

Title	Demonstrate knowledge of the dangers of handling bituminous materials and the need for safety		
Level	3	Credits	10

Purpose	<p>People credited with this unit standard are able to demonstrate knowledge of:</p> <ul style="list-style-type: none"> – bituminous materials; – the hazards of handling bituminous materials and the safety precautions to control them; – environmental protection relating to bituminous materials and associated products; – bitumen fires and bitumen-related fires; and – first aid relating to bituminous materials.
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Classification	Infrastructure Works > Bitumen Surfacing Construction
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Available grade	Achieved
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Guidance Information

- 1 Learning and assessment within this unit standard must be carried out in an infrastructure works environment; in accordance with industry requirements, the following legislation, guidelines, as relevant to their role, and any subsequent amendments or replacements:
 - Health and Safety at Work Act 2015;
 - Resource Management Act 1991, available from www.legislation.govt.nz;
 - Best Practice Guideline: Safe Handling of Bituminous Materials Used for Roothing (BPG01), available from BPG01 | Civil Contractors NZ;
 - The Bitumen Safety Handbook, available from <https://civilcontractors.co.nz/>.
- 2 Evidence from three different work sites is required to achieve this unit standard.
- 3 Definitions

Associated products refer to kerosene, diesel, and chemical additives.

Bituminous materials refer to bituminous liquids and materials containing bitumen, that are applied to pavement surfaces including hot cutback bitumen, hot polymer modified, emulsified bitumen, hot binders, emulsified binders, straight bitumen.

Burns Card refers to the bitumen Burns Card in the Bitumen Safety Handbook BPG01.

Industry requirements include the policy, procedures, and methodologies of the company. They include legislative and regulatory requirements that may apply across the company or to a specific site. Requirements are documented in the company health and safety plans, traffic management plans, contract work programmes, quality plans, policies, and procedural documents.

Safety Data Sheets (SDS) refer to information that includes hazard and reporting procedures, protection of workers and the public, environmental management, and emergency response procedures.

Outcomes and performance criteria

Outcome 1

Demonstrate knowledge of bituminous materials.

Performance criteria

- 1.1 Properties of bitumen are identified and described in accordance with the Bitumen Safety Handbook and SDS.
- 1.2 Methods of altering the fluidity of bitumen are described in accordance with the Bitumen Safety Handbook.
- 1.3 Binder modification is explained in terms of the effect on handling temperatures, flammability, and fumes.

Range kerosene, adhesion agents, polymers.
- 1.4 Bituminous materials are classified in accordance with the Bitumen Safety Handbook.

Outcome 2

Demonstrate knowledge of the hazards of handling bituminous materials and the safety precautions to control them.

Performance criteria

- 2.1 The obligations of the employer and employee are explained in terms of health and safety legislation.

Range safe environments, hazards and identification, training, accidents, site safety plan.
- 2.2 The requirements of incident recording are outlined in terms of health and safety legislation.
- 2.3 The purpose and content of SDS are explained in terms of BPG01.
- 2.4 Hazards associated with water contamination of hot bituminous liquid and the source are described in accordance with the Bitumen Safety Handbook.
- 2.5 Hazards associated with the addition of cutbacks in hot bituminous liquid are described in accordance with the Bitumen Safety Handbook.

- 2.6 Hazards associated with using bitumen plant and equipment are described in accordance with the Bitumen Safety Handbook.
- Range hot surfaces, hoses, hose couplings, blockages, pressure, product expansion, pumping pressure, steam explosion, ignition source, heating equipment.
- 2.7 Control of hazards is described in accordance with the Bitumen Safety Handbook and SDS.
- 2.8 Requirements for public safety are described in accordance with the Bitumen Safety Handbook.
- 2.9 Safety precautions and handling procedures for bituminous materials contaminated with water are described in accordance with the Bitumen Safety Handbook.
- 2.10 Emergency procedures are described in accordance with BPG01.

Outcome 3

Demonstrate knowledge of environmental protection relating to bituminous materials and associated products.

Performance criteria

- 3.1 Obligations for protecting the environment are explained in terms of the Resource Management Act, emergency guides, SDS, and the Bitumen Safety Handbook.
- 3.2 Adverse effects of spills and contamination of the environment by bituminous materials and associated products are explained in terms of risk control and in accordance with the Bitumen Safety Handbook.
- 3.3 Environmental protection is explained in terms of good housekeeping.
- 3.4 Environmental protection is explained in terms of methods for protecting waterways and drainage systems.
- 3.5 Environmental protection is explained in terms of immediacy of response and availability of equipment and materials to deal with spills of bituminous materials including cutback and emulsion.
- 3.6 Environmental protection is explained in terms of procedures for treating contaminated drainage systems and waterways and the requirements for notification, emergency control, and clean up.
- 3.7 Environmental protection is explained in terms of removing and disposing of spillage and surplus material from locations other than waterways.

Outcome 4

Demonstrate knowledge of bitumen fires and bitumen-related fires.

Performance criteria

- 4.1 Dangers of bitumen fires are described in accordance with the Bitumen Safety Handbook.
- 4.2 Types of bitumen-related fires are explained in terms of hazard identification and treatment.
- Range tank insulation, plant, building, other flammable liquids, electrical, waste and/or split materials, adjacent vegetation.
- 4.3 Emergency procedures for fires are explained in terms of the requirements of the Bitumen Safety Handbook.
- 4.4 Fire extinguishers used for bitumen fires and bitumen-related fires are described in terms of the types, suitability, mounting, protection, and maintenance.
- 4.5 Fire-fighting equipment needed on mobile bitumen plant is identified in accordance with the Bitumen Safety Handbook.
- Range plant includes – tank wagon, sprayer, asphalt paving machine.
- 4.6 Requirements for fighting small fires are described in accordance with the Bitumen Safety Handbook.
- 4.7 Requirements for fighting bitumen tank fires are described in accordance with the Bitumen Safety Handbook.
- 4.8 Procedures for preventing re-ignition are described in accordance with the Bitumen Safety Handbook.

Outcome 5

Demonstrate knowledge of first aid relating to bituminous materials.

Performance criteria

- 5.1 First aid equipment requirements and availability on mobile plant are described in accordance with the Bitumen Safety Handbook.
- Range equipment includes – SDS, Burns Card, water container, first aid kit, safety showers, eye washer.
- 5.2 Immediate first aid for treating hot bitumen burns is described in accordance with the Burns Card and the Bitumen Safety Handbook.

- 5.3 Immediate first aid for treating additive-related chemical burns is described in accordance with SDS.
- 5.4 Procedures for transporting and transferring a patient into medical care are described in accordance with the Burns Card.
- 5.5 First aid for inhalation of bitumen-related fumes is described in accordance with SDS.
- 5.6 First aid relating to inhalation, ingestion, and skin absorption of adhesion agents and chemical additives is described in accordance with SDS.

Range evidence is required for at least one adhesion agent and one chemical additive.

Replacement information	This unit standard replaced unit standard 1495.
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Planned review date	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	27 October 2005	31 December 2013
Review	2	15 March 2012	31 December 2018
Review	3	26 July 2018	31 December 2026
Review	4	29 June 2023	N/A

Consent and Moderation Requirements (CMR) reference	0101
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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 Waihangara Ara Rau Construction and Infrastructure Workforce Development Council at qualifications@WaihangaraAraRau.nz if you wish to suggest changes to the content of this unit standard.