

# Level 2 Technical Certificate in Water Treatment and Legionella Control



## WTT1.01 Fundamental Water Chemistry and Associated Problems

### Water sources:

- Water cycle
- How and where water is extracted for use
- What affects the quality of a water source

### Scale:

- Types of scale
- What causes scale
- How scale is formed

### Corrosion:

- Types of corrosion
- What causes corrosion
- How corrosion occurs

### Microbiology:

- What organisms live in water
- What conditions affect the growth of organisms in water

### Water quality measurement:

- pH, hardness and conductivity
- dipslides and specialist testing

### Problems associated with water systems:

- Types of water system
- Materials of construction
- Corrosion and scale
- Microbiological and other fouling

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## WTT3.01 Routine Chemical & Physical Water Treatment

### Scale inhibition:

- Methods of scale inhibition
- How a water softener works
- Maintenance checks for water softeners

### Corrosion inhibition:

- Chemical inhibitors
- Other inhibition methods

### Biofouling inhibition:

- Types of biocide
- Biofilm
- Other methods of control

### Suspended solids

- Types of suspended solids
- Filtration
- Flushing

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## WTT 5.01 Routine Water Testing

### Sampling:

- Environmental and system conditions
- Types of sampling equipment
- Sampling Standards
- Laboratory testing

### Tests:

- pH, conductivity and temperature
- Dipslides
- Laboratory sampling

### Routine testing

- Purpose
- Types of tests
- Value of the results

### Calibration:

- Importance
- pH meter, conductivity meter and thermometers

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## WTT 7.01 Basic Treatment of Domestic Hot & Cold Systems

### Problems:

- Problems caused by scale
- Problems caused by corrosion
- Problems caused by bio fouling
- Importance of temperature control

### Treatment:

- Types of chemical treatment
- Types of physical treatment
- Temperature as a control method
- Regulations and guidance

### Treatment Application:

- Chemical dosing methods
- Chemical tests used

### Monitoring:

- Control tests for hot and cold systems
- Test equipment used
- Sampling equipment used
- Laboratory testing completed

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## WTT 9.01 Basic Treatment of Closed Water Systems

### Problems:

- Problems caused by scale
- Problems caused by corrosion
- Problems caused by bio fouling
- Problems caused by suspended solids

### Treatment:

- Types of chemical treatment
- Types of physical treatment

### Treatment Application:

- Chemical dosing methods
- Chemical tests used
- Specific system chemical parameters

### Monitoring:

- Control tests for closed water systems
- Test equipment used
- Sampling equipment used
- Laboratory testing completed
- Corrosion monitoring

### Cleaning and Flushing:

- When is cleaning and/or flushing required
- Flow rates during the flushing process
- Chemical treatments that can be used
- Filtration methods that can be used

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## WTT 11.01 Basic Treatment of Evaporative Cooling Systems

### Problems:

- Types of cooling system
- Problems caused by scale
- Problems caused by corrosion
- Problems caused by bio fouling
- Problems caused by suspended solids

### Treatment:

- Legionella risk assessment
- Types of chemical treatment
- Types of physical treatment
- Regulations and guidance

### Treatment Application:

- Chemical dosing methods
- Chemical tests used
- Control of system concentration
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- Specific system chemical treatment parameters

### Monitoring:

- Control tests for evaporative systems
- Test equipment used
- Sampling equipment used
- Laboratory testing completed

### Cleaning and disinfection:

- When is cleaning and disinfection required
- Chemical treatments that can be used
- Testing used during the cleaning and disinfection procedure

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## WTT 13.01 Basic Treatment of Steam Generation Plant

### Problems:

- Types and design of Steam Generation Plant
- Common hotwell/feed tank designs
- Problems caused by scale
- Problems caused by corrosion
- Problems caused by priming and foaming

### Treatment:

- Types of chemical treatment
- Types of physical treatment
- Boiler concentration control

### Treatment Application:

- Chemical dosing methods
- Chemical tests used
- Control of system concentration

### Monitoring:

- Control tests for Steam Generation Plant
- Test equipment used
- Sampling equipment used

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## WTT 15.01 Simple Legionella Risk Assessment Surveying

### **Risk Assessments:**

- Regulations and guidance
- Potential risks
- What goes in the Executive Summary
- Types of corrective actions that can be recommended
- Control measures and the management scheme

### **Schematic Drawings:**

- Identification of Sentinel Points
- System elements and fittings to be shown
- Formats for drawings

### **System Design:**

- Sources of water and storage systems
- Problems associated with water storage
- Hot water production and storage
- Water softeners and filters

### **Risk Assessment Outputs**

- Assessment of risk
- The Management Scheme
- Site and system responsibilities

### **Resources required to complete a Survey**

- What equipment may be required
- Access considerations
- What tests may be required
- Sample taking and analysis

## **Course Content**