



Australian Government

NWPTRT022 Monitor and operate hypochlorite disinfection processes

Release: 1

NWPTRT022 Monitor and operate hypochlorite disinfection processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to monitor and operate hypochlorite disinfection processes.

It includes monitoring hypochlorite disinfection systems and reporting on process quality control. It also includes working safely with, transporting and storing sodium hypochlorite solution or calcium hypochlorite solids and implementing emergency response procedures.

This unit applies to operational staff with specific responsibility for hypochlorite disinfection systems in water or wastewater treatment plants. Those undertaking this unit would work under appropriate supervision, while performing routine tasks, in a range of familiar contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Treatment

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare for work

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Determine work requirements from job specifications

- and plans
- 1.2 Select and check equipment and hypochlorite supplies to meet safety requirements of task and worksite
 - 1.3 Select, fit and use required safety equipment, including personal protective equipment (PPE)
 - 1.4 Handle and store hypochlorite chemicals to maximise shelf life and reduce loss of available chlorine
 - 1.5 Conduct the percentage available chlorine test according to workplace procedures
- 2 Monitor processes**
- 2.1 Monitor hypochlorite disinfection processes according to workplace procedures
 - 2.2 Collect process samples and conduct standard tests according to workplace procedures
 - 2.3 Make process adjustments to maintain effectiveness of hypochlorite disinfection
 - 2.4 Monitor the parameter set points for critical control points and operational control points
- 3 Apply chemical dosing**
- 3.1 Prepare and apply hypochlorite chemicals
 - 3.2 Control hypochlorite dosing to maintain required chlorine residual
- 4 Complete documentation**
- 4.1 Maintain information relating to hypochlorite supply and usage
 - 4.2 Collect, record and complete process data according to workplace procedures and process requirements
 - 4.3 Identify data outside of normal operational parameters and report to relevant personnel for further action

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work

environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPTRT052 Operate and control hypochlorite disinfection processes.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Assessment Requirements for NWPTRT022 Monitor and operate hypochlorite disinfection processes

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Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- collecting and reporting process data
- identifying and responding to process faults
- identifying hazards
- interpreting and following safety data sheets
- monitoring, operating and reporting on hypochlorite disinfection systems
- performing at least one of the following concentration tests:
 - calcium hypochlorite
 - sodium hypochlorite solution
- performing chlorine residual sampling and testing
- performing process calculations including at least one of the following:
 - Ct calculation dosage
 - feed rate
- preparing and applying hypochlorite dosing safely
- selecting and using appropriate tools and equipment, including personal protective equipment

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- automatic feed rate control systems
- breakpoint
- chlorine demands including:
 - ammonia
 - iron, manganese and nitrite
 - natural organic matter (NOM)
 - turbidity
- contact time
- disinfection by-products (DBP)

- effects of pH, time, temperature, UV exposure and impurities on hypochlorite breakdown
- hypochlorite dosing system layout for sodium hypochlorite or calcium hypochlorite dosing systems
- impact of pH
- microbiological guidelines
- properties and chemistry of hypochlorite chemicals
- reactions with water to produce hypochlorous acid/hypochlorite ion
- relevant legislation, regulations and workplace procedures
- risk factors and potential hazards associated with hypo chlorination
- safety data sheets

Assessment Conditions

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

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