

Overview

This standard identifies the competences you need to carry out material finishing operations by electroplating methods, in accordance with approved procedures. You will be expected to confirm with the authorised person, such as your immediate supervisor, that the equipment is ready for the plating operations to be performed and that all the required components/materials and consumables are available. You will be required to operate the electroplating equipment, in line with safe working practices and approved procedures, continuously monitoring the plating operations and where necessary, making minor adjustments or seeking help from the authorised person to make the required adjustments, in order to ensure that the work output is to the required quality. Meeting production targets will be an important issue and your production records must show consistent and satisfactory performance. Your responsibilities will require you to comply with organisational policy and procedures for the electroplating 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 to instructions, with a minimum of supervision, taking personal responsibility for your actions and for the quality of the work that you carry out. Your underpinning knowledge will be sufficient to provide a sound basis for your work and will enable you to adopt an informed approach to applying electroplating procedures. You will have an understanding of the electroplating process and its application and will know about the equipment, materials and consumables in adequate depth to provide a sound background for carrying out the activities, recognising and reporting plating defects and ensuring that completed components are to the required specification. You will understand the safety precautions required when working with electroplating equipment and solutions. You will be required to demonstrate safe working practices throughout. You will also understand your responsibilities for safety and the environment and the importance of taking the necessary safeguards to protect 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 work instructions and specifications for electroplating operations 3. ensure the material surfaces to be treated are prepared for the finishing operations 4. check that the finishing equipment and treatment solutions are set up and maintained at satisfactory operating conditions and levels 5. carry out the treatment process following operating procedures and to meet the component specification 6. ensure that the treated workpiece achieves the required characteristics and meets the finishing specification 7. deal promptly and effectively with problems within your control and report those that cannot be solved 8. ensure that work records are completed, stored securely and available to others, as per organisational requirements 9. leave the work area in a safe condition on completion of the activities, as per organisational and legal requirements

Knowledge and understanding

You need to know and understand:

1. the specific safety precautions to be taken whilst carrying out the activities (including any specific legislation, regulations or codes of practice relating to the activities, equipment or materials) 2. the health and safety requirements of the work area and the activities, and the responsibility these requirements place on you 3. the hazards associated with the activities, and how to minimise them and reduce risks 4. the personal protective equipment and clothing (PPE) to be worn during the activities 5. how to obtain and interpret the production documentation required during the electroplating activity 6. the basic principles of the operation of electroplating equipment 7. the visual checks to be made on components prior to electroplating 8. the pre-treatments to be carried out on components prior to electroplating 9. the methods used to hold/secure components during the electroplating process 10. the methods used for masking off areas to be free of plated deposits 11. the importance of monitoring the equipment settings and process solutions during the electroplating process 12. how to make additions to process solutions 13. the types of adjustment that can be made to equipment settings to maintain component quality 14. how to identify electroplating processing faults (including blistering, missed plating, dull deposits, contamination, poor adhesion and roughness) 15. the basic quality checks to be carried out on electroplated components 16. how to remove contaminants from plating solutions (including the checking and maintenance of filters) 17. the importance of keeping the plant and equipment clean 18. the procedure for the safe disposal of waste materials 19. how to pack and store finished components to avoid damage 20. the importance of completing the production documentation throughout the electroplating process 21. the extent of your own responsibility, and whom you should report to if you have problems that you cannot resolve 22. how to access, use and maintain information to comply with organisational requirements and legislation

Scope/range related to performance criteria

1. Apply electroplating, carrying out all of the following activities:

1. use the correct issue of process documentation (such as specifications, job cards, quality control documentation)
2. adhere to health and safety regulations, systems and procedures to realise a safe system of work
3. confirm with the authorised person that the plant is ready for carrying out the plating operations
4. maintain sufficient quantities of process materials and components during the production cycle
5. seek any necessary instructions and training on the operation of the plating equipment
6. follow the defined operating procedures ensure that the equipment settings and process solutions are adjusted (either by yourself or the authorised person) to maintain the correct customer specification
7. leave the work area in a safe and clean condition

2. Apply the electroplating process to one of the following types of substrate:

1. mild steel
2. brass
3. aluminium
4. zinc based die castings
5. stainless steel
6. copper
7. plastics
8. other specific material

3. Apply finishes using one of the following electroplating processes:

1. copper
2. gold
3. platinum
4. silver
5. cadmium
6. other specific processes

4. Carry out five of the following activities during the electroplating process:

1. segregate any defective components or batches (pre and post plating)
2. carry out pre-treatments (de-greasing, cleaning, rinsing, pickling)
3. load components safely into plant
4. monitor solutions and process settings (time, levels temperature, current)
5. make adjustments to solutions or process settings
6. masking
7. jigging
8. wiring
9. change/maintain filters

5. Identify all of the following types of defects in electroplated components:

1. blistering
2. dull deposits
3. missed plating
4. metallic/organic contamination
5. poor coating adhesion
6. roughness
7. freedom from damage
8. freedom from contamination
9. surface quality/appearance
10. completeness of plating operations
11. thickness of coating
12. brittleness of plating deposit
13. bend test (such as manual or mechanical)
14. adhesion of plating to substrate

7. Carry out three of the following completion activities:

1. check that components are dry before packing
2. place components in the specified container/area
3. store components in the correct quantities/weight
4. use the correct packaging so as to avoid damage
5. complete the production documentation
6. place all labels/production documentation in the specified location
7. clean the tools and equipment

8. Check electroplating applied to components complies with one of the following quality and accuracy standards:

1. military or aviation
2. current industry standards or codes of practice
3. international standards
4. company standards and requirements
5. customer standards and requirements

Carrying out electroplating operations

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