SEMEEE309

Adjusting and sustaining semiconductor processes

Overview

This standard identifies the competences you need to adjust and sustain semiconductor-manufacturing processes, in accordance with approved procedures. You will be required to access the appropriate specifications, to check that they are of the latest issue and to extract all necessary information, in order to adjust and sustain a wafer fabrication or die assembly/test process. You will be expected to carry out a range of general support tasks, to use appropriate process adjustment methods and to report and record data on your work in suitable form such as charts, tables and narrative. You will be expected to use approved organisational procedures for adjusting and sustaining semiconductor processes and you will be expected to communicate the details of your activities to the relevant people.

Your responsibilities will require you to comply with organisational policy and procedures for adjusting and sustaining the semiconductor processes and to report any problems with these processes 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 full responsibility for your own actions and for the quality and accuracy of the work that you undertake.

Your underpinning knowledge will provide a good understanding of your work and will provide an informed approach to adjusting and sustaining semiconductor manufacturing processes. You will understand the organisational requirements and procedures for adjusting and sustaining the semiconductor processes and their application and you will know about the semiconductor processes being adjusted/sustained, in adequate depth to provide a sound basis for carrying out the activities, correcting out-of-specification processes and ensuring that the output is to the required specification.

You will understand the safety precautions required when working in a semiconductor-processing environment and with the associated 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:

P1 work safely at all times, complying with health and safety and other relevant regulations, directives and guidelines

P2 set up the equipment using defined procedures and operating procedures for the products or assets being configured

P3 ensure that all operating parameters are achieved

P4 deal with problems within your control and report those that cannot be solved

P5 check that the configuration is complete and that the adjusting and sustaining semiconductor processes are meeting specifications

P6 complete and store all relevant documentation in accordance with organisational requirements

P7 leave the work area in a safe condition on completion of the activities, as per organisational requirements

Knowledge and understanding

You need to know and understand:

K1 how to work safely at all times, complying with health and safety and other relevant regulations, directives and guidelines

K2 the importance of wearing the appropriate personal protective equipment (PPE), and of keeping the work area clean and tidy

K3 what constitutes a hazardous voltage and how to reduce the risks of a phase to earth shock

K4 how to obtain the authority to enter the relevant work areas and any specific permit-to-work procedures that are used

K5 the configuration and operating specifications that are used for adjusting and sustaining equipment in the wafer processing or die assembly/test area

K6 how to obtain and use process specifications and/or equipment manuals and specifications, for adjusting and sustaining wafer processing or die assembly/test processes

K7 the basic operating principles of the semiconductor processes and how they relate to the area being adjusted/sustained

K8 how the principal areas of a semiconductor facility function within the overall spectrum of device fabrication/die assembly and test processes

K9 the organisational procedures for undertaking the prescribed adjusting/sustaining activities and how to implement them in the given work area

K10 the importance of carrying out the activities without causing unnecessary disruption to the manufacturing activities

K11 the formats and levels of detail required, for recording and reporting adjusting/sustaining activities and their outcomes

K12 the issues that can occur as a result of adjusting/sustaining activities and how they can be avoided

K13 the extent of your own responsibility and to whom you should report if you have problems that you cannot resolve

K14 how to access, use and maintain information to comply with organisational requirements and legislation

Scope/range related to performance criteria

1. Carry out all of the following during the adjusting and sustaining activities:
   1.1 use the correct issue of drawings, job instructions and specifications
   1.2 adhere to health and safety regulations, systems and procedures to realise a safe system of work
   1.3 follow clean room/work area protocols
   1.4 comply with organisational procedures
   1.5 store records in accordance with appropriate procedures
2. Adjust and sustain one of the following wafer processing or die assembly/test area processes:
   2.1 photolithography
   2.2 final inspection/probe
   2.3 mould
   2.4 etching (wet or dry)
   2.5 wafer saw
   2.6 trim/form
   2.7 diffusion
   2.8 die fix
   2.9 debled mark/plate
   2.10 deposition
   2.11 wire bond
   2.12 test
   2.13 implantation
   2.14 other process (specify)
3. Adjust and sustain semiconductor processes, taking account of all of the following:
   3.1 organisational requirements (such as batch size, instructions and guidelines)
   3.2 customer requirements
   3.3 equipment/process guidelines/specifications/process recipe/instructions
   3.4 frequency of adjustments required
   3.5 characteristics and complexity of the semiconductor processes being adjusted/sustained

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