



PROCESS AND CHEMICAL ENGINEERING

Chlorination and Disinfection Systems Safety

3 day course

Classroom, online or in-house

Course overview

Chlorine gas is the most hazardous substance most water utilities keep on site, stored in quantity, handled by shift staff and often housed in a building designed decades ago. This course covers operating it safely and dosing it effectively. Delegates work through disinfection chemistry and what actually inactivates pathogens, including the relationship between concentration, contact time and pH. Chlorine gas systems are covered in detail: cylinders and drums, vacuum regulators, injectors and the leak scenarios each presents. Alternatives are addressed, including hypochlorite solution, on site generation and calcium hypochlorite, with the handling issues each brings. Dosing control and residual maintenance through a network follow. Disinfection by products and the balance against microbiological risk are covered. Safety systems are addressed: detection, ventilation, emergency kits and breathing apparatus. Emergency response to a chlorine release is practised. The course closes on storage, on delivery and on the statutory requirements a chlorination site carries.

What you will learn

- Apply concentration, contact time and pH to achieve disinfection
- Operate chlorine gas cylinders, regulators and injectors safely
- Recognise the leak scenarios each part of the system presents
- Handle hypochlorite, on site generation and calcium hypochlorite
- Control dosing and maintain residual through a network
- Balance disinfection by products against microbiological risk
- Maintain detection, ventilation and emergency equipment, and respond to a release

Who should attend

- Treatment plant operators handling disinfection systems
- Utility safety officers
- Maintenance staff working on chlorination equipment
- Water quality and compliance staff
- Supervisors accountable for chlorine storage sites

Course outline

- 01 The most hazardous substance on site
- 02 Disinfection chemistry and pathogen inactivation
- 03 Concentration, contact time and pH
- 04 Gas systems, regulators and injectors
- 05 Leak scenarios
- 06 Hypochlorite and on site generation
- 07 Dosing control, residual and by products
- 08 Detection, ventilation, emergency response and statutory duties

Upcoming dates



Dates	Venue	Format	Fee per delegate
14 to 16 December 2026	Gaborone, Botswana	Classroom	R14,950
23 to 25 December 2026	Online	Online	R6,500
13 to 15 January 2027	Cape Town, South Africa	Classroom	R14,950
20 to 22 January 2027	Maputo, Mozambique	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@afriScience.co.za, or WhatsApp us on **+27 63 479 1136**.

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