

Soil stabiliser – A71

Learning for CPCS

Outcomes



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Through a combination of targeted training and experience, an individual with the soil stabiliser will be able to:

Roles and responsibilities	<ul style="list-style-type: none">• Describe the nature of the sector of industry and their role and responsibilities as a plant operator
Preparing for work	<ul style="list-style-type: none">• Name and explain the purpose of principal components, the basic construction, controls and terminology• Conform with manufacturer's requirements as per the operator's handbook, other types of information source and relevant regulations and legislation• Undertake all pre-use checks
Travelling and manoeuvring	<ul style="list-style-type: none">• Configure and set for site travel• Travel over rough, undulating ground, substantial inclines and level surfaces• Manoeuvre in confined spaces
Setting up for work	<ul style="list-style-type: none">• Configure and set for soil stabilising or spreading duties (Endorsement C only)• Explain actions required for hazards, underground and overhead services• Explain differing methods of loading hoppers
Working tasks	<ul style="list-style-type: none">• Spread and/or incorporate a range of given materials to given specifications• Ensure total incorporation and/or spread over a given area• Explain the principles of soil stabilisation and the requirements and techniques for differing types of soil
Completing work	<ul style="list-style-type: none">• Clear the mixing chamber/area and/or spreading box clear of loose material• Carry out post-operation maintenance procedures
Shutting down	<ul style="list-style-type: none">• Carry out shut down and securing procedures• Explain the loading and unloading procedures for machine transporting

Syllabus

Learning outcome	Training content	
<ul style="list-style-type: none"> Describe the nature of the sector of industry and their role and responsibilities as a plant operator 	<ul style="list-style-type: none"> Industry type Customer / client needs Sector contribution Role Reporting structures Lifelong skills Working practices Social responsibilities 	<ul style="list-style-type: none"> Communication with colleagues / management / other trades Health and Safety at Work etc. Act Environmental issues Other trades
<ul style="list-style-type: none"> Name and explain the purpose of principal components, the basic construction, controls and terminology 	<ul style="list-style-type: none"> Differing types Functions and applications Power units Hydraulic systems Transmissions Chassis / steering systems and modes 	<ul style="list-style-type: none"> Stability / ground pressure Mixing chambers Rotors and tips Machine protection Safety systems Attachments ROPS / FOPS
<ul style="list-style-type: none"> Conform with manufacturer's requirements as per the operator's handbook, other types of information source and relevant regulations and legislation 	<ul style="list-style-type: none"> Operator's Manual Machine decals Health and Safety at Work Act PPE Codes of Practice Site plans/drawings 	<ul style="list-style-type: none"> COSHH Specialist requirements Risk assessments / Method statements Inspection and reporting forms / procedures
<ul style="list-style-type: none"> Undertake all pre-use checks 	<ul style="list-style-type: none"> Regular and non-scheduled maintenance procedures 	<ul style="list-style-type: none"> Sequence of pre-use checks Defect reporting
<ul style="list-style-type: none"> Configure and set for site travel 	<ul style="list-style-type: none"> Steering controls Attachments / accessories 	<ul style="list-style-type: none"> Travel position Site travel Visibility
<ul style="list-style-type: none"> Travel over rough, undulating ground, substantial inclines and level surfaces 	<ul style="list-style-type: none"> Travel routes Slopes / inclines Direction of travel Traction Ground / surface conditions 	<ul style="list-style-type: none"> Hazards Working area Environment protection / minimise damage
<ul style="list-style-type: none"> Manoeuvre in confined spaces 	<ul style="list-style-type: none"> Visibility Limitations of vision Protection of ground / tight turns 	<ul style="list-style-type: none"> Environmental / noise / fumes Height restrictions

Syllabus (continued)

Learning outcome	Training content	
<ul style="list-style-type: none"> • Configure and set for soil stabilising or spreading duties 	<ul style="list-style-type: none"> • Type, nature and amount of materials • Required specification • Rotor size / type / tips • Mixing chamber settings 	<ul style="list-style-type: none"> • Rotor / working depths • Rotor speeds and direction • Site markings • Machine positioning •
<ul style="list-style-type: none"> • Explain actions required for hazards, underground and overhead services 	<ul style="list-style-type: none"> • Types of typical hazards • Reporting procedures for damage to services 	<ul style="list-style-type: none"> • Minimum distances and clearances • Warning / identification systems
<ul style="list-style-type: none"> • Explain differing methods of loading hoppers 	<ul style="list-style-type: none"> • Loading types and methods of loading • Hopper types • PPE / Safety equipment • Pressurised systems 	<ul style="list-style-type: none"> • Loading procedures • Loading issues • Loading ancillary equipment
<ul style="list-style-type: none"> • Spread and/or incorporate a range of given materials to given specifications 	<ul style="list-style-type: none"> • Techniques • Working on inclines • Communication • Machine positioning • Travel speeds • Spread rates 	<ul style="list-style-type: none"> • Working directions • Environmental factors • Angles of repose / working near edges • Productive cycles of operation • Machine protection
<ul style="list-style-type: none"> • Ensure total incorporation or spread over a given area 	<ul style="list-style-type: none"> • Compaction • Over banding / traversing previous pass • Controlling depth 	<ul style="list-style-type: none"> • Straight passes • Commencing and finishing passes • Radii, inclines and restricted areas
<ul style="list-style-type: none"> • Explain the principles of soil stabilisation and the requirements and techniques for differing types of soil 	<ul style="list-style-type: none"> • Processes and applications • Incorporation • Soil improvement and consolidation • Compaction / soil bearing capacity 	<ul style="list-style-type: none"> • Nature of different soils • Binding agents • Other additives • Environmental issues
<ul style="list-style-type: none"> • Clear the mixing chamber / area or spreading box clear of loose material 	<ul style="list-style-type: none"> • Procedures for cleaning • Techniques • Cleaning working area 	<ul style="list-style-type: none"> • Environmental factors • Safe working procedures

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Syllabus (*continued*)

Learning outcome	Training content	
<ul style="list-style-type: none">• Carry out post-operation maintenance procedures	<ul style="list-style-type: none">• Purpose for post operational maintenance• Type of procedures• Typical defects	<ul style="list-style-type: none">• Typical checks and adjustments• Safety issues• Defect reporting
<ul style="list-style-type: none">• Carry out shut down and securing procedures	<ul style="list-style-type: none">• Shut down procedures• Security	<ul style="list-style-type: none">• Parking and positioning
<ul style="list-style-type: none">• Explain the loading and unloading procedures for machine transporting	<ul style="list-style-type: none">• Compatibility• Positioning	<ul style="list-style-type: none">• Security• Types of transporter

Note: The listed training content should not be considered exhaustive and subjects may be added to reflect the individuals' working environment.

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Safety critical

Emphasis to be placed on the following topics:

Topic	Emphasis
• Visibility prior to and during reversing	• Constant and full visibility before and during manoeuvring; types of visibility aids and their limitations and weaknesses
• Materials	• Dealing with binders including powders, limes and cements, slags and ashes etc.
• Loading hoppers	• Dealing with pressurised vessels and equipment
• Spreading in high winds	• Effects on other when spreading materials in high winds

Note:

1. Although not covered within the training syllabus and assessment process as it is recognised as an ancillary duty, it is recommended that formal specific training in use of silos and the loading of hoppers of at least four hours duration is undertaken accordingly for those involved in such operations.
2. To ensure clear segregation from the CPCS agricultural tractor category, towed stabilisers using an agricultural-based tractor are regarded as specialist pre-configured units designed for carrying out a specified activity. The training syllabus and testing process does not include the connection and disconnection of the rotor unit to the tractor.

Duration / Ratios

To allow effective learning, these training times are recommended for this category. Candidates must be profiled to establish learning needs. Durations should be of a length to ensure the learning outcomes are met.

Experience	Accumulated hours
• Novice operators with no industry or machine experience	56 (21*)
• Novice operators with industry experience but no machine experience	35 (14*)
• Operators with unrelated machine experience	21 (7*)
• Operators with similar machine experience	14 (7*)

All candidates must have received the equivalent to 7 hours of site safety and induction training

To allow effective learning, the listed candidate / machine / instructor ratio is the maximum recommended for this category

4 candidates : 2 machines: 1 instructors

* relates to Endorsement C

Resources

Practical equipment	Theory equipment
<ul style="list-style-type: none">• Soil stabiliser or spreader that meets current legislation• Operator's manual for the machine(s)• Sufficient area of ground suitable for incorporating or spreading materials• Slopes and uneven ground• Materials for incorporation or spreading	<ul style="list-style-type: none">• PUWER 1998 Regulations• HSE GS6• COSHH Data Sheets• Operator's Manual• Specifications for types of stabilisers and spreaders
PLUS <ul style="list-style-type: none">• Suitable PPE• Risk assessment for all areas where training is occurring	PLUS <ul style="list-style-type: none">• Suitable room for theory training purposes• Welfare and rest facilities during training

Category

Category description and types

CPCS defines a category as an item of plant or equipment used within the construction or allied industries and worked in accordance with the manufacturer's basic design. Although this category can have varying uses within industry and used with many attachments, for CPCS training and assessment standards, the descriptions reflect basic core use.

To identify a machine within this category, a typical soil stabiliser would normally have the listed features and be used within the described characteristics.

Category features	Category characteristics
<ul style="list-style-type: none">• Purpose-built ride-on units - Multi-wheeled rigid chassis containing a centrally mounted operating position, and power, transmission, hydraulic and electrical units• Underslung rotor unit fitting within a mixing chamber, driven and able to be raised and lowered hydraulically• Agricultural-based tractor drawn units – towed unit containing a rotor unit fitting within a mixing chamber, driven hydraulically and/or using the tractor PTO system and able to be raised and lowered	<ul style="list-style-type: none">• Able to travel in forward and reverse and change direction during travel by, in most cases, using a range of steering modes• Can travel and operate on uneven and loose ground and slopes• Can carry out soil incorporation and in-situ regeneration duties in a range of soils to various depths• Levels mixed materials to specification• Spreads a range of materials in preparation of incorporation activities

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Endorsements

Endorsement characteristics

- **Endorsement A:** Self Propelled – purpose-built ride-on units that mixes, or mixes and spreads materials with soils
- **Endorsement B:** Towed – towed unit (using agricultural tractor-base) that mixes, or spread and mixes materials with soils
- **Endorsement C:** Spreader Self Propelled – purpose-built for spreading materials for mixing units

Note:

1. To ensure clear segregation from the CPCS Agricultural Tractor category (A33), towed stabilisers using an agricultural-based tractor (Endorsement B) are regarded as specialist pre-configured units designed for carrying out a specified activity.
2. There are no concessions to those holding certification for the CPCS category of Agricultural Tractor (A33).