

## Overview

This standard identifies the competences you need to prepare for and start the Semiconductor Manufacturing Process (SMP) in accordance with approved procedures. You will be required to use appropriate work instructions and information to prepare the equipment/materials and safely start the SMP that will culminate in the production of a finished product.

The SMPs relevant to this standard are:

- Oxidation
- Photolithography
- Epitaxy
- Etching
- Deposition
- Doping
- Surface Mount Technology
- Packaging

Your responsibilities will require you to comply with organisational policy and procedures for the work activities associated with the preparation and starting of the semiconductor manufacturing process, and to report any problems with the work activities, equipment (including plant) or materials 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 produce.

You will understand the techniques used, and their application, in adequate depth to provide a sound basis for carrying out the activities to the required specification.

You will understand the safety precautions required when carrying out the 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 relevant others in the workplace.

## Performance criteria

### *You must be able to:*

1. access and accurately interpret all work instructions and information relevant to the preparation and starting of the semiconductor manufacturing processes
2. work safely at all times and in accordance with all relevant legislation, guidelines, policies, procedures and protocols
3. deal promptly and effectively with any problems within your control and report those which cannot be solved
4. identify and minimise hazards and risk in the workplace
5. access and gather the appropriate equipment, accessories and components to carry out the work activities
6. wear PPE in accordance with organisational procedures
7. ensure that the operating parameters are established
8. check that the work area and equipment to be used are in a safe and functional condition
9. check that the materials to be used are of the correct identity, quality and amount so that processing can begin
10. begin operation and operate equipment safely
11. deal with deviations from the specified parameters promptly, minimising loss and damage
12. communicate, if required, with relevant others
13. complete and store all relevant documentation in accordance with organisational procedures
14. dispose of waste in accordance with organisational procedures
15. leave the work area in a safe condition on completion of the work activities in accordance with organisational procedures

## Knowledge and understanding

### *You need to know and understand:*

1. the current legislation, guidelines, policies, procedures and protocols which are relevant to your work practice and to which you must adhere
2. the scope and limitations of your own competence, responsibilities and accountability as it applies to your job role
3. how to access and interpret all relevant work instructions and information relevant to the preparation and starting of the semiconductor manufacturing processes
4. specific procedures for reporting issues which are beyond your competence, responsibilities and accountability
5. the duty to report any acts or omissions that could be unsafe/detrimental to you or relevant others
6. the hazards and risks which may arise during the execution of your work role and how you can minimise these
7. how to select, put on and remove PPE
8. the correct use of equipment to protect the health and safety of you and relevant others
9. how to obtain the authority to enter the relevant work areas and any specific permit-to-work procedures that are used
10. the origin and principles of the Semiconductor manufacturing process and how they work
11. the meaning of terms used in operating instructions
12. how to interpret and check operating parameters
13. the functions and uses of the different types of equipment, accessories, materials and components used in the operation
14. the importance of confirming status of equipment
15. why it is important to check the materials against specification
16. how to deal with deviations from the norm
17. why it is important to minimise loss and damage
18. the importance of communication and keeping relevant others informed during the operation
19. how to handle equipment safely in ways that protect yourself and relevant others from risk
20. when it may be important to observe issues around security and confidentiality
21. the procedures and methods relating to the coordination of individuals and teams

within and across services

22. how to dispose of waste in accordance with organisational procedures

23. how to complete and safely store all relevant documentation in accordance with organisational procedures

SEMSEC301

Prepare and start the Semiconductor Manufacturing Process



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**Scope/range related to performance criteria**