3.1 Resources, materials, and equipment are prepared in accordance with product specifications, and workplace policies and procedures.
- 3.2 Laminated items are demoulded in accordance with process specifications, and workplace policies and procedures.
- 3.3 Produced laminated items are checked and remedial action is taken if required to ensure product specifications are met.

Outcome 4

Prepare for and finish items to specifications.

Performance criteria

- 4.1 Items, resources, materials and equipment are prepared in accordance with product specifications, and workplace policies and procedures.
- 4.2 Items are finished in accordance with product specifications, and workplace policies and procedures.
- 4.3 Finished items are checked and remedial action is taken to ensure product specifications are met.

Range checking includes – weight, dimension, resin content, surface imperfections, plant placement, air entrapment, gelcoat defections, cure level, gloss level.

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| Replacement information | This unit standard replaced unit standard 3160, unit standard 3161, unit standard 3162, unit standard 3184, and unit standard 3185. |
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| Planned review date | 31 December 2026 |
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Status information and last date for assessment for superseded versions

| Process | Version | Date | Last Date for Assessment |
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| Registration | 1 | 15 October 2015 | 31 December 2023 |
| Review | 2 | 26 August 2021 | N/A |

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| Consent and Moderation Requirements (CMR) reference | 0136 |
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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 the NZ Marine and Composites ITO training@nzmarine.com if you wish to suggest changes to the content of this unit standard.