

## Applying marine coatings manually

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### Overview

This standard identifies the competences you need to apply marine coatings to various substrates, using brushes or rollers, in accordance with approved procedures. You will be required to access the appropriate contractual and other specifications, to check that these are of the latest issue and to extract all necessary information in order to carry out the coating operations. You will be required to check that all surfaces to be coated have been prepared in accordance with the process specification and that any necessary exclusion, containment, masking, protection and ventilation requirements are implemented. You will be expected to select the appropriate brushes and/or rollers and to ensure that they are fit for purpose. You will be expected to apply a variety of coatings in a number of shipyard and onboard environments.

Your responsibilities will require you to comply with organisational policy and procedures for the brush or roller coating activities undertaken and to report any problems with these activities that you cannot personally resolve, or are outside your permitted authority, to the relevant people. You will be expected to work with a minimum of supervision, taking personal responsibility for your own actions and for the quality and accuracy of the work that you carry out.\* \*

Your underpinning knowledge will provide a good understanding of your work and will provide an informed approach to applying liquid marine coatings by brush or roller. You will understand the coating procedures and techniques used and their application. You will know about the substrates, their preparation requirements, coating materials and their preparation requirements, in sufficient depth to provide a sound basis for carrying out the activities, correcting faults and for ensuring that the coated surfaces are to the required standards and to the customer's expectations.

You will understand the safety precautions required when carrying out the brushing or rolling operations. You will be required to demonstrate safe working practices throughout and will understand the responsibility you owe to yourself and to others in the workplace.

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### Performance criteria

#### You must be able to:

1. work safely at all times, complying with health and safety and other relevant regulations, directives and guidelines
2. ensure the material surfaces to be treated are suitably prepared for the finishing operations to be carried out
3. check that the finishing equipment and coatings are set up and maintained at satisfactory operating conditions and levels
4. carry out the treatment process in accordance with operating procedures and the component specification requirements
5. ensure that the treated workpiece achieves the required characteristics and meets the finishing specification
6. deal promptly and effectively with problems within your control and report those that cannot be solved
7. dispose of waste and excess materials in line with agreed organisational procedures
8. shut down the finishing equipment to a safe condition on completion of the processing activities
9. complete relevant documentation in line with organisational procedures

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## Knowledge and understanding

## You need to know and understand:

1. the safe working practices and procedures to be observed when working with marine coatings (such as general workshop and site safety; appropriate personal protective equipment (PPE); protecting other workers from the effects of the work, safety in enclosed/confined spaces, working at height, use of mobile elevated work platforms (MEWPs), atmospheric controls)
2. how to recognise and deal with emergencies and the procedures to be followed (such as methods of safely evacuating and closing down of compartments in the case of fire or other major incident, first aid, fire fighting and resuscitation of personnel)
3. statutory requirements, risk assessment procedures and relevant requirements of HASAWA, COSHH, (such as The Management of Health and Safety at Work Regulations, The Provision and use of Work Equipment Regulations; The Confined Space Regulations; The Special Waste Regulations; The Pollution Prevention and Control Regulations; The Water Resources Act)
4. the hazards associated with the storage of, the preparation of, and the disposal of marine coating products (including the information to be found in manufacturers' data sheets and in Chemical Hazard Information and Packaging for Supply (CHIPS) data sheets)
5. the requirements for working in confined spaces and the importance of emergency procedures and safe systems of work (including permits to work, Required Air Quantities (RAQs) and local exhaust ventilation (LEV)) to maintain safe conditions; the provision of adequate and safe lighting and avoidance of sources of ignition
6. the personal protective equipment (PPE) to be worn during the coating activity
7. the characteristics of and the applications for, marine coatings products (including the use of manufacturers' data sheets, requirements for the application of particular coating systems and contractual specifications)
8. the need to ensure that the substrates have been prepared correctly for the coatings to be applied
9. the importance of maintaining appropriate environmental conditions for the application and curing of the marine coating products
10. the time intervals that are required between coats and why these must be adhered to
11. the procedures for the handling and safe use of coating materials and solvents
12. the use of paint thinners to adjust the viscosity of the product being applied
13. selection of the application equipment, to suit the materials and the finish required (to include brushes, rollers, paint pads, suitable containers)

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14. the techniques required to avoid defects arising from application errors or problems for the application of marine coating products to a variety of surfaces
15. the correct use of stripe coating
16. the requirements for working afloat, on outer bottoms and at heights
17. the procedure to contain and to clear away spillages and the safe and appropriate disposal of waste materials
18. the identification of faults in application and their causes and correction
19. simple non-destructive testing procedures to ensure that colour, gloss, adhesion and other required performance qualities are achieved
20. the extent of your own responsibility and whom you should report to if you have problems that you cannot resolve

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### Scope/range related to performance criteria

1. Ensure that the appropriate measures are implemented before commencing application of the coatings, to include carrying out all of the following:
  - 1.1. use appropriate health and safety documentation, including CHIPS data and risk assessments
  - 1.2. wear appropriate personal protective equipment (PPE) at all times during the coating operations
  - 1.3. ensure that appropriate exclusion zones and containment facilities are set up
  - 1.4. confirm that appropriate emergency arrangements are in place for any confined space or hazardous work (where applicable)
  - 1.5. ensure that brushes, rollers and other tools are correctly prepared for the paint application operations
  - 1.6. carry out masking up and provide weather protection for the areas to be coated
  - 1.7. provide a suitable means for curing the coating (such as heating, air supply to assist curing)
  - 1.8. leave the work area in a safe and clean condition on completion of the activities
2. Apply coatings, by brush or roller, to marine structures incorporating six of the following features:
  - 2.1. corners (such as outside corners, edges, 'obscured' corners)
  - 2.2. vertical flat surfaces
  - 2.3. horizontal flat surfaces
  - 2.4. inclined surfaces
  - 2.5. overhead surfaces
  - 2.6. curved surfaces
  - 2.7. round parts
  - 2.8. slender components
  - 2.9. small vertical surfaces
3. Apply coatings, by brush or roller, in six of the following situations:
  - 3.1. confined spaces (such as tanks, voids, double bottoms)
  - 3.2. internal spaces
  - 3.3. at height
  - 3.4. weatherwork
  - 3.5. outer bottoms
  - 3.6. weather decks**
  - 3.7. machinery
4. Apply stripe coatings to all of the following:
  - 4.1. corners/outside corners
  - 4.2. 'obscured' corners and edges
  - 4.3. edges
  - 4.4. welds
5. Apply marine coatings in both of the following environments:
  - 5.1. ashore
  - 5.2. afloat
6. Apply coatings to all of the following substrates:
  - 6.1. uncoated ferrous material
  - 6.2. uncoated non-ferrous material
  - 6.3. previously coated ferrous material

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6.4. previously coated non-ferrous material  
plus one pair of materials from the following:

- 6.5. uncoated composite material
- 6.6. previously coated composite material
- 6.7. uncoated compliant polymers
- 6.8. previously coated compliant polymers
- 6.9. other uncoated materials
- 6.10. uncoated wood
- 6.11. previously coated wood
- 6.12. other coated materials

7. Apply three of the following marine coatings:

- 7.1. holding primer (touch up)
- 7.2. solvent based epoxies
- 7.3. water based acrylics
- 7.4. anti-fouling coatings (touch up)

plus two more from the following:

- 7.5. alkyds/silicone alkyds
- 7.6. bituminous paints
- 7.7. vinyl tar paints
- 7.8. tar epoxy paints
- 7.9. shop primer (touch up)
- 7.10. non-skid deck paints
- 7.11. chlorinated rubber paints
- 7.12. two component polyurethane paints
- 7.13. zinc ethyl silicate paints
- 7.14. mastics

8. Apply coatings manually, using the appropriate techniques to achieve all of the following:

- 8.1. correct film thickness
- 8.2. smooth surface free from runs or drips
- 8.3. uniform and complete coverage of the surface to be coated
- 8.4. correct gloss level (where appropriate)

9. Check coating thickness using one of the following methods:

- 9.1. wet film thickness gauge (combs)
- 9.2. dry film thickness gauge (cured coating)

10. Apply coatings to components, in accordance with one of the following standards:

- 10.1. BS or ISO standards and procedures
- 10.2. customer (contractual) standards and requirements
- 10.3. company standards and procedures
- 10.4. paint/covering manufacturer's recommendations
- 10.5. recognised compliance agency/body's standards

11. Reinstate the work area on completion of the manual coating activities, to include carrying out all of the following:

- 11.1. cleaning all brushes, rollers and containers and returning all tools and excess materials

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11.2. removing protection and exclusion arrangements (if no longer required)

11.3. completing all relevant documentation (such as condition/pre- treatment of substrates, coating material preparation, equipment settings, confirmation of standard of finish)

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### Behaviours

#### **Behaviours:**

You will be able to apply the appropriate behaviours required in the workplace to meet the job profile and overall company objectives, such as:

- strong work ethic
- positive attitude
- team player
- dependability
- responsibility
- honesty
- integrity
- motivation
- commitment



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