



GUIDANCE ON SAFETY FOOTWEAR FOR BITUMEN DELIVERY DRIVERS

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The laws and regulations in Europe require employers to provide safe systems of work to ensure the safety of their employees and the public. Health and safety laws impose duties on all relevant stakeholders and on all involved parties to provide safe systems of work. This Guidance on safety footwear for bitumen delivery drivers is intended to help all parties comply with their responsibilities during the transfer, handling, and storing of hot bitumen or bitumen products and does not alter the legal responsibility of either party.

1. INTRODUCTION

Current EU safety legislation requires employers to carry out risk assessments to identify the dangers to which employees are exposed in the course of their work and then to define the physical and procedural measures by which the risks can be eliminated or at least minimised. Through this process the 'residual risk' can be addressed by the use of personal protective equipment as the last line of defence.

2. RISKS POSED DURING BITUMEN DELIVERY

The main risks that a driver is exposed to during the delivery of hot bitumen are:

- Burns from an uncontrolled release of hot bitumen;
- Slips, trips and falls;
- Injury as a result of manual handling of the flexible delivery hose.

The Guide to the Safe Delivery of Bitumen requires that a 'safe and readily accessible point is provided with a flat even surface and adequate lighting within the six-metre exclusion zone around the delivery vehicle.'

Manual handling training, which includes safe lifting techniques, is provided for drivers to minimise the risk of delivery hoses and other miscellaneous equipment being mishandled and dropped.

This document provides guidance on the most appropriate safety footwear to minimise the risk of hot bitumen burns and other injuries to the lower legs and feet during the loading and delivery of hot bitumen.

3. FOOTWEAR REQUIREMENTS

Safety boots must be manufactured according to EN 345, include toe cap protection and anti-slip soles. In addition, the key requirements of footwear for delivery drivers are:

- Resistance to hot bitumen spillages;
- Provide support to the foot and ankle;
- Correctly fitting, comfortable, and practical for the application.

4. COMPARISON OF SAFETY FOOTWEAR FOR BITUMEN DELIVERY DRIVERS

RIGGER STYLE BOOTS

The main benefit of the rigger style boot with ankle support is that it can provide the maximum protection against lower leg and foot burns from hot bitumen when worn as shown in the Appendix (ref. Appendix 2 of the Guide to the Safe Delivery of Bitumen).

It is critically important that the legs of the boiler suit/coverall are over the top of the boot. The lack of openings for the ingress of hot bitumen is an advantage because it prevents skin contact and the boots can be removed quickly and easily in an emergency, reducing exposure to heat. They provide less ankle support than lace-up safety boots but this is usually a secondary consideration for a delivery driver.

Normally, the delivery driver changes into the rigger style boots only for the actual delivery, so the ease of putting them on and taking them off encourages their use.

This type of boot should not be used for driving.

This type of boot is recommended for use by bitumen delivery drivers.

(LACE-UP) SAFETY BOOTS

Although lace-up safety boots provide ankle support there is a concern about their ability to protect against bitumen burns.

The relatively low top, tongue area and lace eyelets provide possible ingress points for hot bitumen. Furthermore, in the event that bitumen is spilled/sprayed onto lace-up boots, the delivery driver or first aider may struggle to release the boot quickly from the foot, potentially prolonging the period of skin contact with hot bitumen or exposure to heat burns.

This type of boot is therefore not recommended for use by bitumen delivery drivers during discharge of bitumen.

SAFETY SHOES

Safety shoes incorporate a steel toe cap for protection against items being dropped on the foot, however they provide little ankle support and only partial protection against burns.

The low and open side of the shoe, the tongue area and lace eyelets provide ingress points for hot bitumen.

This type of shoe is therefore not considered as providing the necessary protection required.

OVER-BOOTS (designed to be used with lace-up shoes/boots)

Several over-boots have been tested by bitumen suppliers to assess if the benefits of a lace-up boot and the protection of rigger boot could be achieved.

Their cumbersome nature and the need to put them on and take them off for every delivery means that the over-boots currently available are not a practical option for bitumen delivery drivers.

FOUNDRY BOOTS

High and medium leg foundry boots are capable of offering similar protection to rigger style boots though there is a greater potential for ankle and lower leg movement if the boots are not fastened tightly. However, if they are fastened securely and bitumen is spilled / sprayed onto the boots, the delivery driver or first aider may have difficulty removing the boot quickly from the foot, potentially prolonging the period of exposure to heat. The low leg foundry boot offers insufficient overlap of the boot top and overall.

Therefore, the foundry boot offers less practical protection than the rigger style boot and is not recommended for bitumen loading or discharge.

LUMBERJACK BOOTS

Arguably the only other boot capable of offering similar protection to rigger style boots is a high-leg, lace-up lumberjack style boot.

This will give better protection than a rigger style boot or an ankle-high lace-up, but is unsuitable for driving. Putting on the boots takes several minutes and is best done sitting down. The delivery driver may need to change his footwear six times per shift and a lengthy, uncomfortable procedure makes this undesirable.

Therefore, the lumberjack boot is not considered to be a practical option.

5. SUMMARY

Although no safety footwear can provide complete protection against all injuries, this assessment has considered all of the injury risks and their potential severity. The table below compares the benefits of these different types of footwear. It is compulsory to have the coverall legs worn over the safety footwear.

	Rigger Style Boots	(Lace-up) Safety Boots	Safety Shoes	Over-Boots	Foundry Boots	Lumberjack Boots
Foot protection	Good	Good	Good	N/A	Good	Good
Ankle support	Good	Good	Poor	N/A	Good	Good
Ease of use	Good	Good	Good	Poor	Good	Poor
Protection against hot bitumen	Good	Fair	Poor	Good	Fair	Good
Ease of removal in an emergency	Good	Poor	Poor	Poor	Poor	Poor
Recommend for bitumen deliveries	Yes	No	No	No	No	No
Suitable for driving	No	Yes	Yes	No	No	No

Assuming the customer provides a safe environment at the delivery point, as defined in the Guide to the Safe Delivery of Bitumen, the prime aim of the additional protection afforded by Personal Protective Equipment for bitumen delivery drivers, should be to minimise the potential for hot bitumen burns and facilitate the quick and easy removal of the boot in an emergency situation.

Considering all factors in bulk bitumen delivery operations, the protection of the lower legs and feet from hot bitumen burns is best afforded by the rigger style boot, with the coverall garment legs overlapping the boot. However, rigger boots should only be worn by the driver when carrying out the bitumen delivery and within the 6m exclusion zone. When the delivery is complete the driver should wear safety boots that comply with the site-specific footwear requirements.

Eurobitume strongly recommends drivers to have two pairs of footwear: one for driving (Safety boots or safety shoes), one during bitumen loading and unloading operations (Rigger style boots).

6. USEFUL REFERENCES

Guide to the Safe Delivery of Bitumen (2018), Eurobitume

Working feet and footwear - Health and safety at work guidance
(Available to download from <https://www.tuc.org.uk/sites/default/files/footwear.pdf>)

HSE Guidance on Footwear
(Available at <https://www.hse.gov.uk/slips/footprocure.htm>)

INRS Brochure Les articles chaussants de protection - Choix et utilisation
(Available at <https://www.inrs.fr/media.html?refINRS=ED%20994>)

APPENDIX: PERSONAL PROTECTIVE EQUIPMENT

See also: Eurobitume Guide to the Safe Delivery of Bitumen, July 2018.

Minimum level of Personal Protective Equipment (PPE) for all personnel around the delivery. Higher level of PPE may be required locally. Consideration to the relevant EN specifications must be given when ordering PPE.

1. Safety helmet; preferably fitted with a chin strap
2. Full visor to protect the face
3. Safety glasses
4. Neck apron
5. Heat-resistant gloves with long sleeves
6. 100 % cotton and fire retardant (Proban® or similarly treated) coverall, preferably with high visibility markings
7. Coverall, legs to be worn over the boots
8. Safety boots that can be removed easily

Note: Site specific PPE requirements may apply outside the 6 meters zone.



* Rigger style boots, with coverall legs overlapping the boots, are deemed to provide the best protection of the lower legs and feet from hot bitumen burns.



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