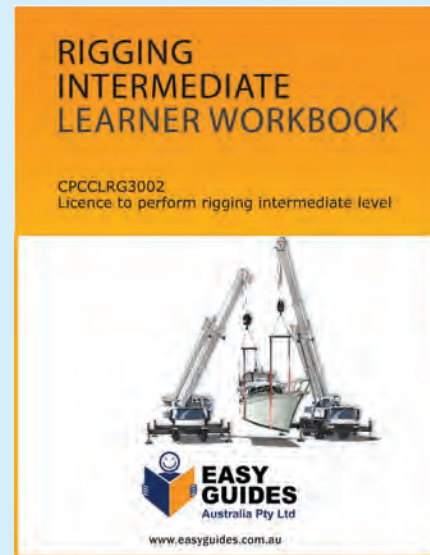


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Safely handle bituminous materials

TICKET



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Introduction to bituminous materials



Introduction to safely handling bituminous materials

Handling bituminous materials safely is very important to keep workers and the environment safe. People should wear safety gear like gloves, glasses, and bright clothing, and use good ventilation and masks in small spaces to avoid breathing in bad fumes.

Workers need training to store, move, and throw away bituminous materials without making a mess.

Machines should be checked often to prevent accidents. Following these rules helps everyone work with bituminous materials in a safe way.



Prepare to safely handle bituminous materials

Element 1



Question 1. What is the difference between asphalt and bitumen?**Bitumen:**

Bitumen is a naturally occurring or refined substance derived from petroleum. It is a thick, black, sticky, and viscous liquid or semi-solid material. Bitumen is the binding agent that holds the aggregates (such as crushed stone, sand, and gravel) together in asphalt pavement. It provides the adhesive and waterproofing properties that make asphalt effective as a road surface material. Bitumen is also used in various other applications, such as roofing, waterproofing, and industrial products.



bitumen

Asphalt:

Asphalt refers to the mixture of aggregates and bitumen that is used in road construction and pavement. It is created by combining the aggregates with bitumen at specific temperatures to form a cohesive material. The asphalt mixture is then laid down in layers, compacted, and cooled to create a solid and smooth road surface. The term "asphalt" is often used to describe the finished product—the paved road or surface.

In summary, bitumen is the sticky, black binder that holds the aggregates together, while asphalt is the composite material created by mixing bitumen and aggregates to create a durable road surface. The terms are related and often used interchangeably in everyday language, but they refer to different aspects of the asphalt pavement construction process.



asphalt

Question 2. What are the four different types of bitumen?

Asphalt:

Asphalt is one of the most well-known bituminous materials and is widely used in road construction and paving. It is a mixture of bitumen and aggregate materials, such as sand, gravel, or crushed stone. Asphalt is known for its durability and ability to withstand heavy traffic.



Bituminous roofing materials:

Bituminous roofing materials, including asphalt shingles, modified bitumen roofing, and built-up roofing, are used to waterproof and protect roofs. They typically consist of layers of bitumen-saturated felt or fabric reinforced with fiberglass or polyester.



Bituminous paints and coatings:

Bituminous paints and coatings are used for corrosion protection and waterproofing applications. These materials are made by blending bitumen with solvents and additives to create a protective layer. They are often applied to steel structures, pipelines, and other surfaces.



Bituminous membranes:

Bituminous membranes are used in various waterproofing applications, including below-grade waterproofing for foundations and basements. They are typically composed of layers of bitumen-modified materials, such as SBS (Styrene-Butadiene-Styrene) or APP (Atactic Polypropylene), and are often applied as sheets or rolls.



Question 10. What kinds of information do you need before starting work?

- Plans – what you need to do
- Specifications – rules and details about the job
- Operational details – how you will do the job
- Quality requirements of the job – the standards you are expected to meet.



Question 11. When planning your job, why do you need to know what other people are doing on site?

- To make sure you will not get in the way of other jobs being done
- To make sure you know what others are doing near where you must work.



Question 15. What PPE should you use when working with an bitumen?

Following are examples of PPE you might need to use when working with bitumen:



Continued from previous page

Squeegees: Squeegees are used to spread and distribute bitumen coatings evenly on surfaces. They are commonly used in waterproofing applications.

Sprayers: Bitumen sprayers are used to apply bitumen emulsions or asphalt in spray form, typically in road construction or maintenance.

Safety gear: When working with bitumen, it's essential to wear appropriate safety gear, including gloves, eye protection, respiratory protection, and protective clothing to safeguard against burns and fumes.

Pneumatic tools: Depending on the specific job, pneumatic tools like jackhammers may be used to remove existing bituminous materials.

Measuring and mixing equipment: For some applications, precise measurement and mixing of bitumen with other materials or additives are necessary. This may involve using calibrated containers, thermometers, and mixing equipment.

Transportation equipment: Trucks and other vehicles are used to transport bitumen from storage tanks to the job site.

Testing equipment: Various testing equipment, such as asphalt density gauges or thickness gauges, may be used to ensure that bituminous materials meet specifications and quality standards.



squeegee



bitumen sprayer

Question 28. What faults on tools and equipment should you check for?

Damage or wear: Check for cracks, bends, or excessive wear on tools that could affect their performance or structural integrity.

Proper functioning: Ensure that tools operate smoothly, have secure fastenings, and functional mechanisms.

Blade or edge condition: Examine cutting or spreading tools for sharpness and intact blades or edges.

Handle integrity: Inspect handles or grips for stability, firm attachment, and freedom from cracks or breaks.

Cleanliness: Remove built-up asphalt or debris from tools to maintain performance and prevent contamination.

Lubrication: Apply appropriate lubrication to tools with moving parts to ensure smooth operation and prevent rust or corrosion.

Calibration (for measuring tools): Verify the calibration of measuring tools for accurate readings and precise asphalt placement.

Safety features: Check the integrity and functionality of safety features such as guards or safety locks to prevent accidents or injuries.

tag out damaged tools



clean bitumen from tools

Work safely with bituminous materials

Element 2



Continued from previous page

Fibres:

Fibres, such as cellulose, polyester, or glass, can be added to asphalt mixes to improve crack resistance and reduce maintenance needs.

Adhesion promoters:

Adhesion promoters are used to enhance the bond between the old and new asphalt layers during resurfacing or overlay projects.

Warm mix asphalt (WMA) additives:

WMA additives reduce the production and laying temperature of asphalt mixes, which can lead to energy savings and reduced emissions.

The specific combination of bituminous materials and additives will depend on the project's requirements, including climate conditions, traffic volume, and the desired performance characteristics of the road surface. Engineers and asphalt mix designers carefully select the materials and additives to meet the project's specifications and ensure the longevity and safety of the road surface.



Warm mix asphalt additives can save energy.



Adhesion promoters help the bond between layers..

Question 33. What would be an example of a work plan for working with bituminous materials?

Bituminous Material Work Plan - Road Construction

Objective:

Scope: To construct a bituminous road in [Location].

Goal: Ensure a durable and safe road surface.

Safety Measures:

All personnel must wear appropriate PPE.

Regular safety briefings and hazard assessments.

Emergency response procedures in place.

Materials and Equipment:

Bitumen (Type [specify]).

Aggregates (Type [specify]).

Asphalt paver, roller, and compaction equipment.

Necessary hand tools and safety equipment.

Timeline:

Phase 1 (Preparation): [Start Date] - [End Date]

Phase 2 (Asphalt Application): [Start Date] - [End Date]

Phase 3 (Curing and Inspection): [Start Date] - [End Date]



Wear PPE.

Continued next page...

Demonstrate first aid for bitumen burns

Element 3



Question 35. What first aid should be done if someone gets a bitumen burn?

A bitumen burn, also known as an asphalt burn, can be a painful and potentially serious injury that occurs when hot bitumen (a thick, black, and sticky substance commonly used in road construction) comes into contact with the skin. Here are the steps to take for first aid if someone sustains a bitumen burn:

Remove the heat Source:

The first and most crucial step is to immediately remove the source of heat or bitumen from the affected area. This might involve gently brushing off any bitumen that is still in contact with the skin, taking care not to cause further damage or spread the hot material.

Cool the burn:

Use cool (not cold) running water to cool the affected area for at least 10-20 minutes. Do not use ice or very cold water, as it can further damage the skin. Cooling the burn helps to reduce pain and limit the depth of the injury.

Protect the area:

Cover the burn with a clean, non-stick dressing or a sterile, lint-free cloth to prevent infection. Do not use adhesive bandages or anything that might stick to the burn.



First aid is needed if someone gets a bitumen burn.



Use cool running water on the burn for 10 to 20 minutes..

Continued next page...

Continued from previous page

Seek medical attention:

Bitumen burns can vary in severity, and even minor burns may require medical evaluation. You should seek medical attention if the burn covers a large area, appears deep, or is causing significant pain. A healthcare professional can assess the burn and determine the appropriate treatment.

Pain management:

Over-the-counter pain relievers like ibuprofen or acetaminophen can be used to help manage pain. Always follow the recommended dosages on the packaging.

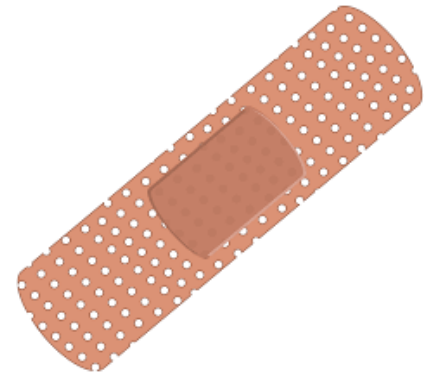
Do Not:

- Do not attempt to pop any blisters that may form on the burn.
- Do not use adhesive bandages, ointments, or creams directly on the burn.
- Do not use adhesive tape to secure the dressing, as it may damage the burned skin.

It's important to remember that bitumen burns can be severe, and their treatment may require specialized care, especially if the burn is extensive or covers a sensitive area of the body. In some cases, surgical intervention or skin grafts may be necessary. For these reasons, seeking prompt medical attention is essential.



You may need medical attention.



Do not use adhesive bandages, ointments, or creams directly on the burn.

Question 36. What is a 'Bitumen Burn Tag'?

A 'Bitument Burn Tag' should be kept with the patient in a position where it can be seen. It tells what first aid to give.

ATTACH TO THE PATIENT

BitSafe 1 Burns Tag

TREATMENT OF BITUMEN BURNS

NOTES FOR THE GUIDANCE OF FIRST AID AND MEDICAL PERSONNEL

All persons working with hot bitumen should be familiar with these recommendations in order to administer first aid to burnt workers. This tag should accompany the patient and be placed in a prominent position before the patient is transported to a doctor or hospital.

NO ATTEMPT SHOULD BE MADE TO REMOVE THE BITUMEN FROM THE BURNED AREA AT THE WORKSITE!

■ **First Aid**

- If hot bitumen causes the worker, the affected area should be cooled immediately by directing it over a large volume of running water for at least 15 minutes.
- The cooling treatment should be continued until the patient has cooled and then cooled.
- No attempt should be made to remove the bitumen from the burnt area.
- A coverhead (pressure) should be applied to the burnt area.
- For small or not very severe burns, the patient's treatment should be stopped when the affected area is cooled and help for a good effect at a hospital is sought.

See other side

ATTACH TO THE PATIENT

2

■ **Further treatment and medical care**

- The bitumen layer will be firmly attached to the skin, and removal should NOT be attempted except at a medical facility under the supervision of a doctor. The cool bitumen will form a waterproof, plastic layer over the burn which will prevent the burn from drying out. If the bitumen is removed from the wound there is a possibility of complications.
- The dressing should be left in place and covered with a dressing containing a paraffin-based ointment e.g. Flamazine. Such treatment will have the effect of softening the bitumen, enabling it to be removed over a period of days.
- The dressing should be changed daily or when soiled or dry, at which time any softened bitumen can be gently removed. Petroleum-based antibiotic ointments or petroleum jelly may be used under medical supervision.
- The degree and extent of burns, and the general condition of the patient will dictate when transfer to a specialised burns unit is indicated.

■ **Circumferential burns**

Where hot bitumen completely encircles a limb or other body part the cooled and hardened bitumen may have a tourniquet effect. The bitumen should be softened as described above and the patient referred urgently for specialised medical attention.

■ **Eye burns**

If hot bitumen enters an eye, it should be flushed with water until the bitumen has cooled. No attempt should be made by unqualified personnel to remove the bitumen. The patient should be referred urgently for specialised medical assessment and treatment.

While considerable effort has been made to ensure the accuracy of the information provided, Sabita nor its members can accept liability for any loss, damage or injury whatsoever resulting from the use of this information.

sabita hse

Clean up

Element 4



Question 38. What maintenance do you need to do when you have finished working with bitumen?

Personal protective Equipment (PPE):

Inspect and clean personal protective equipment, such as gloves, safety glasses, and protective clothing.

Replace or repair damaged PPE to ensure it's in good working condition for future use.

Storage:

Properly store any remaining bitumen products, ensuring that containers are tightly sealed and stored in a cool, dry place to prevent contamination and maintain their integrity.

Store bitumen materials away from open flames, heat sources, and direct sunlight to prevent spontaneous combustion.

Inspection:

Regularly inspect tools and equipment used for bitumen work to identify and address any issues promptly. This includes checking for wear, leaks, or damage that could compromise safety or performance.

Spill cleanup:

If there were any bitumen spills during the work, make sure that the affected area is properly cleaned and remediated. Use absorbent materials to clean up the spills and dispose of the contaminated materials according to local regulations.



Clean and / or maintain PPE.



Clean up any bitumen spills.

Learner Workbook

STUDENT COPY

RIICBS203E –

Safely handle bituminous materials



This resource was developed by:



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SAMPLE


Knowledge Questions





Element 1 – Prepare to conduct asphalt paver operations


<p>Question 1 What is the difference between asphalt and bitumen?</p>	<p>PC 1.1</p>
	


<p>Question 2 What are the four different types of bitumen?</p>	<p>PC 1.1</p>
<p>1..... 2..... 3..... 4.....</p>	


<p>Question 3 How do you get, understand and confirm work requirements when working with bituminous materials?</p>	<p>PC 1.1</p>
	


Question 7 What are quality requirements?	PC 1.2
	 The logo consists of a red vertical rectangle with the text "Quality System" written vertically in white. To the right of the text are four white chevron symbols pointing downwards, arranged in a vertical column.


Question 8 You are working with bitumen. How can you check the the quality of the work?	PC 1.2
	 Two photographs are shown. The top photograph shows a person operating a roller on a road surface, with a large cloud of white dust or steam rising from the machine. The bottom photograph shows two workers in high-visibility vests and hard hats using tools to spread or finish a layer of bitumen on a road surface.

<p>Question 9 What is a safety data sheet (SDS) used for?</p>	<p>PC 1.1</p>
	

<p>Question 10 What kinds of information do you need before starting work?</p>	<p>PC 1.1, 1.2</p>
	


<p>Question 11 When planning your job, why do you need to know what other people are doing on site?</p>	<p>PC 1.1</p>
	


<p>Question 12 What are environmental issues when working with bitumen?</p>	<p>PC 1.3</p>
Empty space for student answer	


<p>Question 13 What are potential hazards when working with bitumen?</p>	<p>PC 1.3</p>
Empty space for student answer	


<p>Question 14 What is a Job safety and environment analysis (JSEA) and a Safe work method statement (SWMS)?</p>	<p>PC 1.3</p>																																												
Empty space for student answer	<div style="text-align: center;"> <p>Job Safety Analysis Worksheet</p> </div> <p>Company name: _____ Date: _____ Risk No: _____</p> <p>Site name: _____ Permit to work required: Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p>Contractor: _____ Approved by: _____</p> <p>Activity: _____</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 25%;">Activity</th> <th style="width: 25%;">Hazards</th> <th style="width: 25%;">Risk control measures</th> <th style="width: 25%;">Who is responsible?</th> </tr> <tr> <td style="font-size: 8px;">List the tasks needed to do the job in the order they are done.</td> <td style="font-size: 8px;">Next to each task list the hazards that could cause injury when the task is done.</td> <td style="font-size: 8px;">List the control measures needed to remove or minimise the risk of injury from the hazard you have identified.</td> <td style="font-size: 8px;">Write the name of the person responsible (supervisor or above) for putting the control measures in place.</td> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>	Activity	Hazards	Risk control measures	Who is responsible?	List the tasks needed to do the job in the order they are done.	Next to each task list the hazards that could cause injury when the task is done.	List the control measures needed to remove or minimise the risk of injury from the hazard you have identified.	Write the name of the person responsible (supervisor or above) for putting the control measures in place.																																				
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<p>Question 15 What PPE should you use when working with an bitumen?</p>	<p>PC 1.4</p>
	
<p>Question 16 When do you wear respiration gear such as a mask?</p>	<p>PC 1.4</p>
	
<p>Question 17 When do you wear hearing protection?</p>	<p>PC 1.4</p>
	
<p>Question 18 What traffic management signage might you need when working with bitumen?</p>	<p>PC 1.5</p>
	

<p>Question 19 What is the aim of a traffic control plan?</p>	<p>PC 1.5</p>
	


<p>Question 20 What does the traffic management plan (TMP) tell you?</p>	<p>PC 1.5</p>
	

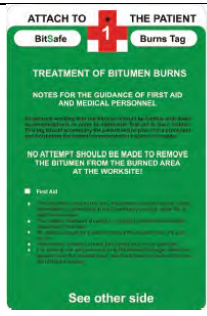
<p>Question 21 Where do you put up warning signs?</p>	<p>PC 1.5</p>
	

<p>Question 22 What signs may be used in a traffic control plan?</p>	<p>PC 1.5</p>
	




<p>Question 34 What hazards and risks do you need to check for?</p>	<p>PC 2.3</p>
	


Element 3 – Demonstrate First Aid for bitumen burns

<p>Question 35 What first aid should be done if someone gets a bitumen burn?</p>	<p>PC 3.1</p>
	

<p>Question 36 What is a 'Bitumen Burn Tag'?</p>	<p>PC 3.2</p>
	

Element 4 – Clean up

<p>Question 37 You have been working with bitumen. What do you need to do to clear the work area and recycle materials?</p>	<p>PC 4.1</p>
	
<p>Question 38 What maintenance do you need to do when you have finished working with bitumen?</p>	<p>PC 4.1</p>
	
<p>Question 39 How should you store bitumen tools and equipment?</p>	<p>PC 4.1</p>
	

<p>Question 40 You have finished working with bitumen. What housekeeping do you need to do?</p>	<p>PC 4.1</p>
	

SAMPLE

Practical assessment tasks – Check List

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit; including evidence of the ability to:

- safely handle bituminous materials on **at least two occasions with at least two different asphalt or surface types.**

NOTE: You will do each task once when completing the workbook and once when doing the final summative assessment.

Practical Assessment Task 1 – Prepare to handle bituminous materials



SCENARIO [Your trainer will give you the following job or something similar.]

Your job is to prepare to handle bituminous materials. You will be doing routine jobs under direct supervision.

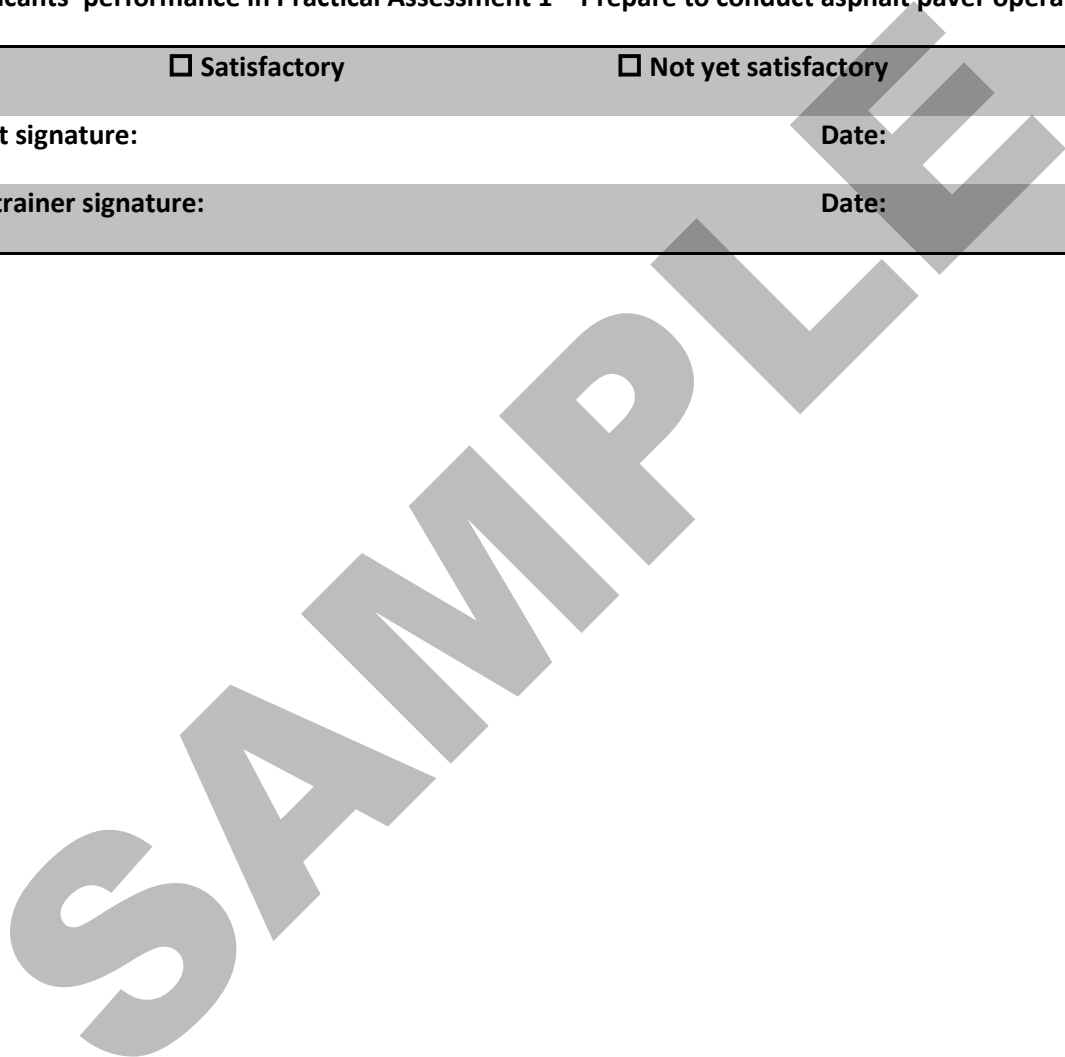
Demonstrate the following steps:

Task - Road Construction Worker	Satisfactory
Site Preparation: Assisting with the preparation of the construction site by clearing debris, marking boundaries, and setting up safety barriers. This is typically done under the guidance and direct supervision of experienced construction workers.	
Material Handling: Carrying and distributing bituminous materials like asphalt mixtures, gravel, or other materials used in road construction. They work closely with equipment operators and follow their instructions.	
Equipment Operation Support: Assisting equipment operators (such as asphalt paver operators or roller operators) by guiding them and ensuring the proper distribution and compaction of bituminous materials. Laborers may use hand tools to shape and spread materials.	
Traffic Control: Setting up and managing traffic control devices and signs to redirect and ensure the safety of drivers and pedestrians around the construction site. This is typically done under the supervision of flaggers or traffic control personnel.	
Material and Tool Maintenance: Assisting in the maintenance and cleaning of construction equipment, hand tools, and materials. This includes tasks like cleaning and storing tools and equipment properly.	

<p>Safety Compliance: Following strict safety guidelines and procedures when working with bituminous materials and heavy machinery. They must also report safety concerns to supervisors.</p>	
<p>Documentation and Reporting: Assisting in keeping records of work activities and reporting progress to supervisors or more experienced workers.</p>	

The applicants' performance in Practical Assessment 1 – Prepare to conduct asphalt paver operations:

<input type="checkbox"/> Satisfactory	<input type="checkbox"/> Not yet satisfactory
<p>Applicant signature:</p>	<p>Date:</p>
<p>Trainer/trainer signature:</p>	<p>Date:</p>



Practical Assessment Task 2 – Work safely with bituminous materials





SCENARIO [Your trainer will give you the following job or something similar.]

Your job is to repair potholes. You will be doing routine jobs under direct supervision.

Demonstrate the following steps:

Task - Road Construction Worker	Satisfactory
<p>Step 1: Safety Precautions</p> <p>Before starting any work, the pothole repair worker, working under direct supervision, ensures they are equipped with the necessary personal protective equipment (PPE), such as gloves, safety glasses, and a high-visibility vest.</p>	
<p>Step 2: Site Inspection</p> <p>The worker, guided by the supervisor, inspects the pothole site to assess its size, depth, and condition.</p>	
<p>Step 3: Traffic Control</p> <p>If the pothole repair is on a road, the worker and the supervisor set up appropriate traffic control measures. This includes placing cones, signs, and barricades to protect the work area and ensure the safety of passing vehicles.</p>	
<p>Step 4: Preparation of Bituminous Material</p> <p>The worker assists the supervisor in preparing the bituminous material, which may be hot asphalt mix or a cold patch material. They ensure that the material is at the correct temperature and consistency for proper application.</p> <p>[Note: Bitumen could be:</p> <ol style="list-style-type: none"> 1. asphalt 2. bituminous roofing materials 3. bituminous paints and coatings 4. bituminous membranes 	
<p>Step 5: Pothole Cleaning</p> <p>The worker, under direct supervision, uses a shovel, broom, or compressed air to clean the pothole of loose debris, water, and loose asphalt fragments. The objective is to create a clean, dry surface for the new material to adhere to.</p>	

LEARNER GUIDE






Safely handle bituminous materials

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Prepare to safely handle bituminous materials

Element 1




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3

PC 1.1 PREPARE TO SAFELY HANDLE BITUMINOUS MATERIALS


Question 1. What is the difference between asphalt and bitumen?

Bitumen:
Bitumen is a naturally occurring or refined substance derived from petroleum. It is a thick, black, sticky, and viscous liquid or semisolid material. Bitumen is the binding agent that holds the aggregates (such as crushed stone, sand, and gravel) together in asphalt pavement. It provides the adhesive and waterproofing properties that make asphalt effective as a road surface material. Bitumen is also used in various other applications, such as roofing, waterproofing, and industrial products.



bitumen

Asphalt:
Asphalt refers to the mixture of aggregates and bitumen that is used in road construction and pavement. It is created by combining the aggregates with bitumen at specific temperatures to form a cohesive material. The asphalt mixture is then laid down in layers, compacted, and cooled to create a solid and smooth road surface. The term "asphalt" is often used to describe the finished product—the paved road or surface.



asphalt

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PC 1.2 PREPARE TO SAFELY HANDLE BITUMINOUS MATERIALS

Question 6. What is an example of material calculations when working with bitumen?

Scenario:
We're tasked with constructing a 1-kilometer long, 4-meter wide asphalt road with a thickness of 5 centimeters. The project specifications call for an asphalt mix with 5% bitumen content by weight. We'll calculate the required amounts of bitumen and aggregates for this section of the road.

1. Bitumen quantity calculation:
To find the bitumen quantity, we first need to calculate the volume of asphalt needed:
Volume = Length x Width x Thickness
Volume = 1000 meters x 4 meters x 0.05 meters = 200 cubic meters
Next, we convert the volume to weight using the specified bitumen content:
Bitumen Weight = Volume x Bitumen Content
Bitumen Weight = 200 m³ x 0.05 (5%) = 10 metric tons of bitumen.



2. Aggregate quantities:
The proportions of aggregates in the mix can vary, but let's assume a common mix with a 95% aggregate content by weight. We'll calculate the total weight of aggregates needed:
Aggregate Weight = Volume x (1 - Bitumen Content)
Aggregate Weight = 200 m³ x (1 - 0.05) = 200 m³ x 0.95 = 190 metric tons of aggregates

In this example, you would need 10 metric tons of bitumen and 190 metric tons of aggregates to construct the specified section of the road.


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PREPARE TO SAFELY HANDLE BITUMINOUS MATERIALS


Continued from previous slide...

Smooth road surface:
Look at the road's surface. It should be smooth and even without any bumps.



Measure thickness and density:
Use tools to check how thick and dense the road is. It should meet the project's requirements.

Take samples:
Get samples from the road to check its quality. Compare the results with what the project needs.



Keep records:
Keep a record of all the tests and actions done during the project.

Keep records of work done.

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PC 1.3 PREPARE TO SAFELY HANDLE BITUMINOUS MATERIALS

Question 12. What are environmental issues when working with bitumen?

Water contamination: Improper handling can contaminate water sources, harming aquatic life and water quality.

Air pollution: Heating and processing release pollutants, impacting air quality and health.

Habitat disruption: Construction can damage ecosystems and wildlife habitats.

Wildlife impact: Spills can harm animals that come into contact with contaminated areas.

Soil contamination: Mishandling can lead to soil pollution, affecting land use and quality.

Greenhouse gas emissions: Bitumen processes contribute to climate-changing emissions.

Waste generation: Bitumen activities produce waste, which if mismanaged, leads to pollution.

Spills and accidents: Accidental spills cause long-lasting harm to soil, water, and wildlife.




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7

PC 1.4 PREPARE TO SAFELY HANDLE BITUMINOUS MATERIALS

Question 15. What PPE should you use when working with an bitumen?



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Work safely with bituminous materials

Element 2



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PC 2.2 WORK SAFELY WITH BITUMINOUS MATERIALS

Question 33. What would be an example of a work plan for working with bituminous materials?



Bituminous Material Work Plan - Road Construction

Objective:
Scope: To construct a bituminous road in [Location].
Goal: Ensure a durable and safe road surface.

Safety Measures:
All personnel must wear appropriate PPE.
Regular safety briefings and hazard assessments.
Emergency response procedures in place.

Materials and Equipment:
Bitumen (Type [specify]).
Aggregates (Type [specify]).
Asphalt paver, roller, and compaction equipment.
Necessary hand tools and safety equipment.

Timeline:
Phase 1 (Preparation): [Start Date] - [End Date]
Phase 2 (Asphalt Application): [Start Date] - [End Date]
Phase 3 (Curing and Inspection): [Start Date] - [End Date]

Wear PPE.

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Demonstrate first aid for bitumen burns

Element 3



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PC 3.1 DEMONSTRATE FIRST AID FOR BITUMEN BURNS

Question 35. What first aid should be done if someone gets a bitumen burn?

A bitumen burn, also known as an asphalt burn, can be a painful and potentially serious injury that occurs when hot bitumen (a thick, black, and sticky substance commonly used in road construction) comes into contact with the skin. Here are the steps to take for first aid if someone sustains a bitumen burn:

Remove the heat source:
The first and most crucial step is to immediately remove the source of heat or bitumen from the affected area. This might involve gently brushing off any bitumen that is still in contact with the skin, taking care not to cause further damage or spread the hot material.

Cool the burn:
Use cool (not cold) running water to cool the affected area for at least 10-20 minutes. Do not use ice or very cold water, as it can further damage the skin. Cooling the burn helps to reduce pain and limit the depth of the injury.

Protect the area:
Cover the burn with a clean, non-stick dressing or a sterile, lint-free cloth to prevent infection. Do not use adhesive bandages or anything that might stick to the burn.

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Clean up

Element 4



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PC 4.1. 4.2 CLEAN UP


Question 37. You have been working with bitumen. What do you need to do to clear the work area and recycle materials?

Personal protective equipment (PPE):
Ensure that all workers are wearing appropriate personal protective equipment (PPE), including gloves, safety glasses, and protective clothing, to prevent exposure to bitumen and its fumes.

Cleanup and segregation:
Collect and segregate all materials used during the bitumen application, such as used brushes, rags, containers, and any waste materials.
Store bitumen-containing materials separately from other waste materials to facilitate recycling or disposal.

Spill management:
In case of bitumen spills, use absorbent materials like oil absorbent pads or clay-based absorbents to clean up the spilled material.
Follow spill response procedures to minimize the environmental impact and ensure proper disposal of contaminated materials.

Recycling bitumen:
Bitumen can be recycled and reused in various ways, such as in asphalt production. Check local regulations and recycling facilities to determine the best way to recycle bitumen in your area.
Bituminous materials can be reheated, reprocessed, and incorporated into new asphalt mixtures.



Wear PPE when cleaning up.

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