

## Inspecting surface coatings on yachts and boats

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### Overview

This standard identifies the competences you need to inspect yacht or boat surface coatings to establish the condition, rectification requirements and compliance with contractual specifications. You will be required to access the appropriate contractual and other specifications and to extract all information necessary to carry out the inspection activities. You will be required to check that all stages of the surface preparation and coating application processes have been completed, in accordance with the process specification. The inspection methods used will include both visual observation and the use of a range of measuring instruments and gauges. You will be expected to select the appropriate inspection equipment to use and to ensure that it is correctly maintained and adjusted. You will be expected to inspect a variety of surfaces and a variety of coatings, in a number of boatyard environments. You will also be expected to produce a complete and comprehensive report, detailing the condition of the coated yacht or boat structure.

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

Your underpinning knowledge will show a good understanding of your work and will provide an informed approach to the inspection of yacht or boat surface coatings. You will know about substrates and their preparation requirements, coating materials and their application requirements, in sufficient depth to provide a sound basis for carrying out the activities, identifying defects, recommending corrective action and for ensuring that the coated surfaces are to the required standards. Compiling accurate and legible reports will be a key issue in completing this standard.

You will understand the safety precautions required when carrying out the inspection activities and when using the associated tools and equipment. You will be required to demonstrate safe working practices throughout and will understand the responsibility you owe to yourself and others in the workplace.

## Performance criteria

### You must be able to:

1. work safely at all times, complying with health and safety legislation, regulations, directives and other relevant guidelines
2. follow the correct specification for the product or equipment being inspected
3. use the correct equipment to carry out the inspection
4. identify and confirm the inspection checks to be made and acceptance criteria to be used
5. carry out all required inspections as specified
6. identify any defects or variations from the specification
7. complete relevant documentation in line with organisational procedures
8. deal promptly and effectively with problems within your control and report those that cannot be solved

## Knowledge and understanding

### You need to know and understand:

1. the safe working practices and procedures to be observed when inspecting surface preparation and yacht or boat surface coatings (such as general workshop and site safety, 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. the statutory requirements, risk assessment procedures and relevant requirements of HASAWA, COSHH (such as Approved Codes of Practice (ACOP), The Management of Health and Safety at Work Regulations, The Provision and use of Work Equipment Regulations, The Noise at Work Regulations, the Confined Space Regulations)
4. the hazards associated with the use of surface preparation equipment and with the application and curing of yacht or boat surface coatings (such as the information in manufacturers' data sheets and in Chemicals Hazard Information and Packaging for Supply (CHIPS) data sheets)
5. the use of appropriate personal protective equipment (PPE)
6. the importance of adequate and safe lighting
7. the importance of avoiding exposure to hazards while witnessing paint application
8. the characteristics of and the applications for, yacht or boat coating products (including the use of manufacturers' data sheets, and requirements for the application of particular coating systems in order to comply with contractual specifications)
9. the characteristics of and the requirement for surface preparation standards
10. how to carry out currency/issue checks of the specifications you are working with
11. the importance of appropriate environmental conditions for the application and curing of yacht or boat coating products
12. the importance of using recommended methods of application for the particular coating systems and of complying with overcoating intervals
13. the types of defect to be found in both newly applied and in existing paint systems and their causes
14. the importance of complete and comprehensive inspection (including obscured areas and areas of difficult access)
15. the requirements for working in confined spaces and the importance

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- 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
16. the requirements for working afloat, on outer bottoms and at height
  17. the types of inspection equipment available and the use of the inspection equipment
  18. the limitations of your knowledge and of the types of inspection equipment available to you and the need to seek further (such as laboratory) assistance
  19. the particular importance of ensuring that tank coatings are cured and any solvents released
  20. basic quality control requirements and the importance of producing comprehensive reports to demonstrate compliance with contractual requirements
  21. why is it important to keep the inspection equipment clean and free from damage, to practice good housekeeping of tools and equipment and to maintain a clean and tidy working area
  22. the defects that occur in the yacht or boat coatings and how they can be identified
  23. how to carry out the inspection checks of the coatings
  24. the level of defects that are acceptable in the coatings
  25. why is it critical that records of inspected coatings are accurate, comprehensive and maintained legibly
  26. 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. Carry out all of the following during the inspection of the yacht or boat surface coatings:
  - 1.1. adhere to procedures or systems in place for risk assessment, COSHH, CHIPS data, personal protective equipment and other relevant safety regulations
  - 1.2. use the correct contractual specifications and documentation
  - 1.3. check that all inspection equipment required is available, fit for use and within calibration certification (where applicable)
  - 1.4. confirm any exclusion or safe working distance requirements for the operations in progress
  - 1.5. confirm that confined spaces are safe to enter
  - 1.6. confirm that appropriate emergency arrangements are in place for any confined space or other hazardous work
  - 1.7. confirm that any lighting required is adequate and safe
  - 1.8. apply safe and appropriate working practices and procedures at all times
  - 1.9. complete all quality assurance and other documentation required
  - 1.10. leave the work area in a clean and safe condition on completion of the activities
2. Inspect previously painted surfaces, to determine all of the following:
  - 2.1. general condition (such as adhesion, percentage break down of coating, colour, gloss) of coating
  - 2.2. film thickness
  - 2.3. areas of corrosion (where applicable)
  - 2.4. remedial action required (including overcoating procedures)
3. Inspect prepared surfaces to confirm the readiness for coating, to include all of the following:
  - 3.1. surface cleanliness (such as freedom from oil/grease/salt contamination)
  - 3.2. surface profile
  - 3.3. compatibility of surface condition of existing coatings with coatings to be applied
  - 3.4. application of stripe coatings (where required)
4. Inspect coated surfaces to determine all of the following:
  - 4.1. correct coating system has been applied
  - 4.2. overcoating conditions are correct (such as inter-coat inspections)
  - 4.3. coatings are of specified thickness (including specified thickness distribution, especially at edges and around holes)
  - 4.4. coatings are applied without surface defects (such as spray dust, orange peeling, pinholing, runs, holidays)
  - 4.5. adequate adhesion/cohesion
5. Inspect yacht or boat structures, to include all of the following features:
  - 5.1. structural sections
  - 5.2. structural joints
  - 5.3. vertical flat surfaces
  - 5.4. inclined surfaces
  - 5.5. curved surfaces
  - 5.6. pipes and slender components
  - 5.7. horizontal flat surfaces, including overhead surfaces
  - 5.8. corners (such as outside corners, obscured corners and edges)
6. Carry out required inspection in six of the following situations and produce comprehensive reports:
  - 6.1. outer bottoms
  - 6.2. hull bottoms

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- 6.3. internal spaces
  - 6.4. machinery items
  - 6.5. cargo holds
  - 6.6. accommodation spaces
  - 6.7. covered exteriors
  - 6.8. exposed exteriors
  - 6.9. machinery spaces
  - 6.10. weather decks
  - 6.11. confined spaces (such as tanks, voids, double bottoms)
7. Carry out required inspection for all of the following applications:
- 7.1. surface preparation
  - 7.2. the application of coatings
  - 7.3. the curing of coatings
- and check, monitor and record all of the following:
- 7.4. air temperatures
  - 7.5. air humidity/dew point
  - 7.6. surface temperature
  - 7.7. viscosity of coating (where required)
  - 7.8. temperature of liquid coating (where appropriate)
  - 7.9. airflow
  - 7.10. hardness of fairing (where required)
8. Use a range of measuring instruments, to include ten of the following:
- 8.1. sling psychrometer
  - 8.2. dew point calculator
  - 8.3. surface thermometer
  - 8.4. wet film thickness gauge
  - 8.5. dry film thickness gauge
  - 8.6. camera
  - 8.7. humidity meter
  - 8.8. shore D gauge
  - 8.9. gloss meter
  - 8.10. syringe and sample bottle
  - 8.11. thermograph adhesion tester
  - 8.12. magnifier/pocket microscope
  - 8.13. angle mirror
  - 8.14. pH paper
  - 8.15. conductivity meter
  - 8.16. stylus type profile gauge
  - 8.17. pinhole detector
  - 8.18. hull surface roughness analyser
  - 8.19. deck surface coefficient of friction apparatus
  - 8.20. surface salt contamination sampler
  - 8.21. set of sieves (for distribution of grain size in abrasives)
  - 8.22. surface preparation standards (such as photographic, comparator)
9. Carry out inspections of unpainted and painted yacht or boat surfaces, in accordance with one of the following:

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- 9.1. BS or ISO standards and procedures
- 9.2. company standards and procedures
- 9.3. paint/covering manufacturer's recommendations
- 9.4. customer (contractual) standards and requirements recognised compliance agency/body's standards (such as Lloyds, Boat Safety Scheme, BMEA Code)
- 9.5. other accepted international standards

## 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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