



**Australian Government**

**Assessment Requirements for PMAOPS311  
Operate and troubleshoot reactors and  
reaction equipment**

**Release: 1**

# Assessment Requirements for PMAOPS311 Operate and troubleshoot reactors and reaction equipment

## Modification History

Release 1. Unit code and title changed. Application and Performance Criteria changed. Range of Conditions removed. Assessment Requirements changed. Supersedes and is equivalent to PMAOPS302 Operate reactors and reaction equipment.

## Performance Evidence

There must be evidence the candidate has completed the tasks outlined in the elements and performance criteria of this unit:

- at least 2 times, each in a separate work context.

## Knowledge Evidence

There must be evidence the candidate has knowledge of:

- all items on a schematic of the reactor unit, including:
  - type of reactor, the component plant items and their functions
  - troubleshooting of major components
  - principles of operation of plant and equipment
  - operating parameters and integrity limits including temperature, pressure, flow and pH
  - procedures for starting, stopping, operating, controlling and isolating the reactor
  - basis of the process used in the reactor to cause chemical reaction
  - methods of controlling the reaction rate and yield, and the advantages and disadvantages of each
  - impact of external factors (including variations in weather and feed)
  - interactions between plant items and processes
- physics and chemistry to the level of being able to provide an overview of the science of the reactor process
- the nature and condition of materials at each stage of the reaction, the changes which have occurred in that stage and why they have occurred
- the reaction in chemical terms and equations, including the effect of changing reaction variables (including temperature, pressure, catalyst, concentration and pH)
- product specifications and tolerances
- reactor and reaction equipment abnormal situations and required actions, including but not limited to:
  - variations in catalyst activity
  - control of exotherm/endothrm
  - adjustments to meet product specifications
  - variations in feed rates and quality

- raw materials variations
- instrument failure and wrong reading
- equipment failure (electrical and mechanical)
- mechanical failure
- operational problems
- hierarchy of control
- reactor hazards:
  - possible causes
  - potential consequences
  - appropriate risk controls
  - reporting and escalation procedures.

## Assessment Conditions

Skills must have been demonstrated in the workplace or in a simulated environment that reflects workplace conditions and contingencies. The following conditions must be met for this unit:

- use of suitable facilities, equipment and resources, including:
  - reactors and reaction equipment
  - operating procedures
- abnormal situations must be relevant to reactors and reaction equipment.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

## Links

Companion Volume implementation guides are found in VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=9fc2cf53-e570-4e9f-ad6a-b228ffdb6875>