



MANUFACTURING AND PRODUCTION

Pharmaceutical Water Systems and Utilities Qualification

3 day course

Classroom, online or in-house

Course overview

Water is the largest ingredient in most medicines and the utility most likely to fail an inspection, because a system that produces compliant water on the day of testing can still grow a biofilm that no sampling regime was designed to detect. This course covers designing and running one that does not. Delegates work through water grades and where each is required, from potable through purified water to water for injection. Pretreatment is covered, including filtration, softening and dechlorination. Generation follows across reverse osmosis, electrodeionisation and distillation, with the quality each achieves. Distribution loop design is addressed in detail: velocity, dead legs, slope, drainability and the sanitisation regime that keeps a loop clean. Biofilm formation is treated directly. Monitoring is covered, including conductivity, total organic carbon, endotoxin and microbial testing, with alert and action limits. Clean steam and compressed air are addressed. Qualification and periodic review follow. The course closes on excursion investigation and on the inspection findings these systems attract.

What you will learn

- Select the water grade required for each use
- Design pretreatment for the feed water available
- Compare reverse osmosis, electrodeionisation and distillation
- Design a distribution loop without dead legs or drainage faults
- Prevent and detect biofilm formation
- Monitor conductivity, organic carbon, endotoxin and microbial quality
- Qualify the system, review it periodically and investigate excursions

Who should attend

- Utilities and engineering staff at pharmaceutical plants
- Validation specialists qualifying water systems
- Quality assurance staff reviewing water data
- Microbiologists monitoring utilities
- Project engineers installing purified water systems

Course outline

- 01 Compliant on the day, biofilm underneath
- 02 Water grades and where each is required
- 03 Pretreatment for the available feed
- 04 Reverse osmosis, electrodeionisation and distillation
- 05 Loop velocity, dead legs and drainability
- 06 Sanitisation and biofilm control
- 07 Conductivity, organic carbon, endotoxin and microbial limits
- 08 Clean steam, compressed air, qualification and excursions

Upcoming dates

Dates	Venue	Format	Fee per delegate
30 September to 2 October 2026	Online	Online	R6,500
2 to 4 November 2026	Port Louis, Mauritius	Classroom	USD 995
17 to 19 March 2027	Casablanca, Morocco	Classroom	USD 995



Fees and how to register

This 3 day course is **R6,500** per delegate online, **R14,950** in the classroom in South Africa, Botswana, Namibia, Lesotho and Eswatini, and **USD 995** in the classroom elsewhere in Africa. In-house training is quotation on request. Book 2 or more delegates on this course and save 10%.

To register or request an in-house proposal, visit www.afrisciencegroup.com, email info@afiscience.co.za, or WhatsApp us on **+27 63 479 1136**.

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